CARIBBEAN CLIMATE INNOVATION SERIES

A MOBILE DESALINATION FACILITY FOR WATER RESILIENCE in the Laborie Community, Saint Lucia

Lead Organisation: Laborie Fishers and Consumers Co-operative Ltd. **Location:** Laborie, St. Lucia
Project Duration: May 2015 – June 2017 **Focus:** Community-based adaptation and disaster risk management

Project Overview

As sea levels are rising around Saint Lucia, salt water is increasingly entering the country's ground water. In the aftermath of hurricanes and extreme weather events, safe drinking water is also often not available in rural villages due to flooding and contamination from solid and sewage waste. This is creating water quality and scarcity issues for coastal communities, leaving farmers without water to irrigate their crops and fisherfolk and other residents without water in the aftermath of disasters. These communities therefore need support to access potable and agricultural water sources.

The Laborie Fishers and Consumers Co-operative Ltd (LFCC) is rising to the challenge to provide safe drinking water where it is needed most, with funding from the Global Environment Facility/United Nations Development Programme Small Grants Programme (GEF-SGP). The co-operative was established in 1976 to assist fishers in the Laborie community to achieve economic mobility.

The LFCC was able to develop a mobile solar-powered desalination facility in Laborie that can produce up to 1,514 litres of potable water per day. The desalination facility provides water for farmers affected by salt water intrusion, as well as a reliable and safe supply of water to fisherfolk and other residents in times of crisis and shortages. Beyond water provision, the project also aimed to increase the community's awareness of climate change and its impacts. The project has therefore helped build the resilience of the small fishing village of Laborie to climate change and natural disasters. The project was implemented with grants of US$46,727, including US$27,468 from GEF-SGP and US$19,259 from other sources.

The project had four components, which focused on:

- Installation of the mobile desalination plant;
- Installation of solar panels;
- Information and education of the public on climate change and its impacts; and
- Training of local residents in maintenance of the desalination plant.

KEY RESULTS

- The mobile desalination facility has a daily production capacity of approximately 1,514 litres per day, utilising a sustainable and optimal process to convert sea water into potable water. A study by the Caribbean Public Health Agency (CARPHA) confirmed that the water met the necessary standards for potability.
- The mobile desalination facility was run exclusively on solar power with zero brine emissions.
- The success of the project led to the Japan International Cooperation Agency (JICA) allocating US$70,000 for upscaling the desalination facility.
- Co-benefits that were also achieved include: the employment of 4 local residents for activities such as accounting and construction; and training of 3 male residents in proposal writing and the construction and maintenance of the mobile desalination facility.

Innovations and Lessons

The initiative developed the first mobile, solar-powered desalination plant built in the Eastern Caribbean. It had a unique system that allowed it to be fully mobile and operate only with solar energy. The process does not produce brine, a highly saline by-product of typical desalination plants, as there is an accompanying water management system. This means that the plant does not pollute the environment or create dead zones for fish and other marine life in the nearshore area from release of brine.

In addition, the system can purify water from a broad spectrum of sources, including fresh water from inland sources to highly saline water near the coast. During extreme weather events, it can fold into itself for easy relocation and safe storage. Lastly, the unit provides increased water access, availability and quality to both coastal and inland communities, making it a highly versatile and broadly applicable tool.

The system's creator, Karlis Noel, has been awarded the Saint Lucia Les Pitons Medal (Gold) for having performed meritorious service in the field of entrepreneurship and community development. Through the LFCC, he plans to continue to improve the mobile desalination system, and is working to reduce the size of the unit with the aim to one day have a system that can fit in the trunk of a car and travel to different disaster zones.

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