OACPS R&I | OACPS RESEARCH AND INNOVATION PROGRAMME

INNOVATION FUND

Coastal hazard vulnerability project - Dominica (CHVP)

Parent project: Harnessing Innovative Technologies to Support Resilient Settlements on the Coastal Zones of the Caribbean (HIT RESET Caribbean)

PROJECT COORDINATOR

Smith Warner International Limited

LOCATION

Dominica

PERIOD

April 2023 - October 2024

EU FUNDING

EUR 399,899.16

SECTOR

Coastal development

KEYWORDS

Climate change, natural hazards, coastal settlements, environmental research, digital technologies

PROJECT CONTACT

Gabrielle Abraham
Smith Warner International Limited
Unit 13, Seymour Park
2 Seymour Avenue
Kingston 10
Jamaica

gabrielle@smithwarner.com
www.smithwarner.com

Mr. Perry Polar
The University of the West Indies (UWI)
Perry.Polar@sta.uwi.edu
https://hitresetcaribbean.org

if@oacps-ri.eu
www.oacps-ri.eu

CHALLENGE

Coastal communities in Dominica face several challenges related to natural hazards, driven by both the island's geographical characteristics and the increasing impacts of climate change, including hurricanes, tropical storms, sea level rise, landslides, and marine ecosystem degradation.

COASTAL HAZARD VULNERABILITY PROJECT DOMINICA

PERSPECTIVES

Knowledge development through shoreline monitoring and knowledge transfer of coastal recommendations will aid in improving resilience of coastal communities to storm hazards in Dominica.

Standard user training will be geared towards training various users, including those personnel that can in turn train others, from government entities including engineers of the Ministry of Public Works and the Planning Authority, Layou Improvement Committee (a NGO focusing on disaster preparedness and mitigation, eco-tourism and agriculture within the Layou community) and the Humanitarian OpenStreetMap Team (an international team dedicated to humanitarian action and community development through open mapping).

JUSTIFICATION

The necessary physical coastal analysis of major coastal beaches and communities of Dominica improves the understanding which are the most vulnerable and in what ways.

Through coastal vulnerability assessment, economic assessment of the coastal area, a resilience guidebook publication, and a coastal stewardship programme, there will be ample knowledge development / transfer and coastal policy guidance, critical for a Small Island Developing State (SIDS) such as Dominica.

CoastSnap site at Scotts head in Dominica

The low-cost community beach monitoring project will also engage the public in taking responsibility for the managing and resilience of their communities and homes in the long run.

Shoreline monitoring workshop at Layou beach in Dominica

The OACPS R&I Programme is an initiative implemented by the Secretariat of the Organisation of African, Caribean and Pacific States (OACPS) and funded by the European Union (EU)

METHOD

Coastal vulnerability assessment and resilience guidebook

In-depth coastal bathymetry and erosion mapping of eight communities in Dominica will be carried out to understand high-level coastal erosion, particularly in densely populated and vulnerable areas.

Data will be used to create prediction models and coastal advisory for these areas and affected sectors. A geo-socio-economic survey in vulnerable coastal communities will add feed into a resilience guidebook with the results of such assessments and high-level recommendations.

Coastal citizen stewardship programme

Across Dominica, a pilot coastal citizen stewardship programme will build the capacity of communities and economic sectors for more wide-ranging coastal monitoring, provide ownership of and integrate data into the coastal data reporting mechanism for the island, such as the CoastSnap platform (a global citizen science app to capture changing coastlines) and Dominode (Dominica's GeoNode, an open-source platform for sharing geospatial data and maps).

They will be sourced from within nationally designated 'Extension Zones' (environmental or protected areas, i.e., areas already delineated by existing extension regions managed by the government).

Stewards will be collectively selected among staff of the Discover Dominica Authority of the Ministry of Tourism, the local Village Councils, and the Ministry of Agriculture, Fisheries, Blue and Green Economy.

A CoastSnap visibility campaign will consist of coast snap points constructed across key beaches, taking a public approach ('citizen science') to shoreline monitoring of the beaches in Dominica while adding a tourism and historic aspect.

Web application

Together with government entities (including Discover Dominica and the Ministry of Public Works) and coastal communities, a coastal vulnerability mobile application will be developed to add both vulnerability and tourism data within one user-friendly, geolocation-centred application. Hazard data (which includes flooding from the sea, inland flooding, and storm force winds) will be overlaid on a map, along with tourism natural assets (such as waterfalls, rivers, beaches) for a multipurpose Dominica map.

INNOVATIVENESS

Transferability and expandability: There is great potential for this Coastal mapping programme to be used in other Caribbean countries, as well as to be modified to display other types of vulnerabilities such as social vulnerabilities like crime and violence, and environmental and other hazard vulnerabilities such as landslides, volcanic hazards and inland flooding.

The inclusion of several vulnerabilities results in a more relatable end-product that can be easily utilised for coastal planning, development and monitoring in both public and private sectors. The resilience guide will aid the public and private in understanding the most vulnerable areas, predominant hazards and possible impacts in the future. Recommendations of the guidebook can inform policies, budget planning for coastal protection, and resilience.

Mainstreaming of monitoring at the community ground-level through a programme for Community Coastal Citizen Stewardship will impart knowledge and skills for continual community reporting to ministries and agencies regarding various aspects of coastal monitoring and protection.

Beach profiling during shoreline monitoring workshop at Layou beach in Dominica

EXPECTED RESULTS

Impact

- Improved resilience of coastal communities in Dominica to storm hazards.

Outcome

- Public and private sector entities developing and implementing coastal management procedures.

Outputs

- Public and private sector entities informed on coastal vulnerability and coastal management recommendations.
- Dominica's coastal data mobile application developed.

HIT RESET CARIBBEAN

HIT RESET is implemented by UWI in partnership with CDEMA and AdeKUS. HIT RESET provides support for projects that develop innovations to increase resilience in coastal communities of the Caribbean and strengthens institutions', national and local governments' ability to leverage information and knowledge for policy amendments.

HIT RESET supports 9 projects implemented in Barbados, Dominican Republic, Jamaica, Saint-Lucia, and Trinidad & Tobago that focus on:

- Digital and modelling technologies utilised by coastal development agencies and high-level decision makers in CARIFORUM countries to predict the impacts of climate change and natural disasters, and to plan and manage coastal communities.
- Government entities, coastal development agencies and coastal communities in CARIFORUM countries developing urban planning policies and/or plans that are conducive to the use of digital and modelling innovations for sustainable coastal development.