

Guyana's Conservancy Adaptation Project (CAP)

Building Data, Knowledge, and Capacity For Catastrophic Flood Prevention

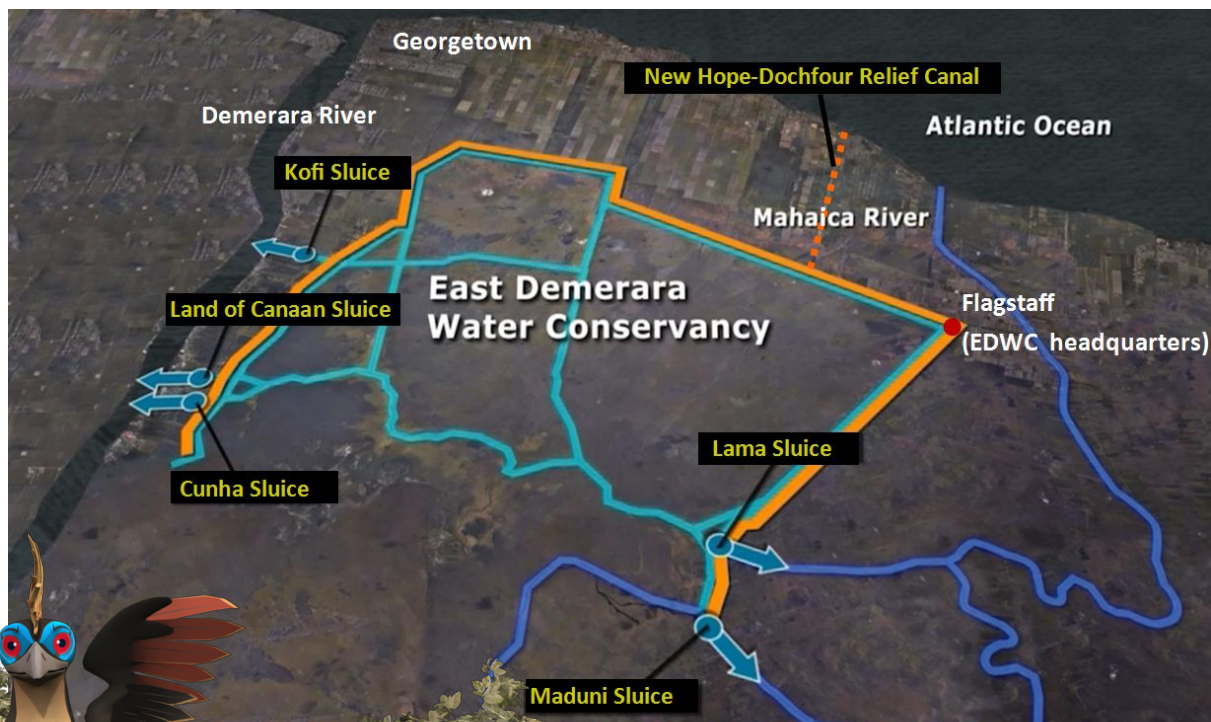
At least 40% of Guyana's population of 762,300 resides in Region 4, which also includes Georgetown, the capital city. This coastal area is protected by a seawall complex to the north and the East Demerara Water Conservancy (EDWC), a large shallow reservoir bounded on three sides by a low earthen dam, to the south. This area lies around or below sea level, so that any water that collects can only be discharged by pumping, or at low tide when the sea level is low enough to allow for gravity-based release through the sluice gates. The EDWC acts as both flood defence for the coastal area in the wet season and as a water storage system in the dry season. Recent weather events – such as the 2005 flood when extreme rainfall caused flooding throughout the coastal lowland – have highlighted the vulnerability of the EDWC system.

The Conservancy Adaptation Project (CAP) was designed in the wake of the 2005 flood to help Guyana adapt to climate change by reducing the vulnerability of this coastal area to catastrophic flooding. Concluded in 2013,

the CAP is a flagship project for Guyana and the Caribbean in applying modern technology to support a long-term strategy to reduce flood risk.

CAP Results At-A-Glance:

- A hydraulic engineering foundation, including real-time information on and predictive modeling of the EDWC and East Coast drainage areas
- Comprehensive analysis on the stability of the EDWC dam
- Increased safety of the EDWC and reduced vulnerability to catastrophic flooding through physical investments
- Enhanced government knowledge and capacity to manage the EDWC and coastal drainage systems
- A US\$ 123m package of investments critical for flood management



Overview of CAP Project Area



A series of pre-investment studies under the CAP have strengthened the Government of Guyana's understanding of the EDWC and coastal plain drainage systems.

Detailed aerial surveys of the area have produced a high-resolution topographic map suitable for understanding water flow over the relatively flat terrain. Extensive analysis on the dimensions of standing water and internal conservancy channels have provided information on channel profiles and water depths in the project area.

Computer models of the EDWC system and east coast drainage areas have improved understanding of how water flow and behavior varies under extreme weather conditions. These models have pin-pointed strategic areas where interventions would provide maximum improvements to the EDWC and east coast drainage systems which are critical for flood zone management.

Investments in specific adaptation measures have improved management of water levels in the EDWC and increased drainage capacity. In particular, the two sluices at Lama, on the eastern side of the conservancy were rehabilitated to help lower water levels in times of need and a pontoon and hydraulic excavator were purchased to make it easier and faster to reach areas of the dam in need of repair.

Institutional strengthening activities - such as training in monitoring weather and water flow, use and application of the survey datasets, data management and computer-based water flow modeling - has

increased technical capacity within various government agencies. A series of workshops brought together government agencies involved in the management of the complex drainage system, as well as stakeholders, donors, practitioners and others, to ensure broader consensus and coordination on future action.

The CAP identified several short- to medium-term strategic investments, totaling over US\$ 123 million, that include rehabilitation of key drainage relief channels and improved conveyance within the EDWC, strengthening of the EDWC dam and various investments in the east coast drainage systems. Follow-up investments will lead to increased capacity to manage water levels in the EDWC and lessen the high vulnerability of the area to extreme climate events. The methodologies employed in the CAP can be used as a template for identifying key areas for investment in other regions that face similar challenges.



Lama Sluice Rehabilitated under the CAP

For further information please contact: Agriculture Sector Development Unit (ASDU), Ministry of Agriculture, +592 227 3752, freddyflatts@live.com. Produced by the World Bank with the Ministry of Agriculture, Guyana, as part of the communication activities of the Global Environment Facility (GEF) Special Climate Change Fund Conservancy Adaptation Project, with financial support from the European Union in the framework of the ACP-EU Natural Disaster Risk Reduction Program.



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