



ADAPTATION FUND

Adaptation Story



ANTIGUA AND BARBUDA

Hurricane Irma devastated Barbuda in September 2017, destroying most properties and forcing evacuations of approximately all 2,000 inhabitants of the Caribbean island to neighboring Antigua.

Local residents of **Antigua and Barbuda**, as in many other small island developing states, say they have been experiencing more frequent and intense hurricanes each year. Given that increasing vulnerability to disaster risks, extreme rainfall and sea level rise, the Adaptation Fund has been financing a US\$ 10 million climate change adaptation project here since March 2017.

Implemented by the Fund's national implementing partner, the Department of Environment (DoE), it is designed to help the most vulnerable communities in Antigua's northwest coastal McKinnon's watershed become more resilient to flooding, hurricanes, and higher temperatures. Through an innovative and integrated approach, it is restoring natural drainage canals and climate-proofing vulnerable homes and storm shelters to reduce flooding and disaster risks.

"It will help protect the house from the water, because when the drain is overflowing it comes right into the houses,"

—Elaine Nedd Perry, Antigua resident

During rainy seasons, heavy water flows in McKinnon's Watershed exacerbated by sea level rise and increasingly crowded hillside developments become obstructed in silted, polluted canals within these vulnerable communities.

"Here you see the problem of stagnant water, insufficient size of drainage," said **Adien Greenaway**, DoE project technical officer, pointing at a section of the waterway. *"The water comes from Wood's Pond to the east and it goes all the way to McKinnon's Pond. These waterways become clogged with debris from households, and because of the small culverts it creates flooding and stagnation of water which becomes a breeding ground for mosquitoes and this entire area becomes flooded."*

The project aims to clean, widen and deepen drainage canals, retention ponds and culverts to natural sizes so they have proper capacity to handle extreme rainfall and storms. These actions will protect many low-income, densely packed homes that predominate McKinnon's urban neighborhoods. *"This solution will prevent flooding in this entire area,"* Greenaway said.

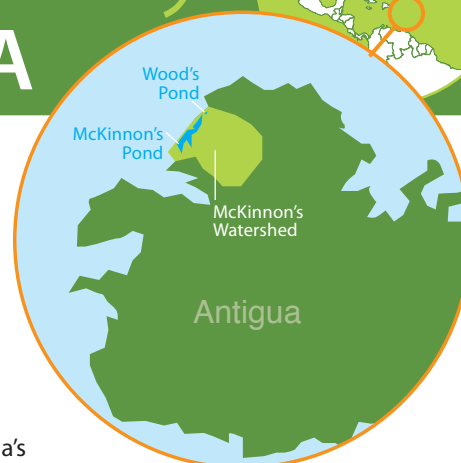
At the same time, another aspect of the project is providing the opportunity to vulnerable residents to access an innovative low-interest revolving loan program established through the project to climate-proof their homes.

"Every year we get more hurricanes," says Gambles Terrace resident **Muhamad Arfin**, looking from his porch at the stagnant canal nearby. *"Mostly it's the flooding and the stench. Every time that the place floods because of the rainfall, it floods up and all over. All over the floor. The water comes right under here on the porch. It floods up to the house, in the road and all around every hurricane season. It floods a lot, the land washes away and it breeds mosquitoes, disease."*

Arfin, who applied to climate-proof his home, said he hopes the project will improve drainage and flood protection measures. *"It's uncomfortable when the water is not moving properly,"* he said. *"We need something proper to get rid of the water. It will help my family a lot. We are talking about health and the environment. We are very excited and glad about the project. They will improve the gutter and drainage."*



Left: Muhamad Arfin in his home overlooking the stagnant canal in McKinnon's watershed. Center: Elaine Nedd Perry in her home which is at risk to flooding. Arfin and Perry are among 200 vulnerable residents applying for low-interest loans to climate-proof their homes against floods through the project. Right: vulnerable homes in McKinnon's watershed at risk to flooding and mosquito-borne illnesses due to stagnant, blocked canals, which are also being restored through the project to enhance drainage and water flow.



PROJECT activities

- Direct Access project aimed at building country ownership in adaptation
- Upgrade urban drainage, wetlands and waterways to address climate change impacts
- Support low-interest revolving loans for vulnerable homes in McKinnon's watershed to meet new adaptation building guidelines
- Adaptation mainstreaming and capacity building with NGOs and community groups to sustain project interventions

PROJECT objectives

- Increased ecosystem resilience of McKinnon's waterway in response to climate change, extreme rainfall events and disease vectors
- Increased adaptation capacity of built infrastructure and communities to withstand extreme weather and climate variability
- Improved ownership of adaptation and climate risk reduction to sustain and scale up actions for transformative adaptation interventions at national level



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Left: Paulette Daniels, a caretaker at Good Shepherd Home for Girls, with resident Shaunelle Massiah, 12, can now access hurricane shelters after new grants were provided to climate-proof community buildings. Right: residents at risk to floods in McKinnon's watershed now also have access to low-interest loans to climate-proof their homes.

Elaine Nedd Perry, a longtime resident in nearby Yorks Village whose children are grown and who is a widow, says she has noticed weather patterns worsening each year. She hopes the loan she applied for will protect her home from flooding. *"There are more storms, it is worse every year,"* she said from her front steps. *"The loan is going to help me a lot because when the water comes down, I get sometimes 12, sometimes nine inches of water here in the house. When the water comes inside the house some of the appliances just go bad and there are a lot of things that I have lost. It's difficult because I love the area, when it's dry. It is very difficult to get a regular loan because to tell you the truth we get water [so high that it] covers the [bridge] railing there. I hope the program will help me to raise the house higher up, and help control the water from getting into the house."*

Through another component, the project is also supporting community groups in depressed areas with grants to develop climate-resilient buildings to serve as storm shelters for the most vulnerable on the island.

"In a year or two this project should be completed and the entire waterway, which is about eight miles long, should be upgraded,"

– Adien Greenaway, DoE project technical officer

One of the groups to receive a grant is Saint Francis of Assisi Church as a storm shelter for the Good Shepherd Home for Girls located behind it, as well as for senior citizens, paralyzed residents and other vulnerable residents living nearby. The church will serve as a safe haven during intense storms for the girls' home, which houses about 15 young girls and two female caretakers. *"It will do a great help for us,"* said **Paulette Daniels**, a caretaker

at the home. *"We will be safer. Our house isn't able to withstand a hurricane because we have leakage in the home. So, this will help us a great lot. If a big storm comes we have to go in there to take shelter until better can be done."*

The grant will be used to make the church resilient to withstand category 5 hurricanes, add 1,000 square feet of space to accommodate more people, restrooms and children's space, while strengthening the roof, installing storm shutters, backup renewable energy, and pumping equipment for rainwater harvesting. The National Office of Disaster Preparedness will provide special training and form first responder teams to optimize the shelter's effectiveness.

"People naturally gravitate to their church when there is a natural disaster. Because we are in one of the most vulnerable areas of Antigua, we are very pleased to get this funding to make it more resilient," said **Zepherius**

BY THE NUMBERS

4,700 PEOPLE WILL BENEFIT FROM LOANS AND CLIMATE CHANGE ADAPTATION INTERVENTIONS (200 DIRECT AND 4,500 INDIRECT BENEFICIARIES)

3-kilometer

MCKINNON'S WATERWAY RESTORED TO MEET NEW ADAPTATION REQUIREMENTS FOR FLOODING AND VECTOR CONTROL, FACTORING ENVIRONMENTAL, SOCIAL AND GENDER CONSIDERATIONS

AT LEAST 5%
OF HOMES IN TARGET AREA APPLIED FOR LOW-INTEREST CLIMATE-PROOFING LOANS

5%
OF HOMES EQUIPPED WITH TWO WEEKS OF WATER, FILTRATION AND PUMP EQUIPMENT

50%
REDUCTION IN NUMBER OF PEOPLE REQUIRING SHELTERS DURING DROUGHTS, WITH PRIORITY FOR VULNERABLE POPULATIONS (SINGLE MOTHERS, OLDER PERSONS, CHILDREN, SPECIAL NEEDS CHILDREN)

3 COMMUNITY GROUPS OR NGOS WITH BUILT CAPACITY TO SUCCESSFULLY APPLY FOR AND RECEIVE LOANS

30%
OF COUNTRY POPULATION WITH INCREASED PUBLIC AWARENESS IN ADAPTATION

Churchill Norbert, project manager, adding that the shelter is open to anyone who comes. *"We are very thankful that this project has supported us to meet the needs of the most vulnerable in this area to drought, hurricanes and flooding. One of the components that is very key to us is to be able to [also respond] when we are going through drought periods to supply water to the community so that they can continue with their normal lives."*

The idea sprouted just before Hurricane Irma in 2017 when the church was installing storm shutters, and one of the home's mothers asked if they could stay there when the storm hit. *"Of course we said yes, and from that point onwards we felt it would be best to really upgrade the facility and have all of the various components in place to function as a proper shelter,"* Norbert said. *"We hope to replicate this pilot, too."*

The Adaptation Fund project also enhances collaboration with other funds. For example, the Global Environment Facility's Special Climate Change Fund (SCCF) supported a hydrological study of the waterway that resulted in the Adaptation Fund's drainage upgrade design. *"The AF would then finance the implementation of the output of those studies, which is the waterway upgrade and Wood's Pond upgrade mechanism,"* said **Joan Sampson**, DoE project coordinator. *"The AF project scales up the SCCF project, but they are mutually beneficial to each other and offer the community greater resilience."*