

BARBADOS



GREEN
CLIMATE
FUND

GLOBAL
PROGRAMMING
CONFERENCE

Project title

Roofs to Reefs Programme

Result areas

Adaptation: - most vulnerable people and communities
- health and well-being, and food and water security
- Infrastructure and built environment
- ecosystem and ecosystem services
Mitigation: - energy access and power generation

Sector

Public/private

Total financing, USD

1.3 billion

GCF financing, USD

150 million

Financial instrument

Grant/Loan

Description of specific climate change problem and how the project will address it

- Up to one –third of Barbados’ housing stock is vulnerable to extreme wind events. Homes of the most vulnerable will be retrofitted and fortified.
- Recovery of homes post a disaster will be affected by the loss of the electricity grid. Solar PV systems with battery storage will be installed in low and middle income homes.
- Freshwater storage capacity (above and below ground) is limited. Rainwater harvesting and potable water storage will be installed in low – income housing.
- Storm water runoff is impacting reefs. Stormwater recharge of the aquifers will be improved.
- Domestic wastewater (sewage) is inadequately treated and impacting groundwater and coastal water quality. Modern effective wastewater treatment technology will be identified and deployed.
- 60% of the fringing and patch coral reef on the west and south coast of the island has been lost. Reef rebuilding technologies will be tested and deployed.

Alignment with key country priorities and stakeholders engaged

- Protecting the most vulnerable in the society
- Minimisation of damage during a disaster and recovery time post a disaster
- Freshwater storage and water augmentation (Barbados is a water scarce country)
- Democratisation of electricity generation. Zero domestic GHG emissions by 2030 (Vision 2030)
- Protection and restoration of vital ecosystem services
- All key government agencies have already been consulted. Civil society is to be extensively engaged within the next 12 months.

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Activities

In phase 1, approximately 3,000 low-middle income homes will benefit from the following interventions. However, the entire programme will encompass ~ 30,000 low – middle-income homes:

- Retrofitting of roofs, windows, doors, superstructure and foundations to resist up to Category 4 hurricane wind speeds (157 mph) (253 kph)
- Installation of 3 kW solar photovoltaic systems with lithium ion battery storage (installation to be conducted under a to-be-developed code/protocol)
- Installation of rainwater harvesting and potable water storage
- Installation of an effective (nitrogen removal) wastewater treatment system (for individual homes or small communal systems)

In addition, reef rebuilding technologies will be field tested and the most promising deployed at a minimum of three sites along the west coast.

Expected outcomes

- Diversion of potable water from non-potable uses and increased potable water reserves.
- Increased resilience of the building infrastructure to extreme wind events and the concomitant loss of the electricity grid.
- Augmented above-ground freshwater storage capacity and increased efficiency in groundwater recharge to mitigate water stress. It is noted that several aquifers are already being over-abstracted with concomitant saline intrusion.
- Reduced carbon emissions by displacing up to 9 MW of centralized thermal generation (fossil fuels) with distributed solar (3,000 homes outfitted with 3 kW PV systems) in phase 1. Upon completion of the programme, 90 MW of centralized thermal generation will be displaced; reducing GHG emissions by 135,000 tonnes of CO_{2eq} per year.
- Reduced pollutant stress on coastal ecosystems in particular coral reefs.
- Improved health of reefs and associated ecosystems and biota providing all of the services, which are vital to the ecology and the economy.

Paradigm shift potential

- The Roofs to Reefs Programme (R2RP) represents a first of its kind national initiative to build climate resilience. This novel approach is both people-centred and uses an ecosystem-based approach to adaptation.
- The R2RP is integrated and comprehensive, addressing virtually all of the adaptation themes under the GCF and with significant mitigation co-benefits.
- Public education and awareness and private sector engagement are essential components to achieve the objective of mainstreaming climate resilience. Resilience begins at home.
- Regional partners (e.g. the University of the West Indies) will be used to multiply the benefits throughout the Caribbean.