



## CCRIF Members Renew their Parametric Insurance Policies and the Facility Welcomes One New Member

June 1 marked 16 years since Caribbean governments began purchasing CCRIF parametric insurance coverage as a means of financially protecting their economies from devastating hurricanes, earthquakes, and excess rainfall events. Member governments in the Caribbean and Central America are now routinely ceding over US\$1 billion in insurance coverage to CCRIF, recognizing that the frequency and intensity of natural hazards are increasing, and although mortality resulting from disasters seems to be decreasing, economic costs are rising precipitously.

For the 2023/24 policy year which started June 1, CCRIF member governments purchased a total of 66 policies, as follows:

- Tropical Cyclone – 22 policies
- Excess Rainfall - 24 policies
- Earthquake – 15 policies
- COAST (fisheries) – 2 policies
- Caribbean Electric Utilities – 3 policies

**66** policies for 2023/24

CCRIF also now has one new member, GRENLEC, Grenada's electric utility company, which purchased coverage for the first time this year.

Between March and May, CCRIF meets with all its members in a series of meetings to discuss policy renewals including providing members with various policy options consistent with their risk profiles, policy pricing, as well as updates related to the Facility that may include new initiatives as well as new products and product features.

This year for example, CCRIF introduced three new policy features. The updated SPHERA model for Tropical Cyclone includes a new policy endorsement for localized events called the Localized Damage Index (LDI) for tropical cyclone events where losses are highly concentrated in small sections of the country. The Excess Rainfall model has been upgraded from the current XSR 2.5 model to XSR 3.0 and includes two policy endorsements: the "wet season trigger" (WST), which introduces the ability to detect excess rainfall events that occur when the soil is saturated, and the "localized event trigger" (LET) for extreme localized events. These policy endorsements represent an enhancement of the models for TC and XSR and do not rectify any deficiency in the current models. The endorsements are aimed at improving CCRIF's ability to identify and provide coverage for tropical cyclone and rainfall events that occur under very specific

conditions that contribute to the negative impacts from the event.

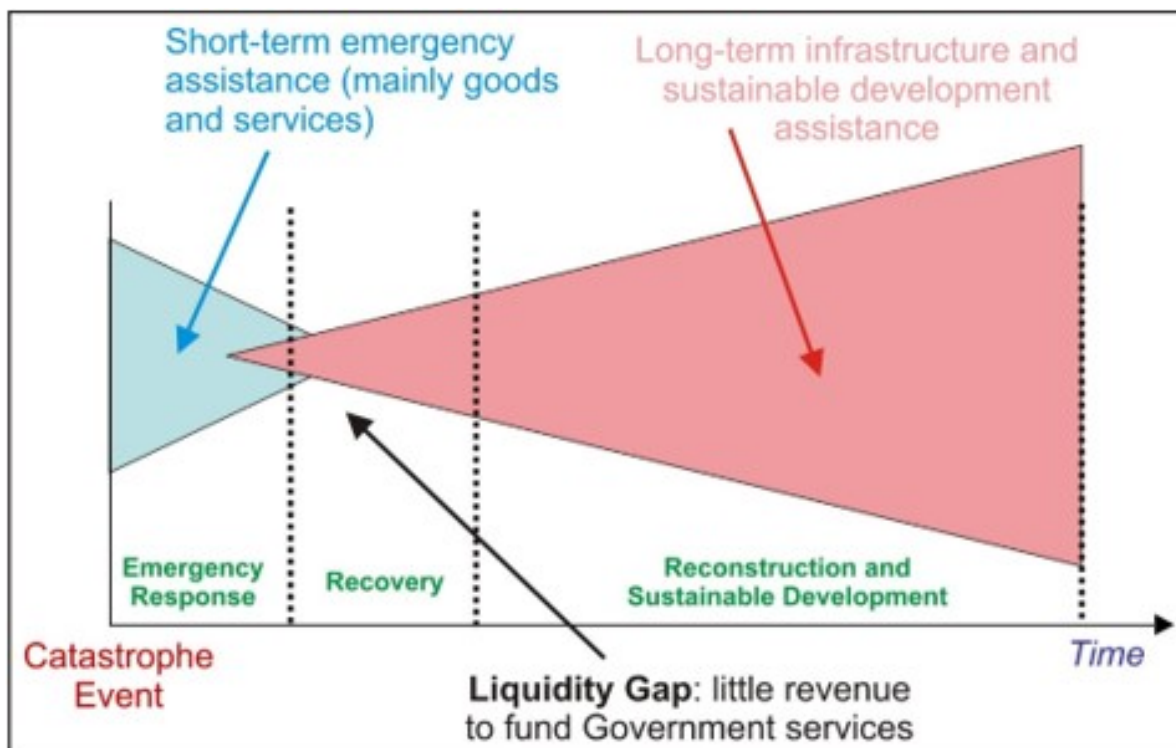
<b>New Policy Feature</b>	<b>What is it?</b>
<b>Localized Damage Index (LDI) for Tropical Cyclone Events</b>	The LDI for tropical cyclone events provides coverage where losses are highly concentrated in small sections of the country. The Localized Damage Index (LDI) was developed for the TC policy, and it relates the mean damage ratio computed at the most damaged areas and the mean damage ratio computed in the whole territory. The most damaged areas are the 10% of the cells with the highest damage ratio. The LDI endorsement's payout function is a simple step function, meaning that it offers a single, flat payment when the LDI index value crosses a predetermined Activation Threshold.
<b>Wet Season Trigger for Excess Rainfall (WST)</b>	The WST endorsement provides coverage for rainfall events that occur when soil is oversaturated (usually due to previous rainfall in a relatively short period of time). The WST provides a fixed payout for rainfall events that happen when the soil is already saturated and has limited absorption ability. These soil conditions often result in flooding and landslides that can cause significant damage to infrastructure and communities. The WST is based on the value of the Wet Index (WI), which is a measure of soil saturation, and the concept of Wet Periods (periods where the WI is greater than 1 which indicates that the soil is wetter than its long-term average). The WST endorsement generates a payment when a rainfall event occurs in a Wet Period and the Wet Index value in that Wet Period exceeds a pre-determined activation threshold.
<b>Localized Event Trigger for Excess Rainfall (LET)</b>	Localized rainfall events are rainfall events where there is high precipitation within a small area of the country, referred to as local precipitation, compared with the national precipitation average. This is measured using a ratio of local precipitation to national precipitation (known as the Local Index or LI) during a rainfall event. Given their characteristics, these rainfall episodes disproportionately affect a small part of the country. These localized events can generate significant damage but may not produce a payout under the main policy. The LET endorsement has been developed to fill this gap by providing a fixed payment when a rainfall event has a Local Index that is greater than a pre-determined activation threshold.

CCRIF was designed to limit the financial impact of devastating hurricanes, earthquakes, and excess rainfall events by providing quick financial liquidity when a policy is triggered. The selection of a parametric insurance instrument as a basis for CCRIF policies was largely driven by the fact that parametric insurance is generally less expensive than an equivalent traditional indemnity insurance product as it does not require a loss assessment procedure after a disaster, allowing for payments to be made quickly and in the case of CCRIF, within 14 days of the event. This is an important feature considering the urgent need for liquidity by governments after a catastrophe to support the most vulnerable in the population, and to address the most pressing needs post disaster including repairing infrastructure such as roads and bridges that may have been impacted by the natural hazard. Since the inception of CCRIF in 2007, the Facility has made 60 payouts totalling US\$261.8 million to 16 member governments, who have all expressed appreciation for the

rapid infusion of liquidity, within 14 days.

Assessments on the use of payouts have revealed that CCRIF payouts have benefitted over 3.5 million persons in the Caribbean and Central America. Most of CCRIF's payouts – more than 60 per cent – have been used by governments to address immediate needs post disaster.

CCRIF insurance payouts fill the liquidity gap – that space that lies between a country's access to short-term supplies immediately following a natural disaster and before long-term reconstruction and redevelopment assistance begins. CCRIF payouts represent an injection of cash resources to an economy, to begin recovery efforts and support those significantly impacted by the event.



*Country needs following a natural disaster and the concept of the liquidity gap.*

Parametric insurance provided by CCRIF has the potential to reduce the catastrophic impact of disasters, enable a timely recovery and contribute to sustainable and climate-resilient development

## The European Union Provides US\$4.7 Million Support to Caribbean Governments for CCRIF Parametric Insurance for 2023

The European Union (EU) continues to provide support to CCRIF SPC as a means of subsidizing premiums on the parametric insurance policies of its Caribbean members. This policy year, which started on June 1, 2023, the EU provided CCRIF with US\$ 4.7 million in support of the 12 ODA-eligible Caribbean members of CCRIF to subsidize premiums for tropical cyclone and excess rainfall. CCRIF's parametric insurance helps countries to financially protect their economies from devastating natural disasters such as hurricanes and excess rainfall. The 12 ODA-eligible Caribbean members of CCRIF are:

**Antigua and Barbuda... Barbados... Belize... Dominica... Grenada... Haiti...**

Provided through a programme administered by the World Bank, the EU funds enabled CCRIF to provide discounts of approximately 14 per cent on the gross premium of members' tropical cyclone and excess rainfall policies. The EU funds also enable technical assistance oriented towards ensuring the sustainability of climate and disaster risk insurance in the years to come.

This current support is a continuation of the EU's efforts to assist Caribbean countries in maintaining climate and disaster risk protection during hard economic times. Over the period 2007-2023, the European Union has been one of CCRIF's main development partners. In total, since the establishment of CCRIF in 2007, the EU's contribution to CCRIF is equivalent to more than €45 million. The EU contributed to the initial capitalization of CCRIF, the entry of new countries, and the development of new parametric insurance products through Technical Assistance as well as support to respond to the significant disruption of Caribbean economies because of the COVID-19 pandemic.

During 2020-2022, the EU support was managed in coordination with the EU Caribbean Regional Resilience Building Facility administered by the World Bank's Global Facility for Disaster Reduction and Recovery (GFDRR). This support provided each Caribbean CCRIF member country with premium discounts or increases in policy coverage. During the past three years (2020/21 to 2022/23) several CCRIF member countries used this funding to increase tropical cyclone and/or excess rainfall coverage.

“



CCRIF CEO, Isaac Anthony, thanked the EU for its continuous support and reiterated the importance of contributions of the donor community.

*“The success of CCRIF is undoubtedly due in part to the support – both technical and financial – that we receive from our development partners. This support from the EU continues to be key to allowing us to meet the needs of our current and potential members. It allows us to make available more affordable insurance coverage to our members, to improve the long-term sustainability of CCRIF, and to develop new products for additional perils and sectors.”*



Ambassador Malgorzata Wasilewska, Head of the EU Delegation to Barbados, the Eastern Caribbean States, the OECS and CARICOM/CARIFORUM, added:

*“The renewal of countries' catastrophe risk insurance policies at this time signals the growing strategic importance placed on disaster risk financing as key to advancing sustainable development prospects in the context of shrinking fiscal space. We are proud to say that the EU contribution supported important milestones in this regard.”*

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# CCRIF SPC

The Caribbean Catastrophe Risk Insurance Facility

# How it Started

## ...How it's Going!

2007



CCRIF Board Members, Service Provider Representatives and Retreat Facilitator.

### First Board Meeting and Strategic Planning Retreat

“ We remain committed to our primary goal: to provide short-term liquidity to our participating Caribbean governments after they have suffered significant financial loss due to hurricanes and/or earthquakes. We very much look forward to continuing to work with our participating members and other stakeholders as we continue to improve and possibly broaden our products while maintaining a conservative financial philosophy that will allow this organization to sustain itself for many years to come.

”  
— Milo Pearson, Executive Chairman, in Annual Report 2008.

### 60<sup>th</sup> Board Meeting

“ In CCRIF's 15 years of operations, we have remained true to our core values and customer propositions, providing our members financial protection in the face of the increasing frequency, intensity, and economic impacts of natural hazard events. We have played and continue to play a catalytic role in financial protection and closing the protection gap in the Caribbean and Central America. For the past 15 years we have been able to consistently provide quick liquidity to our members within 14 days of a natural disaster when a country's policy is triggered.

”  
— Timothy Antoine, Chairman

2023



Members of the CCRIF Board, Executive Management and Board Support Team.

#### How It Started

16 MEMBERS

#### PRODUCTS

2

#### COVERAGE PURCHASED

US\$0.5 BILLION

2 US\$1.0 MILLION

#### How It's Going

24 MEMBERS

#### PRODUCTS

5

#### COVERAGE PURCHASED

US\$1.1 BILLION

59 US\$261.4 MILLION

## We Congratulate CARICOM on its 50th Anniversary!

We use this medium to extend warm congratulations to CARICOM on its 50th Anniversary. This is a moment that the Caribbean Region can be proud of, as we celebrate 50 years of leadership and collaboration in social and economic development and resilience to climate change and natural hazards.

We are particularly proud to be part of the Caribbean family of organizations. We have continued to contribute to the Region's development since CCRIF's



establishment (as the Caribbean Catastrophe Risk Insurance Facility) at the request of CARICOM Heads of Government following the devastation caused by Hurricane Ivan across the Region. At that time, CARICOM Heads of Government approached the World Bank for support to create a mechanism that would enable countries in the region impacted by natural disasters to be able to access quick liquidity to meet their most urgent needs, including providing support to the most vulnerable in their populations. A facility combining parametric insurance as the instrument; a multi-country, multi-peril risk pool; and a captive insurance company was deemed the best solution to allow countries to access quick liquidity following a natural disaster. This led to the creation of CCRIF in 2007, now CCRIF SPC.

The vision of Caribbean governments at that time remains evident today as demonstrated by the progress towards achieving CARICOM's goal of making the Caribbean the world's first climate-resilient region.

We look forward to continuing to work with the CARICOM Secretariat on various initiatives and with the other organizations of CARICOM, several of which we have MOU arrangements with, and provide support to, to advance the sustainability of this region we call home!

#### **CARICOM Organizations that CCRIF has MOUs with:**

- 1. Caribbean Centre for Development Administration (CARICAD)**
- 2. Caribbean Community Climate Change Centre (CCCCC)**
- 3. Caribbean Disaster Emergency Management Agency (CDEMA)**
- 4. Caribbean Institute for Meteorology and Hydrology (CIMH)**
- 5. Caribbean Regional Fisheries Mechanism (CRFM)**
- 6. The University of the West Indies (The UWI)**

### **CCRIF Hosts Bilateral Sessions with its COSEFIN Members and Prospective Members**



*The delegation from Guatemala with the World Bank and CCRIF Teams*

CCRIF hosted meetings with all seven COSEFIN member countries on the margins of its Technical Workshop held on parametric insurance earlier this year and ahead of its policy

renewal meetings. These bilateral meetings allowed CCRIF to:

- Respond to questions that governments had on various aspects of CCRIF parametric insurance, their current policies, and potential policy options.
- Enhance understanding of the CCRIF models as well as the data underpinning these models.
- Strengthen and enhance its relationships with COSEFIN member counties.
- Share new developments at CCRIF that would be beneficial to COSEFIN member countries.
- Discuss the importance of parametric insurance within the context of financial protection.
- Discuss areas of technical assistance and additional training that members may be interested in with respect to disaster risk financing, financial protection, and parametric insurance.



*The delegation from Costa Rica with the World Bank and CCRIF Teams*

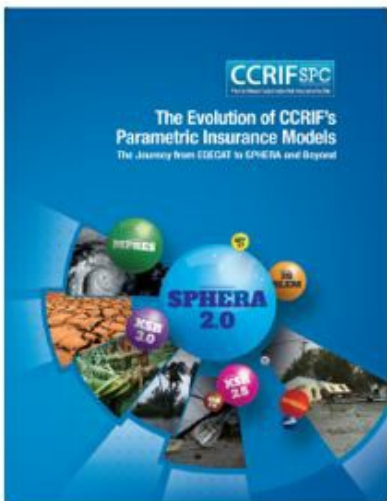


*The delegation from Nicaragua with the World Bank and CCRIF Teams*

NEW RELEASE

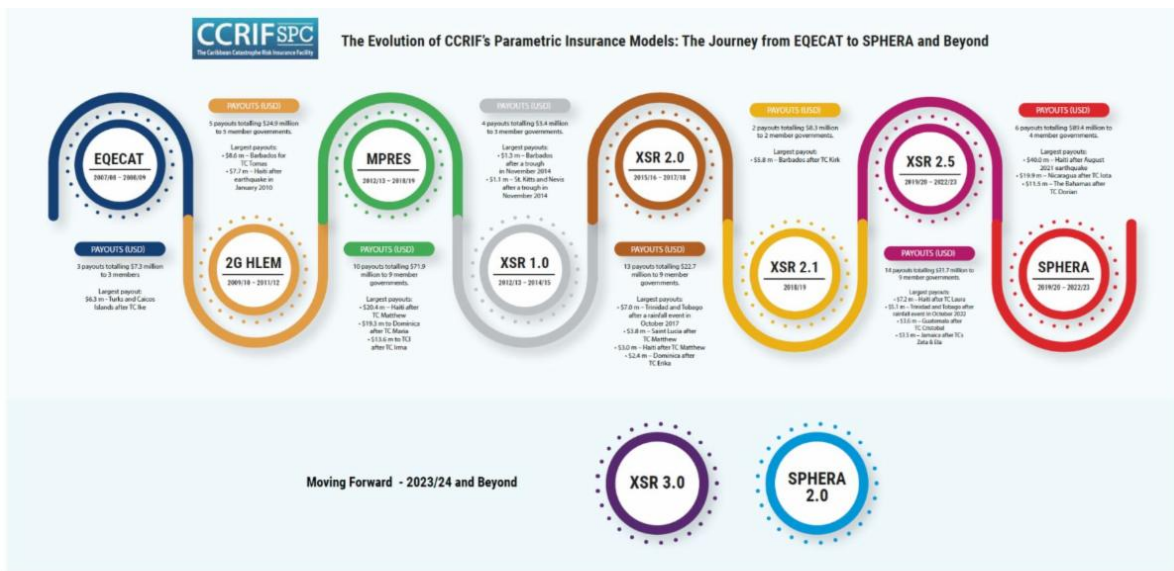
CCRIF's Latest Technical Brief:

The Evolution of CCRIF's Parametric Insurance Models... The Journey from EQECAT to SPHERA and Beyond



CCRIF's ability to provide parametric insurance coverage has always been underpinned by its parametric insurance models – which have evolved over the years. This publication takes you on that journey which presents CCRIF's first off-the-shelf models, and explains the transitions that occurred over time, leading to the present-day use of models that are fully customized and also fully owned by CCRIF.

This publication is available at: <https://www.ccrif.org/publications/technical-paper/evolution-ccrifs-parametric-insurance-models>



Snapshot of the Evolution of CCRIF Models over the Years



**World Bank Spring Meetings 2023**  
**Central America and Caribbean Catastrophe Risk Insurance Program:**  
*Delivering in Hard Times*

CCRIF's Caribbean and Central American member governments gathered at a reception in April to celebrate their partnership with the World Bank and CCRIF SPC on the margins of the World Bank's Spring Meetings in Washington DC. Several government officials – including Barbados Prime Minister, Honourable Mia Amor Mottley and Jamaica's Minister of Finance, Dr. The Hon. Nigel Clarke – attended the event. Through the Central America and Caribbean Catastrophe Risk Insurance Program (CACCRIP), the World Bank is administering a multi-donor trust fund (MDTF) that supports the development of CCRIF's new products for current and potential members as well as the entry of new members from both Central America and the Caribbean. The MDTF currently channels funds from various donors, including: Canada, through Global Affairs Canada; the United States, through the Department of the Treasury; the European Union, through the European Commission, and Germany, through the Federal Ministry for Economic Cooperation and Development (BMZ) and KfW Development Bank. Additional resources for the CACCRIP are provided by the European Union through its Regional Resilience Building Facility managed by the Global Facility for Disaster Reduction and Recovery (GFDRR) and the World Bank.

Key speakers at the event included members of the Bank: Mr. Joaquin Toro, Lead Disaster Risk Management Specialist; Ms. Lilia Burunciuc, Country Director of the Caribbean; Mr. Michel Kerf, Country Director of Central America and the Dominican Republic; and Mr. David Sislen, Practice Manager, Urban and Disaster Risk Management, Latin America and the Caribbean; and also Mr. Pierre Nadji, Aid and Cooperation Officer, European Commission; Mr. Alfredo Flores, Executive Secretary of COSEFIN – the Council of Finance Ministers of Central America, Panama, and the Dominican Republic – and the Chairman and Chief Executive Officer of CCRIF SPC, Mr. Timothy Antoine and Mr. Isaac Anthony, respectively. Two speakers represented member governments: Mr. Lennox Andrews – Grenada's Minister of Economic Development, Planning, Tourism, ICT, Creative Economy, Agriculture and Lands, Fisheries & Cooperatives and Mr. Edwin Oswaldo Martínez Cameros, Guatemala's Minister of Public Finance.

Mr. Toro and Ms. Burunciuc both celebrated the innovation that CCRIF represents – from its establishment in 2007 to the development of its models and products that meet members' needs – in both the Caribbean and Central America. Mr. Toro commented that even the recent “convoluted” times – which brought hurricanes, earthquakes, and volcanic eruptions as well the COVID-19 pandemic – CCRIF was able to support its members, with the support of donors and technical assistance from partners. Ms. Burunciuc congratulated the Caribbean for being the home of so many innovations – including a cat DDO for Jamaica and CCRIF itself.

Grenada's Minister Andrews indicated that even though his country has not experienced an event severe enough to result in a payout, the Government has noted the quick payouts to neighbouring countries which provide resources to respond to the crises that follow hazard events. He reiterated CCRIF's importance to the Caribbean Region, confirming that it was an integral part of Grenada's disaster risk management framework – and encouraged development partners to continue to provide assistance through direct funding to CCRIF as well as premium support to countries.

Minister Martínez expressed the importance to the Government of Guatemala of being part of CCRIF and was pleased that Central American countries were benefiting from this innovative facility. Central American governments' participation in CCRIF was made possible when CCRIF and COSEFIN signed an MOU in 2015 to facilitate entry of these countries to access the parametric insurance offered by CCRIF.

Mr. Anthony highlighted some of CCRIF's achievements in supporting its members' development prospects and committed to continue working closely with Bank and other development partners to find innovative ways to continue to deliver affordable, high quality insurance solutions to countries in the Caribbean and Central America to financially protect their economies: ***“We look forward to growing with you and meeting and exceeding your expectations as we seek to continue to scale up sustainable solutions to address the multi-hazard risk environment that we exist in.”***

Mr. Antoine stressed CCRIF's plans to scale up - providing new products, attracting new members, and expanding technical and operational aspects of CCRIF itself. CCRIF is developing new products for additional perils – including a run-off product related to large-scale flooding that can meet the needs of countries such as Guyana and Suriname, as well as several Central American countries, and is considering developing products for sectors such as tourism, agriculture, housing and even for government buildings. He reminded the audience that CCRIF's parametric insurance is only one instrument in their comprehensive disaster risk financing strategy and that their DRF strategy should include a full mix of these DRF instruments structured along a well-defined risk layered approach.

### **A Snapshot of the Event**



*L: Hon. Lennox Andrews – Grenada's Minister of Economic Development and R: Edwin Oswaldo Martínez Cameros – Guatemala's Minister of Public Finance*



*Left: CCRIF Chairman Timothy Antoine; Right: Joaquin Toro, Lead Disaster Risk Management, Specialist, World Bank*



*Lilia Burunciuc, Country Director of the Caribbean, World Bank*



*CCRIF Chief Executive Officer, Isaac Anthony*



*Michael Gayle, CCRIF Board Member (3<sup>rd</sup> left) and Elizabeth Emanuel, Head, CCRIF Technical Assistance and corporate Communications Manager Teams (centre), share lens time officials from Saint Lucia and St. Vincent and the Grenadines*



*L-R: Ian Carrington, Director of Finance and Economic Affairs, Barbados; Elizabeth Emanuel, Head, CCRIF Technical Assistance and Corporate Communications Manager; Teams, Barbados Prime Minister, Honourable Mia Amor Mottley; and Dr. Kevin Greenidge, Governor of the Central Bank of Barbados*



*L-R: Michael Gayle, CCRIF Board Member; José Ángel Villalobos, Senior Financial Sector Specialist, World Bank; Gillian Golah, CCRIF Chief Operations Officer*

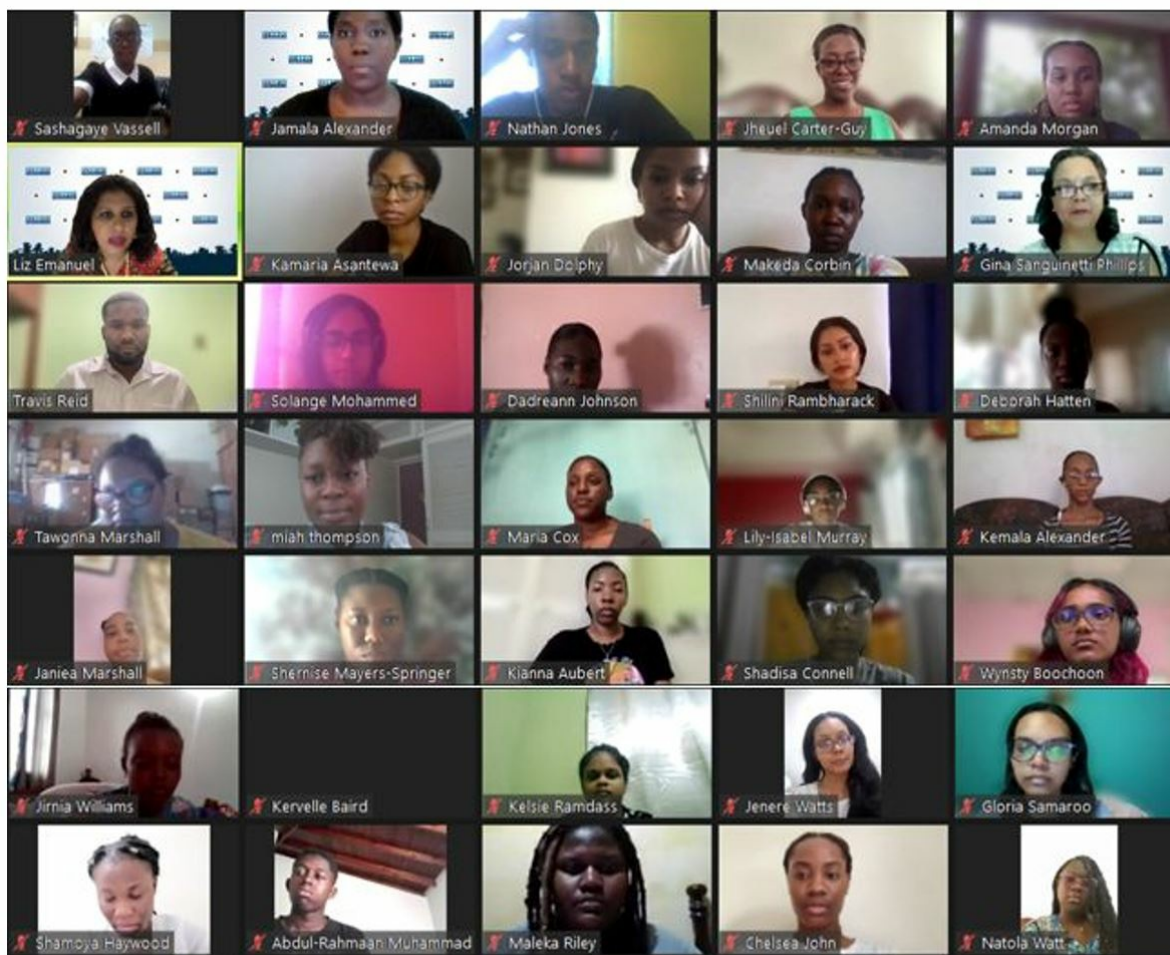


*L-R: Michel Kerf, Country Director of Central America and the Dominican Republic, World Bank; Saundra Bailey, CCRIF Board Member; Joaquin Toro, Lead Disaster Risk Management, Specialist and CCRIF Program Manager, World Bank*



*L-R: Barbados Prime Minister, Honourable Mia Amor Mottley; Hon. Ryan Straughn, Minister of Finance, Economic Affairs and Investment, Barbados, and Elizabeth Emanuel, Head, CCRIF Technical Assistance and Corporate Communications Manager Teams*

## Over 80 Youth Participate in CCRIF/The UWI Summer Course in Disaster Risk Financing and CCRIF Parametric Insurance



*A Snapshot of some of the Participants on the Course*

For the 4<sup>th</sup> year in a row, CCRIF, in partnership with The University of the West Indies, offered a summer course in **Disaster Risk Financing and CCRIF Parametric Insurance**. During July and August, over 80 university students, recent university graduates and high school students completed the course, which provides an opportunity to introduce young people to disaster risk financing and CCRIF.

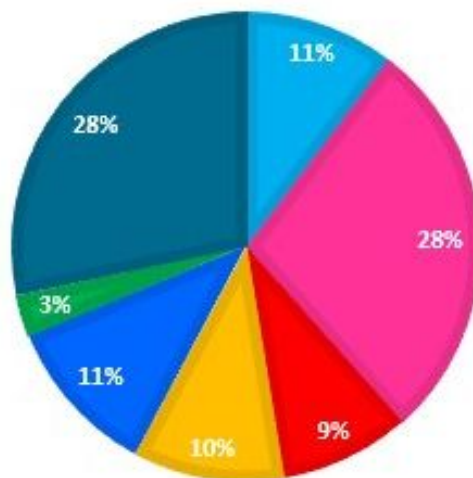
The course provides the opportunity for participants to discuss natural disasters in the Caribbean and their impact on the economies in the region and then to examine disaster risk financing and some of the DRF tools that are being used by Caribbean governments – including parametric insurance. This course in disaster risk financing is unique in that no other similar course is offered at the undergraduate level at regional universities and the areas of focus are new and cutting edge, sparking high levels of interest among young people.

The course also introduces CCRIF and its parametric insurance policies and the models and country risk profiles that underpin them. Students also examine social protection systems and how parametric insurance as well as climate risk microinsurance can be used to expand social protection systems horizontally and vertically following a natural disaster (to allow for social protection systems to become more shock responsive). Participants who successfully complete the course receive a CCRIF/UWI certificate, which carries 2 continuing education units/credits. The course demonstrates the linkages between financial protection against natural hazards (i.e. disaster risk financing) and disaster risk reduction – which more people are familiar with.

In a short poll, the majority of course participants indicated that they wanted to work in areas related to environmental management, climate change, disaster risk management etc., with 9 per cent indicating that they wished to work in the finance/economics field.

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## FIELDS THAT COURSE PARTICIPANTS WANT TO WORK IN IN THE FUTURE



## CCRIF Signs MOU with CEPREDENAC - Central America's Regional Disaster Risk Management Agency



L-R: Ms. Claudia Herrera, Executive Secretary, CEPREDENAC and Mr. Isaac Anthony, Chief Executive Officer, CCRIF SPC

CCRIF SPC and CEPREDENAC (Coordination Center for the Prevention of Disasters in Central America and the Dominican Republic) signed a Memorandum of Understanding on the margins of the CCRIF Regional Technical Workshop for Central America on Disaster Risk Financing and CCRIF Parametric Insurance held in Panama City, Panama, earlier this year.

CEPREDENAC is the specialized institution of the Central American Integration System (SICA) for natural disaster prevention, mitigation, and response. The Governments of Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama, and the Dominican Republic are active members, while Belize is in the process of becoming a member. CEPREDENAC's inter-sectoral agenda is harmonized with other specialized regional entities in areas such as hydrological resources, agriculture, nutrition, and food security. CEPREDENAC has a similar mission to the Caribbean Disaster Emergency Management Agency (CDEMA) in the Caribbean, with which CCRIF has had an MOU since 2009.

The focus of the MOU between CCRIF and CEPREDENAC is to:

- Enhance institutional strengthening through data sharing and knowledge exchange.
- Facilitate the exchange of experiences, lessons learned and best practices in disaster risk management, risk transfer and insurance within the context of advancing sustainable development in Central America and the Dominican Republic to share with members and introduce robust solutions for disaster risk financing and insurance such as those CCRIF provides to protect and increase financial resilience.
- Enhance and strengthen the understanding of each organization's mandates amongst each entity's core stakeholders.
- Provide information on the work of each organization through its various communication media.
- Raise awareness of CCRIF in Central America and the Dominican Republic

through information sharing related to research, exchange programmes, and horizontal cooperation programmes.

- Advance partnership building through South-South cooperation by facilitating the exchange of technology and knowledge among the countries of Central America and the Caribbean.
- Promote activities and programmes that align with the tenets of the Sendai Framework for Disaster Risk Reduction and the 2030 Agenda for Sustainable Development.

CCRIF CEO Mr. Isaac Anthony views this MOU as an important step towards collaboration between the Caribbean and Central America, and said, ***“We are pleased to formalize this partnership between CCRIF and CEPREDENAC, which will facilitate South-South cooperation and be a bridge for the Caribbean and Central America. It will encourage us to share knowledge, lessons learned, and good practices and more importantly, will be a key conduit to enable the two regions to work together on solutions to common challenges that they face as they seek to financially protect their economies, peoples, and communities from the impacts of natural hazards”.***

At the signing of the MOU, Ms. Claudia Herrera, Executive Secretary of CEPREDENAC, said, ***“For us at CEPREDENAC, this is a historic moment that we wish to underscore. This MOU is especially important for us as it will help us to promote investments that will take risk into account. One of our expectations and interests in establishing this MOU is to sensitize and make more visible the role of disaster risk management in achieving our development goals”.***

## CCRIF Supports CEPREDENAC in the Staging of the 3<sup>rd</sup> Regional Simulation of Disaster Response and Humanitarian Assistance in Panama



CCRIF sponsored and participated in the “3rd Regional Simulation of Disaster Response and Humanitarian Assistance” hosted by the Coordination Center for the Prevention of Disasters in Central America and the Dominican Republic (CEPREDENAC) in Panama City, Panama on June 12-16, 2023.

CCRIF provided sponsorship of a little over US\$26,000 for the event and was pleased to also participate in the event.





The event was designed to strengthen integrated disaster risk management in Central America and the Dominican Republic through the implementation of the Regional Humanitarian Assistance Mechanism to be able to provide an efficient and timely emergency response to natural hazards. Twelve countries participated in the event. It aimed to strengthen the national and regional capacities of the entities of the Joint Task Force, Civil Protection, Health, and rescue agencies, helping these entities to measure response and rescue capabilities, and strengthen mechanisms, tools, and the application of technologies in disaster situations. Participants participated in the simulation of six disasters, including:

- A magnitude-7.5 earthquake with its epicenter near the Panama Canal and involving the collapse of several apartment buildings in the capital.
- A major oil spill.
- A tropical wave that causes flooding and landslides.
- A suspected outbreak of avian flu at a hospital.
- The threat of a cyber-attack.
- A fire emergency involving persons trapped inside a burning building.

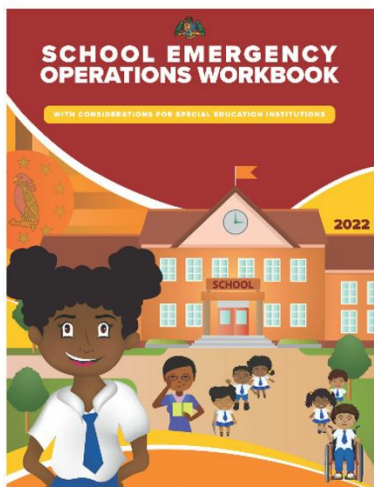
The first Regional Simulation took place in 2019 in Nicaragua, and the second was held in Guatemala in 2022.

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## **CCRIF Supports the Development of 5 Knowledge Products to Build Capacity in Disaster Risk Management and Climate Change Adaptation in the Caribbean**

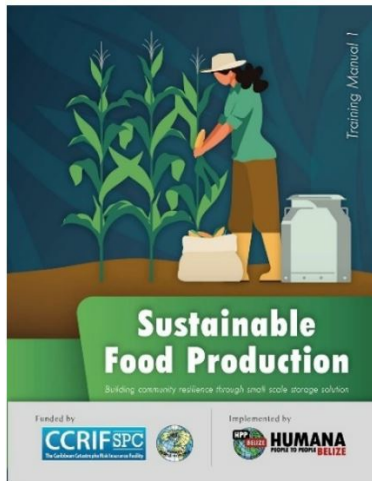
CCRIF has supported, through grants and technical support to non-governmental

organizations in the Caribbean, the development of 5 knowledge products in the last year.



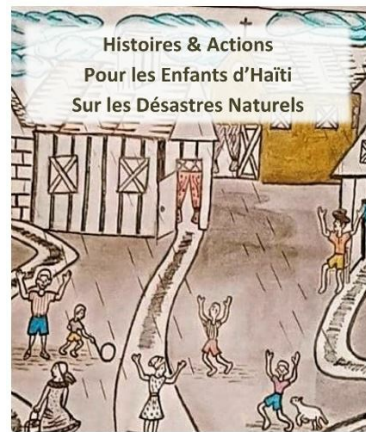
IsraAid Dominica was supported by CCRIF to implement the “Safe Schools, Resilient Communities” project aimed at making schools for children with special needs in Dominica safer and more resilient. IsraAid produced the School Emergency Operations Workbook, which was used in workshops with 4 institutions that provide special education services. The workshops were designed to help school staff members, community focal points and representatives of emergency services to develop Standard Emergency Operating Procedures (SEOPs) that are adapted for special education students’ needs.

**Value of Grant Provided by CCRIF: US\$14,280**



Humana People to People Belize (HPPB) is working with 40 indigenous and immigrant women in rural communities in the Toledo and Stann Creek districts in southern Belize to help them create productive and resilient family gardens. These women are learning how to better secure food from damage due to insects and humidity, as well as to reduce losses from storms and floods, which are regular occurrences in the area. As part of the project, HPPB has produced the manual, Sustainable Food Production, which includes topics such as composting and water management, climate-smart agriculture, disaster risk reduction and preparedness etc. It has been produced in both English and Spanish since about 50 per cent of the women in the communities are Spanish speaking.

**Value of Grant Provided by CCRIF: US\$25,000**



The Groupe des Adolescents Encadré du Nord-Ouest (GAENO) is an NGO in northwestern Haiti. They have produced a story book to help young children understand how natural hazards affect them and what they can do to protect themselves and their families. The publication, Stories and Actions for the Children of Haiti about Natural Disasters (English title), contains 12 stories that highlight how families have been affected by hurricanes, floods, earthquakes, and drought. The stories were submitted by community members through a competition and selected by a local committee. Each story is followed by a set of questions that can help young children understand the story’s main messages. The books have been shared with schools and churches in the Northwest Department.

**Value of Grant Provided by CCRIF: US\$18,890**



CCRIF provided a grant to the Caribbean Policy Development Centre (CPDC) to enable small farmers in the Eastern Caribbean to respond to the effects of natural hazards. CCRIF supported the production of the manual, *Creating Farms that are Resilient to Natural Hazards - Small Farmers Training Manual*, which focused on how farmers can manage drought, extreme rain events and extreme wind events. The manual also included actions farmers can take for post-disaster recovery and how they can increase resilience against climate change impacts. CPDC conducted a train-the-trainer workshop and trained approximately 90 farmers in Grenada, Dominica and St. Vincent and the Grenadines.

**Value of Grant Provided by CCRIF: US\$24,960**

These publications are on our website and can be accessed at:

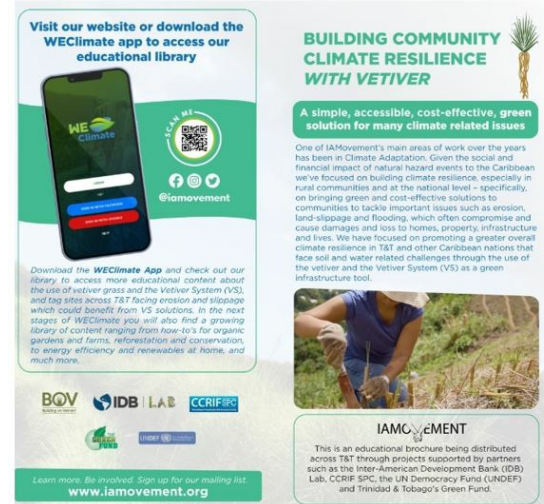
**School Emergency Operations Workbook**

**Sustainable Food Production**

**Stories and Actions for the Children of Haiti about Natural Disasters**

**Creating Farms that are Resilient to Natural Hazards - Small Farmers Training Manual**

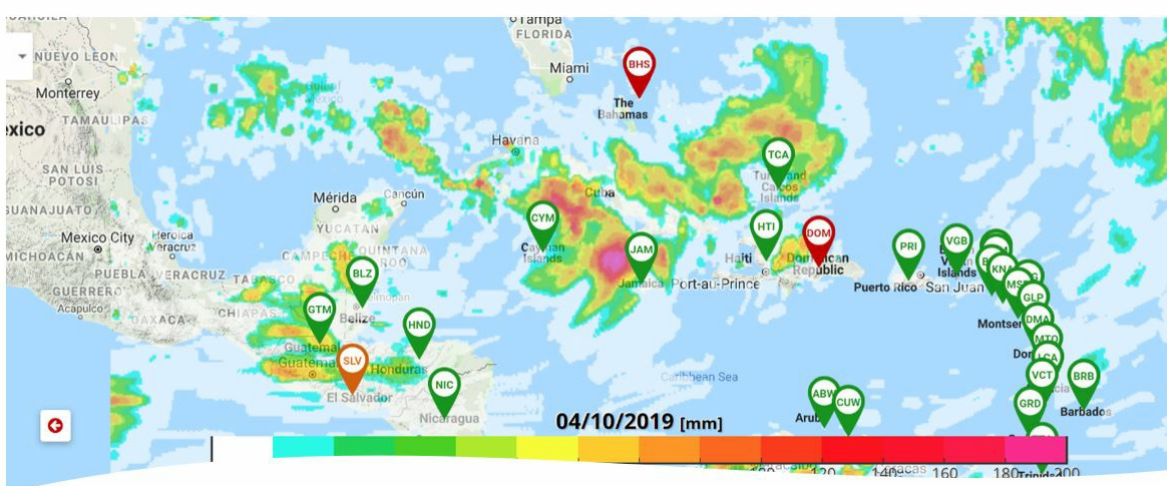
**Building Community Climate Resilience with Vetiver**



IAMovement, an NGO in Trinidad and Tobago, is implementing the “Vetiver System” in several rural communities in Trinidad. This system involves planting vetiver grass to reduce flooding and landslides and increase soil quality and stability. Training community members in installation and maintenance of the vetiver system is an important part of IAMovement’s work. In addition to hands-on field training, the NGO has developed training materials and brochures such as one titled, *Building Community Climate Resilience with Vetiver*. This brochure provides an introduction to the vetiver system, how it can benefit communities and where to get additional information.

**Value of Grant Provided by CCRIF: US\$23,000**

**Calling Meteorological Services, National Disaster Offices, Humanitarian Organizations: Get Access to WeMAP Today!**



If you do not already have a WeMAP account, please contact us at [pr@ccrif.org](mailto:pr@ccrif.org) to receive access. WeMAP is CCRIF's web-based platform through which you can monitor the development of potentially damaging heavy rainfall and tropical cyclones, analyze their intensity and assess their impact. Users can also monitor earthquakes as well.

WeMAP includes four components:

- Tropical Cyclone (TC) Monitoring Tool for wind and storm surge events induced by tropical cyclones.
- Excess Rainfall (XSR) Monitoring Tool for rain events (including but not limited to cyclonic events).
- Earthquake (EQ) Monitoring Tool for seismic events.
- Real-Time Forecasting System – a storm impact forecast tool which provides users with real-time hurricane hazard and impact information. It can produce detailed information on the expected hazard levels and their impacts from tropical cyclones for the entire Caribbean region.

Currently, there are more than 450 persons that have access to the system.

## CCRIF Continues to Enhance the Caribbean's Rain Gauge/Automatic Weather Stations Network



In March 2023, Antigua and Barbuda, the Turks and Caicos Islands and the Cayman Islands signed grant agreements to receive funding from CCRIF to enhance their rain gauge network.

In the photo above, TCI Permanent Secretary Finance, Ms. Athenee Harvey (seated right) signed her country's letter of agreement along with Mr. Isaac Anthony, CEO, CCRIF SPC. Looking on are: Dr. David Farrell, Principal at the Caribbean Institute for Meteorology and Hydrology (at left), and (back row, left to right) Mrs. Beverly Airall, Assistant Financial Secretary, Antigua and Barbuda; Mr. Michael Nixon, Assistant Financial Secretary, Cayman Islands; and Ms. Yvonne Rivera, Chief Risk Management Officer, CCRIF SPC.

With financial assistance from CCRIF, CIMH conducted a situational analysis of the hydro-meteorological network in CCRIF Caribbean member countries, which highlighted the region's below optimal level of coverage in rainfall measurement. The analysis revealed that there is a significant need for a greater number of rainfall measuring stations across all 19 CCRIF member countries in the Caribbean, as only 5 countries have over 70 per cent of the recommended level of rain gauge coverage. The analysis showed that the average across the region is about 40 per cent optimal coverage.

To date CCRIF has assisted four countries, Belize, Antigua and Barbuda, Turks and Caicos Islands, and Cayman Islands, by providing approximately US\$250,000 to these countries to improve and expand their rainfall data collection and measurement networks. The expansion of the regional rain gauge network not only supports countries in improving their own national disaster risk management and early warning systems, but also provides better rainfall data to agencies such as CIMH and CCRIF. In 2023, CCRIF will continue to provide assistance to additional countries (which have already been identified), to expand their rain gauge networks.

### **The Importance of Automatic Weather Stations (AWS)**

- **AWS measure a suite of weather variables including precipitation, temperature, wind speed and direction, atmospheric pressure, solar radiation, and humidity and provide critical information to support the near real-time monitoring of atmospheric conditions and nowcasting.**
- **AWS can support the installation of additional sensors such as air temperature sensors which contributes to increasing the number of weather and climate variables that can be monitored and in turn enable the meteorological services to undertake more detailed and reliable analysis of climate trends, thereby informing national strategies on climate change and disaster risk management.**

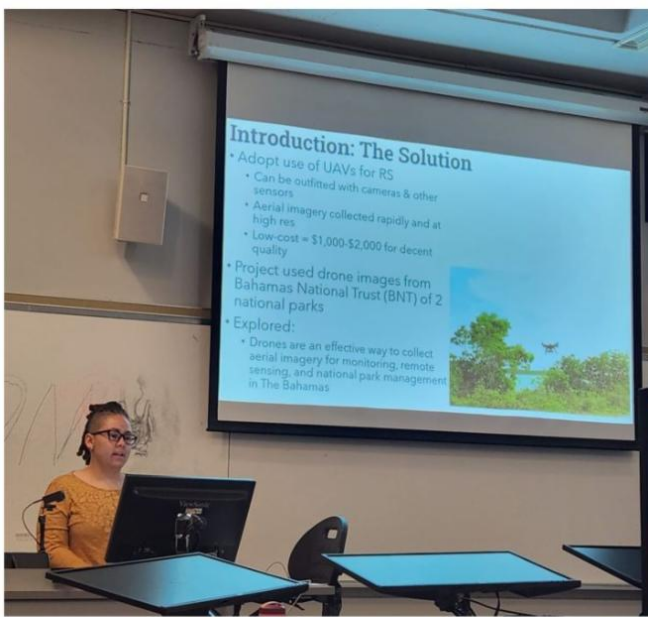
**2022 Bahamian CCRIF Scholar Focuses her Final MSc Project on “Using Low-Cost Drones to Map Habitat Changes in Bahamian National Parks”**



*CCRIF scholarship recipient, Giselle Deane (4<sup>th</sup> from right), Lecturer Mr. Ramachandra Sivakumar (front row, 5<sup>th</sup> from right) and other students at the capstone presentation at the Georgia Institute of Technology programme in Geographic Information Science and Technology*

Ms. Giselle Deane one of CCRIF's 2022 scholarship recipients, completed the last part of her programme to obtain a Master's degree in Geographic Information Science and Technology at the Georgia Institute of Technology. On July 28<sup>th</sup>, Ms. Deane and the other 10 members of her cohort presented their capstone projects as their final deliverable under the programme. Ms. Deane's project, **"Using Low-Cost Drones to Map Habitat Changes in Bahamian National Parks"**, focused on using drones to monitor habitat change in The Bahamas, where habitat monitoring is very difficult because the islands of this archipelago nation cover such a large area and many of them are very remote. The main drivers of habitat change in the country have been sea-level rise, and hurricanes – most recently Hurricane Dorian.

Ms. Deane used data from the Bahamas National Trust (BNT), collected from its fleet of drones which are employed as part of its monitoring system. BNT manages 32 national parks covering 2.2 million acres of land, coast, and sea. Under the project, Ms. Deane processed the drone photos to create GIS products such as orthomosaic photographs and digital surface models, to conduct change detection analysis in two national parks. These analyses provide useful information to the BNT, and the methodology and GIS products developed by Ms. Deane can be used at the BNT to analyze data on an ongoing basis.



*Giselle Deane presenting the results of her capstone project, "Using Low-Cost Drones to Map Habitat Changes in Bahamian National Parks"*

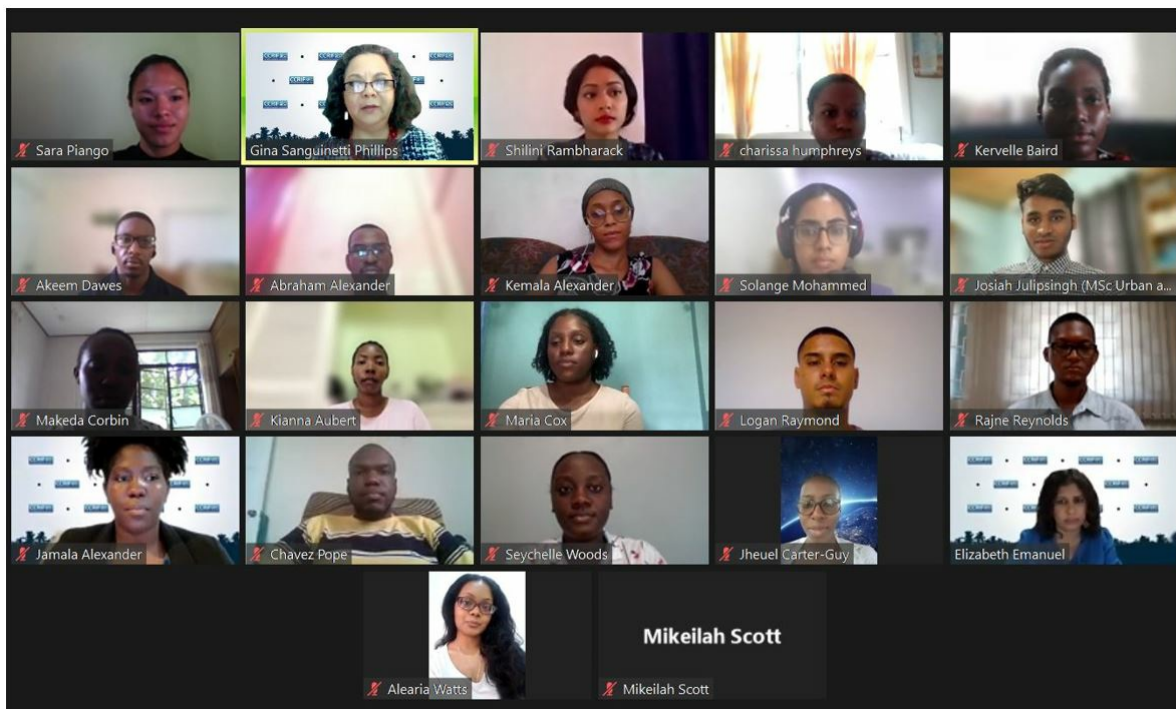


*Giselle Deane and Gina Sanguinetti Phillips, from the CCRIF Technical Assistance Manager Team at the capstone project presentations.*

## CCRIF 2023 Internship Programme

### CCRIF... Building a Cadre of Leaders in Comprehensive Disaster Risk Management (CDRM) in the Caribbean

Since 2010, CCRIF has been offering scholarships and internships to young Caribbean nationals to help build a cadre of young Caribbean leaders in comprehensive disaster risk management. This year, CCRIF has selected 19 interns from across the region. Since 2015, CCRIF has supported 150 Caribbean nationals to undertake internships in regional and national organizations that focus on areas such as disaster risk management, climate change and meteorology.



*2023 CCRIF Interns and the CCRIF Technical Assistance Manager Team at the Introductory Internship Forum on July 25, 2023*

On July 25<sup>th</sup> CCRIF met with its interns in a virtual introductory internship forum. This forum is designed to help interns get the most out of their internship experience by helping them understand the requirements of the programme and the expectations of them as CCRIF interns - as well as what they can expect from CCRIF and their host organizations. The forum provides an opportunity for them to ask questions and discuss concerns related to the upcoming internship experience.

During July to December 2023, the interns will be undertaking work in areas such as:

- Creating a database of regional severe weather case studies
- Critical resources/infrastructure mapping
- Developing a communication and marketing plan for a safer building training programme
- Quantifying the flooding hazard on a coastal region
- A study on the linkages between climate change and wildfire frequency
- Developing a funding proposal to be submitted to the Green Climate Fund
- Exploring the possibility of developing an early warning system for hydrological drought.

This year's host organizations are: The University of the West Indies, Caribbean Disaster and Emergency Management Agency, and Caribbean Institute for Meteorology and Hydrology – which have hosted interns every year – and the Caribbean Meteorology Organization, CARICOM Secretariat, OECS Commission, and CCRIF itself as well as first-time host organizations, the Antigua and Barbuda Meteorological Service and IAMovement, an NGO based in Trinidad and Tobago.

### **Linking CCRIF's Technical Assistance Programmes – Small Grants Programme and Internship Programme**

**IAMovement** received a grant under CCRIF's Small Grants Programme to implement the "Vetiver System" in several rural communities in Trinidad to enhance their resilience to climate-related hazards, in particular heavy rainfall.

The Vetiver System (VS) is based on planting vetiver grass, which can reduce the impacts of heavy rainfall, which often leads to erosion of hillside farming soils, downstream flooding, and land slippage, causing damage to roads, homes, and other infrastructure. IAMovement's project included installing vetiver systems by residents throughout the communities; training in field preparation, installation of the vetiver plants and maintenance of the vetiver installations; and establishing vetiver nurseries to ensure an ongoing supply of the grass to plant in new areas.

The intern will help to expand the reach of the project by promoting the Vetiver System among communities beyond those involved in the CCRIF-funded project.





Jamala Alexander, a young national from Trinidad and Tobago and now a policy and research assistant with CCRIF, started her journey with CCRIF when she received an undergraduate scholarship to support her 2<sup>nd</sup> and final years of study at The UWI in the 2017/18 academic year. From there on, Jamala received an extra-regional scholarship from CCRIF to pursue her master's at a university in the UK and two CCRIF internships. CCRIF's investment in Jamala's education and professional development has exceeded US\$50,000.

Listen to Jamala's inspiration journey with CCRIF at: <https://youtu.be/LWG-IvGGewk>

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## Knowledge Corner



## **Be Prepared!** **HURRICANE PREPAREDNESS TIPS AND CHECKLISTS** **FOR** **HOUSEHOLDS, COMMUNITIES AND BUSINESSES**



### About the 2023 Atlantic Hurricane Season – June 1 – November 30

A hurricane is a severe tropical cyclone with sustained or constant winds of 74 mph (119 km/h) or greater. Meteorologists rank hurricanes using five categories according to the Saffir-Simpson hurricane scale for wind speed, with 1 being the mildest and 5 the strongest. The five categories give an estimate of the possible damage to expect if the hurricane makes landfall. A hurricane is usually accompanied by heavy rain (6-12 inches) and storm surges (waves up to 25 feet high).

The table below shows how the Saffir-Simpson hurricane scale determines the rank of a hurricane using wind speed and storm surge.

Hurricane Rank	Wind Speed (mph) (km/h)	Storm Surge or height of waves (ft) (m)	Example of Damage
1	74-95 mph 119-151 km/h	4-5 ft 1.2 – 1.5 m	Minimal – no damage to buildings.
2	96-110 mph 152-176 km/h	6-8 ft 1.8–2.4 m	Moderate –some damage to roofing material, doors, and windows on buildings. Considerable damage to vegetation and agriculture.
3	111-130 mph 177-209 km/h	9-12 ft 2.7-3.6 m	Extensive – Structural damage to buildings and a potential for external wall failure. Significant roof damage.
4	131-155 mph 210-248 km/h	13-18 ft 3.9-5.4 m	Extreme – More extensive roof damage and structural failures. Major erosion of beach areas. Significant inland flooding of low-lying areas.
5	More than 155 mph  More than 248 km/h	More than 18 ft  More than 5.4 m	Catastrophic – Complete roof failure on many residences and industrial buildings. Some complete building failure. Major damage to lower floors of all coastal structures.

The National Oceanic and Atmospheric Administration (NOAA) predicts near-normal hurricane activity in the Atlantic for 2023 as follows:

- 40% chance of a near-normal season

- 30% chance of an above-normal season
- 30% chance of a below-normal season

These predictions further translate into:

- 12 – 17 named storms
- 5 – 9 hurricanes
- 1 – 4 major hurricanes

## **Be Prepared!**

Below is a list of tips that can help you prepare for the Hurricane Season. This is not an exhaustive list. Add to it and share with family, friends, and colleagues at work.

- Know your disaster management coordinator for your area and the phone numbers for your local authority or municipality.
- Have handy or know phone numbers for emergency services, including the police, fire services and local ambulance services.
- Know the terminology associated with hurricanes – hurricane watch, hurricane warning.
- Ensure insurance policies are up to date and have adequate coverage.

### **AT THE START OF THE HURRICANE SEASON**

- Give family members or staff First Aid and CPR training.
- Ensure that any windows or doors that need repair are fixed.
- Trim trees with branches next to buildings, houses, and electrical lines.
- Stockpile protective materials such as plastic sheeting and sandbags.
- Identify the nearest shelters to your home/business and note all possible evacuation routes.
- Create an emergency contact list with numbers for the protective service, family, and friends.
- Write or review your Family Emergency Plan. Outline how you will get in contact with each other, where you will go, and what you will do during an emergency.
- If you have staff or a family member that is elderly or has special needs, call a local disaster management agency or the public health department to get advice on what to do.
- Do an inventory of hurricane supplies and ensure that items are properly stored and labelled. Items should include boots, raincoats, flashlights, batteries, radios, lamps, shutters, hooks and latches, plastic bags, nails, rope, first aid supplies, drinking water, non-perishable food, ice that can be placed in a cooler, cell phone battery chargers, candles and matches.
- Ensure that you have at least 4 – 5 days' supply of food that does not require cooking (canned meats, beans, cheese, peanut butter, crackers etc.) and is labelled as hurricane food supplies (this helps you to avoid the supermarket rush when a hurricane is approaching).
- Identify vital records and make back-up copies or store digitally (even taking photos or scans of important documents using your phone would be useful) and place the original records and copies in enclosed plastic bags and in a safe storage area, above ground level and away from windows and exterior walls which may leak. Records can also be moved off site.
- If possible, purchase a generator for your home or business and be sure to test it occasionally.

**IMMEDIATELY BEFORE A HURRICANE – OR WHEN A TROPICAL STORM IS APPROACHING (remember that tropical storms can quickly escalate into hurricanes)**

- Listen to and heed all warnings and bulletins via radio, television, and social media channels. Rely on information from reliable sources (Meteorological Services and Government Information Services) and be cognizant of “false news” which is now popular and is associated with the increased use of digital and social media platforms.
- Keep pets inside if possible.
- Remove all wall items and hanging articles.
- Clean all drains, gutters, and downspouts.
- Fill all vehicles with petrol and place them in a garage if possible.
- Store all chemicals, fertilizers, and toxic materials in waterproof containers.
- Dismiss staff temporarily so they can secure their homes and families.
- Prepare for power outages by charging mobile phones and setting your fridge to the coldest settings.
- Place vital records such as accounts, receipts, customer records, tax records and personal documents in storage cabinets or plastic or relocate them to a storage facility.
- Pack a “Go Kit” in case you have to evacuate. This can include water, non-perishable food, baby and pet supplies, cash, flashlight, radio, medications, personal hygiene items, important documents, cell phone with chargers, emergency contact information.
- Ensure that roofing is secured and move any loose objects which might cause damage due to strong winds inside. Anchor any objects that would be unsafe to bring inside.
- If your building has glass frontage, clear out that section and use shutters or strong masking tape to protect the glass. If using tape, you should put an "X" across the glass to prevent splinters from scattering in case the glass shatters.
- Secure all furniture/equipment above the potential water level, batten doors firmly, and secure shutters.
- Disconnect all electrical equipment, turn off lights and air conditioners.
- Move heavy duty equipment to a safe location.

If the hurricane continues on its path and a hurricane warning is put into effect additional measures should be taken by businesses. These include:

- Removing all outdoor hazards - e.g., communication antennae, billboards, banners, and hanging signs.
- Releasing non-essential staff to prepare their homes.
- Wrapping office equipment such as copy machines and computers in plastic to protect against damage and moving computer towers from off the floor.
- Moving desks, files, equipment, and furniture away from windows without shutters to an area where they will be safe and moving them from floors.
- Disconnecting electrical equipment, turning off lights and all air conditioners.
- If an organization has its library on the ground floor, move books and papers to higher shelves in case of flooding to reduce water damage.

## **DURING A HURRICANE**

- Stay calm. This is especially true for pregnant women in their last trimester where the stress and uncertainty associated with the system can likely trigger labour. However, it is a myth that low barometric pressure associated with a hurricane can trigger labour.
- Listen to the radio and use your cell phone for reports and information.
- Do not go outside unless necessary.
- Do not open windows and doors that are exposed to the full forces of the wind.
- Keep a hurricane lamp burning, preferably one that is battery operated, as it may make the night more tolerable.

- If the house shows signs of damage, sit under a table, or stand in a sturdy closet.
- Use the brief time during the passage of the eye of the hurricane (when there is calm) to complete any urgent repairs for personal safety.
- If you need to seek medical attention, call the authorities rather than venturing out on your own.

## **AFTER A HURRICANE**

- Seek medical attention at first-aid stations, hospitals, or clinics, if needed.
- Continue listening to the radio or the news for updates.
- If you evacuated, return home only when officials say it is safe to do so.
- Dress in protective gear before going outside.
- Do not touch loose or dangling electrical wires.
- Drive only if necessary and avoid flooded roads and washed-out bridges.
- Check for damage to the structure of your home/facility and equipment.
- Stay out of any building if you smell gas, see floodwaters, or see damage due to fire.
- Identify and clear up debris such as fallen trees and bushes and effect emergency repairs.
- Boil all drinking water for at least 10 minutes or use bottled water if it is available and affordable.
- Have damaged septic tanks or leaching systems repaired as soon as possible.
- If your home or property is damaged, take photos or videos to document damage, and contact your insurance company, if your home is insured.
- Report any damage of water sewage mains, or surrounding buildings to local authorities.
- Remove any saturated porous materials such as mattresses, as well as any flooring, paneling, drywall, insulation, and electrical outlets saturated by floodwater.
- Increase air flow by opening all doors and windows. If possible, leave a few windows open when you are not present.
- Throw away food (including canned items), that has come into contact with floodwaters or has an unusual odour, colour, or texture. When in doubt, throw it out!
- Be a good neighbour. Check on family, friends, and other neighbours, especially the elderly, persons with disabilities, young mothers, and those who may need additional assistance.
- Use mosquito repellents that do not include DDT to protect against increased proliferation of mosquitoes that may come after rainfall (such as the *Aedes aegypti*, which can spread diseases such as dengue and chikungunya), whose dormant eggs may hatch after rainfall events.
- Do not empty any stored water until safe drinking water is restored by your national water authority.

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## **FOLLOW US**



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