

PROJECT INFORMATION DOCUMENT (PID)

APPRAISAL STAGE

Report No: 95481

Project Name	Cunha Canal Rehabilitation Project (P132408)
Region	LATIN AMERICA AND CARIBBEAN
Country	Guyana
Sector(s)	Water, sanitation and flood protection (100%)
Theme(s)	Flood protection (100%)
Lending Instrument	Investment Project Financing
Project ID	P132408
Borrower(s)	Cooperative Republic of Guyana
Implementing Agency	Ministry of Agriculture
Environmental Category	B-Partial Assessment
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Estimated Date of Appraisal Completion	02-April-2015
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Decision	Appraisal PID

I. Project Context

Country Context

Guyana has a land area of approximately 215,000 square kilometers (83,000 square miles) and one of the lowest population densities in the world. Ninety percent of its 800,000 inhabitants live on the narrow coastal plain, which represents 7.5 percent (16,125 square kilometers) of the country's area and lies approximately 1.5 meters below sea level. It is crucial to the economy of the country as it supports the majority of the population, including the nation's capital, Georgetown, and agricultural areas that account for approximately 27 percent of the nation's GDP.

In addition to hosting the majority of the population and providing land for most of the country's agricultural activities, these areas are flood-prone, making the national economy susceptible to the impacts of the country's high seasonal rainfall and storm events. In January 2005 extreme rainfall caused widespread flooding in the coastal lowlands and resulted in an estimated US\$465 million in damages, which amounted to 59% of Guyana's GDP at the time. Other more recent severe rainfall events (e.g. February 2006, December 2008, January 2009, February 2011, and January 2012) have caused economic and livelihood losses, which further highlighted the importance of reducing Guyana's vulnerability to flooding, to foster shared prosperity as an engine for equitable economic growth, job creation and poverty reduction.

Sectoral and institutional Context

Georgetown and the majority of the population is located in Guyana's administrative East Demerara Region 4 (1,843 square kilometers) which is bounded to the north by the Atlantic Ocean, to the west by the Demerara River and to the east by the Mahaica River and Region 5. A sea-wall along the Atlantic Ocean protects the population from coastal flooding whilst a large, shallow, inland water reservoir called the East Demerara Water Conservancy (EDWC) lies inland and prevents storm water from the inland area from the South from entering the reclaimed coastal lands. The EDWC provides flood control during the wet season and provides irrigation water to agricultural lands during the dry season, especially important for rice and sugar production which represents 4.3 and 3.8 percent of the country's GDP respectively. It also provides drinking water to urban areas, The EDWC covers an area 571 km², and stores approximately 250 million cubic meters of water at the maximum safe-operating water level. It is dammed on three sides by a shallow earth embankment 67 km long, lying parallel to the Demerara River, the Atlantic Ocean and Mahaica River. A series of canals controlled by sluices drain water from the EDWC in order to reduce water levels and avoid overtopping or stressing the dams which may increase the risk of structural failure.

Region 4 experiences two wet seasons. During the primary wet season, between May and July, it experiences between 250 and 450 mm per month of rainfall and during the secondary wet season, between November and January, it experiences between 150 and 300 mm per month, with annual total rainfall in Georgetown averaging approximately 2300 mm, and varying between 1400 and 3700 mm per year. During rainfall events, flood protection in Region 4 is dependent upon both the integrity of the EDWC dam and effective drainage in the East Coast and East Bank areas. In January 2005, Georgetown experienced over 1100 mm of rain, with 650 mm falling in just 5 days. This extreme rainfall was responsible for causing the devastating floods in the coastal regions.

Cunha Canal: A key element of both the EDWC and East Bank drainage systems that is currently not operating efficiently is the Cunha Canal which is located on the western side of the EDWC and discharges water from the EDWC and local area into the Demerara River. Located on the edge of the EDWC, the Cunha Canal is intended to serve two purposes. The first is to drain nearby farming areas (Kuru Kururu; Coverden; Pearl and Sarah Johanna) - approximately 810 ha of land. Drainage from these areas flows through tributaries into the Badarima Creek, into the EDWC and through the Cunha Canal, out to the Demerara River (see Annex 8, Figure 3). The second purpose is to help manage the water level in the EDWC. During critical rain periods, water from the EDWC needs to be drained to keep it from exceeding the safe operating level of the dam. This reduces the risk of dam breaches caused by the increased stress or overtopping of the dam when water levels are high.

Around 1990, the canal was diverted from its original alignment, taking a turning at, and following the East Bank Demerara (EBD) public road and joining the Sarah Johanna channel that flows to the Demerara River. This diversion created a hydraulic barrier in the discharge of the Cunha canal due to the size of the Sarah Johanna channel and restrictions imposed by bridge

and culvert structures constructed to accommodate local access and flow under the Public Road. Moreover, with this additional flow from the Cunha Canal, the Sarah Johanna channel is now overburdened and does not have the capacity to drain both the areas intended to be served by the original Cunha Canal alignment and the agricultural areas intended to be served by the Sarah Johanna channel. Rehabilitation of the canal would remove hydraulic restrictions, allowing these and other farming areas to be drained, and would allow for additional drainage capacity for the EDWC during storm events.

Condition of Drainage Infrastructure: The National Drainage and Irrigation Authority (NDIA) in the Ministry of Agriculture (MoA) is responsible for drainage and irrigation in Guyana, including management of conservancies such as the EDWC. NDIA responsibilities cover strategic planning, investment, operation, maintenance and monitoring. In the decades leading up to the 2005 and 2006 floods, the operational capacities of the EDWC and coastal drainage systems declined due to insufficient physical investments and inadequate disaster preparation and management capacity. Following the floods, the Government of Guyana (GoG) reemphasized the importance of flood risk management to Guyana's economic, social and political well-being, increasing the annual budget allocated to investment and operation and maintenance of the system and investing in tools for medium- and long-term planning.

Planning: Since 2005, the Government of Guyana (GoG) has been working to improve flood management infrastructure for the EDWC and coastal drainage systems by repairing and maintaining the dam, rehabilitating sluices, canals and water ways, and installing new infrastructure such as the Hope-Dochfour EDWC relief canal. Additionally, significant investments - a combination of GoG, World Bank, Japanese International Cooperation Agency (JICA) and Inter-American Development (IDB) funds - have been undertaken to improve water flow within the EDWC; rehabilitate several drainage relief canals and sluices; purchase equipment for maintenance and repair, and improve drainage capacity along the coastal areas. These investments have and will continue to improve the stability of the dam and mitigate flooding in the coastal areas.

Since the 2005 floods, the GoG has demonstrated its political and financial commitment to address flood risk management needs. At the same time the financial resources from GoG alone are not sufficient to undertake larger investments and long term planning. With the exception of the Hope-Dochfour Northern Relief Channel, activities outside of donor funding have focused on smaller short-term investments and maintenance activities that NDIA can undertake using their existing resources.

The GoG has made efforts to establish mechanisms to finance upgrades in the system and reduce vulnerability to climate and disaster risk. In 2009, the GoG launched a Low Carbon Development Strategy (LCDS), outlining how Guyana's economy can be aligned along a low carbon strategy, by investing payments under REDD+ into strategic low carbon sectors. In the same year, Guyana and Norway signed a Memorandum of Understanding (MOU) and a Joint Concept Note in which Norway committed to providing financial support of up to US\$250 million by 2015 for results achieved in Guyana's REDD+ Investment Fund (GRIF), which will support the implementation of Guyana's LCDS (see Annex 5). These initiatives build on earlier components of the country's policy and legislative framework, including the National

Environmental Action Plan (NEAP) and the Environmental Protection Act (EAP) and include projects to reduce their vulnerability to climate change and disaster risk management. The GRIF steering committee in 2011 began approving projects under the LCDS and approved the preparation of the Cunha Canal Project, in June 2012.

In addition, the GoG requested in September 2013 the preparation of an US\$ 11.89 million IDA credit Flood Risk Management Project (P147250), approved in June 2014, to support investments in the EDWC and coastal drainage systems. The project includes the following components: (i) Upgrading the EWDC Dam and Drainage System; (ii) Upgrading the East Coast Drainage System; and (iii) Management and Planning Support. The proposed Cunha Canal Project will complement this work by improving drainage in and around the EDWC and locally.

II. Project Development Objective(s)

The Project Development Objective is to increase the capacity of the Cunha Canal to drain the East Demerara Water Conservancy and local agricultural areas in the Recipient's territory.

III. Project Description

The proposed project is composed of three components including carrying out civil works to rehabilitate the Cunha Canal, compensation under the resettlement plan and project management.

Component 1. Cunha Canal Rehabilitation Works (US\$ 1.91 million from GRIF; US\$ 0.27 million in parallel co-financing from GoG, total US\$ 2.18 million).

1. This consists of three main activities:
 - (a) *Rehabilitation of the drainage channel.* The channel will be re-routed along its original alignment, widened and excavated to remove the earth fill and weeds and allow for a straight flow into the Demerara River that eliminates hydraulic restrictions. This will be undertaken by the GoG through parallel co-financing.
 - (b) *Rehabilitation of sluices.* This would cover rehabilitation of: (i) sluice at the outlet of the EDWC to fix the gate and upgrade the sluice; and (ii) the rehabilitation of the sluice at the outlet of the Cunha Canal at the Demerara. The first sluice will serve as a regulator for water releases from the conservancy and the second will control the discharge of water and to prevent water from the Demerara River from entering the canal during high tide.
 - (c) *Construction of a bridge on the EBD Public Road.* A new bridge will be constructed at the point where the canal will intercept the EBD Public Road to allow vehicular traffic to traverse the area.

Component 2. Resettlement (US\$ 0.57 million from GRIF). The proposed civil works require the use of a portion of land currently occupied by the Barama Company Limited (BCL) and the relocation of certain assets. Compensation will be paid to Barama for the fair market value of: (i) Relocation of assets. Assets to be relocated include a log bridge, a steel

bridge, a moulding shed, a dust silo, equipment, a fence and guard hut. To ensure it does not affect construction schedules, BCL will be responsible for resettlement of their displaced assets within an agreed period of three months. (ii) Provision of other resettlement assistance. During the relocation period operations will be affected. Compensation for this cost will be provided by the Project under this Component.

Component 3. Project Management (US\$ 0.52 million from GRIF). The Project will finance consultancies and operational costs to manage the project including procurement, financial management and technical staff. It will also fund consultancies for supervision of the project works including safeguards related supervision. It will also fund monitoring equipment to better understand the impacts of the works on the water flows in the Badarima Creek, Cunha Canal and Sarah Johanna Canal and drainage of the Conservancy and the nearby agricultural areas.

IV. Financing (in USD Million)

Total Project Cost:	3.27	Total GRIF Financing:	3.00
Financing Gap:	0.27		
Financing Source			Amount
BORROWER/RECIPIENT			0.27
Guyana REDD+ Investment Fund (GRIF)			3.00
Total			3.27

V. Implementation

Ministry of Agriculture: The implementing agency is the Agriculture Sector Development Unit (ASDU) within the Ministry of Agriculture (MoA). The ASDU will also manage the fiduciary, safeguards and administrative aspects of the Project and the procurement process, including issuance of the tenders, undertaking financial reporting for the Project, and making payments to contractors. The rehabilitation of the canal including, the intake and outlet sluice and construction of a new bridge on the public road will fall under the responsibility of the ASDU and will be financed by the project. They will also manage the supervision contract for the project works. The National Drainage and Irrigation Authority (NDIA), the national authority responsible for management and maintenance of drainage and irrigation canals which is under the MoA will implement the construction of the drainage canal through parallel co-financing provided by GoG. Once works on the Cunha canal are complete, the NDIA will take over operations and maintenance in accordance with their mandate. Operation and maintenance costs will be funded through regular government appropriations for these types of activities. Hydromet, the Ministry of Agriculture Hydro-meteorological service, will take over ownership and will maintain the hydrologic monitoring equipment purchased as part of the project.

Ministry of Public Works and Communications: Similarly, the ASDU will manage the

construction and related fiduciary, procurement and contract management responsibilities for the bridge, while the Ministry of Public Works and Communications (MoPWC) will assume management and maintenance responsibility of the completed structure. The MoA and the MoPWC have signed a MoU outlining the arrangements for the construction design approval and supervision, maintenance and operation of the proposed works. Responsibilities in terms of design, bid preparation, firm selection, contracting, technical supervision, operation, routine maintenance and repair of the works involved are also outlined in this MoU. The MoPWC will be responsible for providing approvals for the final design of the bridge works to assure it is consistent with national requirements. Upon completion of the works, the ownership of the bridge will be transferred to MoPWC who will maintain the bridge after construction is complete, through funding from regular government appropriations for these types of activities. While performance can be improved, these appropriations are adequate for basic maintenance of the system and with the increased emphasis on flood issues in GoG the capacity and attention to operating the system properly has steadily increased in the past few years.

GRIF Oversight: The Project Management Office, within the Office of the President, is the Government of Guyana body responsible for managing the development and overseeing the implementation of all Guyana REDD+ Investment Fund (GRIF) funded projects. The PMO will have an oversight role in all areas of project implementation, including but not limited to recruitment, budgeting, and procurement and monitoring of deliverables against planned timelines. In addition, the PMO manages the approval process for GRIF projects through coordination with the GRIF Secretariat and the GRIF Steering Committee. The approval by the GRIF Steering Committee clears the way for project implementation and the release of GRIF funds to the Partner Entity. The works under the proposed Project will receive strategic direction and guidance from the PMO. Therefore Project implementation would be led by an implementing agency, which in this case would be the MoA's ASDU with strategic guidance and oversight from the PMO. Under the GRIF arrangement, the World Bank (as a GRIF partner entity) would enter into a grant agreement with the GoG for the Cunha Canal Rehabilitation Project.

Results Monitoring and Evaluation

ASDU will have overall responsibility for monitoring and evaluation of the Project and will consolidate all reports and report to the Bank on the Project's performance indicators, on the Project's progress and execution, quality control and environmental and social safeguards. Project monitoring will be undertaken by ASDU as part of their daily activities and maintenance of records. They will provide quarterly financial reporting, semi-annual project progress reporting and annual audits.

The GoG's monitoring and evaluation capacity for this sector is deemed to be relatively high, given the relevant MoA, NDIA and MoPWC history of engagement with the sector and donor financed projects, and due to the institutional strengthening work currently being carried out under the Flood Risk Management Project. The indicators specific to the Project are objective and measurable (agricultural area with improved discharge, and increases in drainage capacity of the Cunha Canal will be reported based on work completed).

As partner entity to the GRIF, the World Bank will comply with reporting requirements set out in the GRIF Operational Manual, notably to report annually to the Steering Committee, through the Secretariat: (i) on the progress of implementation of its activities and results achieved compared to planned results, and (ii) on its contribution to the achievement of the planned results of the GRIF as such and the financial status of Project activities under its responsibility. The Bank will provide the Steering Committee with a final report within six months of the Project's completion date. The Secretariat will post progress reports, annual reports and non-audit quality reports on financial disbursements and results of audits on the GRIF web site, as they are received from partner entities.

VI. Safeguard Policies (including public consultation)

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	X	
Natural Habitats OP/BP 4.04	X	
Forests OP/BP 4.36		X
Pest Management OP 4.09		X
Physical Cultural Resources OP/BP 4.11	X	
Indigenous Peoples OP/BP 4.10		X
Involuntary Resettlement OP/BP 4.12	X	
Safety of Dams OP/BP 4.37	X	
Projects on International Waterways OP/BP 7.50		X
Projects in Disputed Areas OP/BP 7.60		X

Comments (optional)

VII. Contact point

World Bank

Contact: Armando Guzman
 Title: Senior Urban Environment Specialist
 Tel: 202-522-0338
 Email: aguzman3@worldbank.org

Borrower/Client/Recipient

Name: Cooperative Republic of Guyana
 Contact: Tarachand Balgobin

Title: Ministry of Finance, Project Cycle Management Division (PCMD)
Tel: 592-225-7262
Email: tbalgobin@finance.gov.gy

Implementing Agencies

Name: Ministry of Agriculture
Contact: George Jervis
Title: Permanent Secretary
Tel: 592-227-5527
Email: ps.moagy@gmail.com

VIII. For more information contact:

The InfoShop
The World Bank
1818 H Street, NW
Washington, D.C. 20433
Telephone: (202) 458-4500
Fax: (202) 522-1500
Web: <http://www.worldbank.org/infoshop>