

## ANNUAL REPORT 2010 - 2011

### CCRIF ANNUAL REPORT 2010-2011



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CCRIF, a not-for-profit company, is the first multi-country risk pool in the world

# About CCRIF

The Caribbean Catastrophe Risk Insurance Facility (CCRIF) is the first multi-country risk pool in the world, and is also the first insurance instrument to successfully develop parametric policies backed by both traditional and capital markets. It is a regional catastrophe fund for Caribbean governments designed to limit the financial impact of devastating hurricanes and earthquakes by quickly providing financial liquidity when a policy is triggered. CCRIF was developed through funding from the Japanese Government, and was capitalised through contributions to a multi-donor Trust Fund by the Government of Canada, the European Union, the World Bank, the governments of the UK and France, the Caribbean Development Bank and the governments of Ireland and Bermuda, as well as through membership fees paid by participating governments.

Sixteen governments are currently members of the Facility: Anguilla, Antigua & Barbuda, Bahamas, Barbados, Belize, Bermuda, Cayman Islands, Dominica, Grenada, Haiti, Jamaica, St. Kitts & Nevis, St. Lucia, St. Vincent & the Grenadines, Trinidad & Tobago and Turks & Caicos Islands.

CCRIF therefore helps to mitigate the short-term cash flow problems small developing economies suffer after major natural disasters. A critical challenge is often the need for short-term liquidity to maintain essential government services until additional resources become available. CCRIF represents a cost-effective way to pre-finance short-term liquidity to begin recovery efforts for an individual government after a catastrophic event, thereby filling the gap between immediate response aid and long-term redevelopment.

Since the inception of CCRIF in 2007, the Facility has made eight payouts totalling US\$32,179,470 to seven member governments. All payouts were transferred to the respective governments less than a month (and in some cases within a week) after each event. These payouts are shown in the table below.

Event	Country Affected	Payouts (US\$)
Earthquake, 29 November, 2007	Dominica	528,021
Earthquake, 29 November, 2007	Saint Lucia	418,976
Tropical Cyclone Ike, September 2008	Turks and Caicos Islands	6,303,913
Earthquake, 12 January, 2010	Haiti	7,753,579
Tropical Cyclone Earl, August 2010	Anguilla	4,282,733
Tropical Cyclone Tomas, October 2010	Barbados	8,560,247
Tropical Cyclone Tomas, October 2010	Saint Lucia	3,241,613
Tropical Cyclone Tomas, October 2010	St. Vincent & the Grenadines	1,090,388
Total for the Period 2007 - 2010		US\$32,179,470

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# **List of Acronyms**

2G	Second-Generation	
BMU	German Federal Ministry of the Environment and Nuclear Safety	
CANARI	Caribbean Natural Resources Institute	
CaribRM	Caribbean Risk Managers Ltd.	
CARICOM	Caribbean Community	
CARILEC	Caribbean Electrical Utility Services Corporation	
CCCCC	Caribbean Community Climate Change Centre	
CCRIF	Caribbean Catastrophe Risk Insurance Facility	
CDB	Caribbean Development Bank	
CDEMA	Caribbean Disaster Emergency Management Agency	
CDM	Comprehensive Disaster Management	
CIMH	Caribbean Institute for Meteorology and Hydrology	
COP16	2010 United Nations Climate Change Conference in Cancún, Mexico (16th	
00110	Conference of the Parties)	
CROSQ	CARICOM Regional Organisation for Standards and Quality	
DFID	UK Department for International Development	
DRM	Disaster Risk Management	
DRR	Disaster Risk Reduction	
DRRC	Disaster Risk Reduction Centre	
ECA	Economics of Climate Adaptation	
GARP	Global Association of Risk Professionals	
GDP	Gross Domestic Product	
GFDRR	Global Facility for Disaster Reduction and Recovery	
HLEM	Hazard and Loss Estimation Model	
IDB	Inter-American Development Bank	
IDPs	International Development Partners	
IFC	International Finance Corporation	
JSA	Johannesburg, South Africa Ground Station	
KAC	Kinetic Analysis Corporation	
MCII	Munich Climate Insurance Initiative	
MoU	Memorandum of Understanding	
MPRES	Multi-Peril Risk Estimation System	
NASA	US National Aeronautics and Space Administration	

NDC	National Disaster Coordinator
NGO	Non-Governmental Organisation
NHC	National Hurricane Center
NOAA	National Oceanic and Atmospheric Administration
OECD	Organisation for Economic Co-operation and Development
PDS	Professional Development Session
PIOJ	Planning Institute of Jamaica
PR	Public Relations
RECC	Review of the Economics of Climate Change
RTFS	Real-Time Forecasting System
SELA	Latin American and Caribbean Economic System
SIDS	Small Island Developing States
SIM	Sagicor Insurance Managers Ltd
ТА	Technical Assistance
TAOS	The Arbiter of Storms
TCI	Turks & Caicos Islands
TRMM	Tropical Rainfall Measurement Mission
UK	United Kingdom
UNDESA	United Nations Department of Economic and Social Affairs
UNECLAC	United Nations Economic Commission for Latin America and the Caribbean
UNFCCC	United Nations Framework Convention on Climate Change
UNOCHA	UN Office for the Coordination of Humanitarian Affairs
US	United States
USGS	United States Geological Survey
UWI	University of the West Indies
WMO	World Meteorological Organisation

### Vísíon Statement

CCRIF will be a key partner with the Caribbean region in its disaster risk management strategies to support long-term sustainable development goals.

### Míssíon Statement

Our Mission is to serve Caribbean governments and their communities in reducing the economic impact of natural catastrophes. We provide immediate liquidity through a range of affordable insurance products in a way that is financially responsible and responsive to their needs.

## Products

CCRIF offers parametric insurance products that provide coverage for hurricane and earthquakes and will be offering coverage for excess rainfall by the end of 2011.

## Customer Values

The clients of the not-for-profit CCRIF are the member countries of the Caribbean Community. CCRIF promises its clients to:

- 1. Fill a gap in available insurance offerings for natural catastrophes
- 2. Ensure a joint reserve mechanism for future benefits
- 3. Provide member countries confidence in its ability to provide financial support
- 4. Supply tools and strategies for enhanced disaster risk management
- 5. Provide the highest degree of service at the best possible price
- 6. Ensure speedy payouts
- 7. Meet best standards in transparency and accountability
- 8. Effectively communicate with members and stakeholders

# CARIBBEAN CATASTROPHE RISK INSURANCE FACILITY

# **Strategic Objectives**

CCRIF's strategic objectives, as contained in the Facility's Strategic Plan are designed to enable the Facility to fulfill its mission and realise its vision. These strategic objectives allow CCRIF to continuously align the Facility's priorities and link products, programmes, key activities and operations to performance measures and customer values. CCRIF's strategic objectives for the period 2009 – 2012 are presented below:



## **Board of Directors**



#### Milo Pearson, Executive Chairman

Milo Pearson has over 35 years of insurance experience and has created two landmark organisations that have had an important and lasting impact on the insurance industry in California: the California Earthquake Authority and the Rate Regulation Division of the California Department of Insurance. As a senior partner of Insurance Solutions Group, Pearson specialises in regulatory and catastrophe-related issues. He is also the Executive Director for the Pacific Association of Domestic Insurance Companies, an industry trade association.



### Isaac Anthony, CARICOM- nominated board member, representing participating countries

Chairman and founding member of the Caribbean Public Finance Association (CAPFA), Isaac Anthony currently serves as a CCRIF board member appointed by CARICOM. A former Accountant General and Registrar of Insurance, he is presently the Permanent Secretary/Director of Finance in the Ministry of Finance, Economic Affairs & National Development in Saint Lucia. With a BSc. in Economics and Accounting and an Executive MBA from the University of the West Indies, Anthony also serves on the Boards of a number of national and regional organisations including the Caribbean Development Bank and the Eastern Caribbean Development Bank.



### Dr Warren Smith, Caribbean Development Bank- nominated board member, representing donors

Appointed to the CCRIF Board by the Caribbean Development Bank (CDB), Dr. Warren Smith has more than 30 years experience in economics and planning and holds a BA (Hons.) in Economics, an M.Sc. in Agricultural Economics and a PhD in Economics from Cornell University. Currently, he is the Director of Finance and Corporate Planning at the CDB. He has held positions at the National Investment Bank of Jamaica, Prudential Stockbrokers Limited, Life of Jamaica, LIAT and the Petroleum Corporation of Jamaica. In May 2011, Dr. Smith took up his new appointment as President of the CDB.



### Ken Blakeley, CARICOM- nominated board member, insurance specialist

A former President of both the Insurance Company of the West Indies (ICWI) and Eagle Star Insurance Company of Puerto Rico, Ken Blakeley has had a long tenure in Caribbean insurance. His 40-year career in the region's insurance market began with a stint as a Resident Inspector in Trinidad & Tobago leading him to positions as a Managing Director, Agency Manager and now, as a Technical Adviser and Director at Billy Craig Insurance Brokers in Jamaica. Blakeley has also served as the Deputy Chairman, Jamaica Association of General Insurance Companies, Chairman of the Board of Studies for the Insurance Institute of Jamaica and as Chairman of the Insurance Institute of Jamaica.



### Desirée Cherebin, Caribbean Development Bank- nominated board member, finance specialist

Newly appointed board member of CCRIF in September 2010 to replace Garry Wilkins, Desirée Cherebin is a Banking Supervision and Financial Services Consultant working with regional and international agencies, including the Caribbean Regional Technical Assistance Centre and the International Monetary Fund to assist countries with strengthening the regulation and supervision of their financial sectors. Prior to her retirement in 1997, she was Director of Bank Supervision at the Central Bank of Barbados. She also worked as an Economist with the Ministry of Trade in Barbados and as an Adviser to the Governor of the Central Bank of Barbados.

## **The CCRIF Team**



#### **Caribbean Risk Managers Ltd, Facility Supervisor**

Caribbean Risk Managers Limited was formed through the merger of GeoSY (a consultancy company led by Dr. Simon Young) and the risk management arm of the CGM Gallagher Group. As Facility Supervisor, CaribRM is responsible for leading the operational and risk management functions within CCRIF. CaribRM has completed projects for clients in both the public and private sectors throughout the Caribbean. The company is headed by

Simon Young who is supported by Martin Goddard, Ekhosuehi Iyahen and a growing technical team based in Barbados, Jamaica and Washington D.C.



#### Sagicor Insurance Managers Ltd, **Insurance Manager**

Sagicor Insurance Managers Ltd (SIM) is a member of the Sagicor Financial Group, which is listed on the Barbados, Trinidad & Tobago and London Stock Exchanges. Formed originally as Barbados Mutual in 1840, Sagicor

has become the leading indigenous financial services organisation in the Caribbean, with a presence in 21 countries across the Caribbean, the United Kingdom, in 41 states of the United States and the District of Columbia. SIM provides insurance management services in the Cayman Islands, and provides regulatory, accounting and corporate secretarial support to CCRIF. James Rawcliffe is Sagicor's appointee to CCRIF.



### **Reinsurance Broker**

Aon Benfield is the premier reinsurance intermediary and capital advisor. Formed through the December 2008 merger between Aon Re Global and Benfield, it offers clients access to every traditional and alternative market in the world, through an international network of offices spanning 50 countries and more than 4,000 professionals. Clients of all sizes and in all locations are able to access the broadest portfolio of integrated capital solutions and services, world-class talent, and unparalleled global reach and local expertise, to best meet the objectives of their business.



### London & Capital Ltd, Asset Manager

London & Capital is a specialist asset management company. With more than 20 years' expertise and experience, the

company focuses on capital preservation and wealth management. William Dalziel is London and Capital Limited's team leader for CCRIF.



#### EFG Bank - Cayman Branch, Asset Manager

EFG Bank - Cayman Branch is the Cayman private banking subsidiary of EFG International. Headquartered in Zurich, EFG has its main operating hub in Geneva, with an international network spanning Europe, the Middle East, Asia Pacific and Latin America. Simon Cawdery and Barlo MacLean are EFG Bank's CCRIF representatives based in Cayman.



#### Sustainability Managers, **Communications Manager**

Sustainability Managers, a consultancy company based in Jamaica is a multi-disciplinary team of professionals that offers a range of services to public and private sector entities as well as

international and regional organisations. As Communications Manager, Sustainability Managers provides CCRIF with the following services: publications development; events planning; public relations and media relations management; advertising management; strategic planning; and training & facilitation. Elizabeth Emanuel and Gina Sanguinetti are Sustainability Managers' team leaders for CCRIF.

### **GUY CARPENTER**

MARSH MERCER KROLL

#### **Guy Carpenter & Company**, LLC – Reinsurance Broker

Guy Carpenter & Company, LLC

joined the CCRIF Team as the new Placing Broker for the Facility in March 2011. Guy Carpenter is the world's leading risk and reinsurance specialist and a member of Marsh & McLennan Companies. With over 50 offices worldwide, Guy Carpenter creates and executes reinsurance solutions and delivers capital market solutions for clients across the globe. Aidan Pope is Guy Carpenter's team leader for CCRIF.

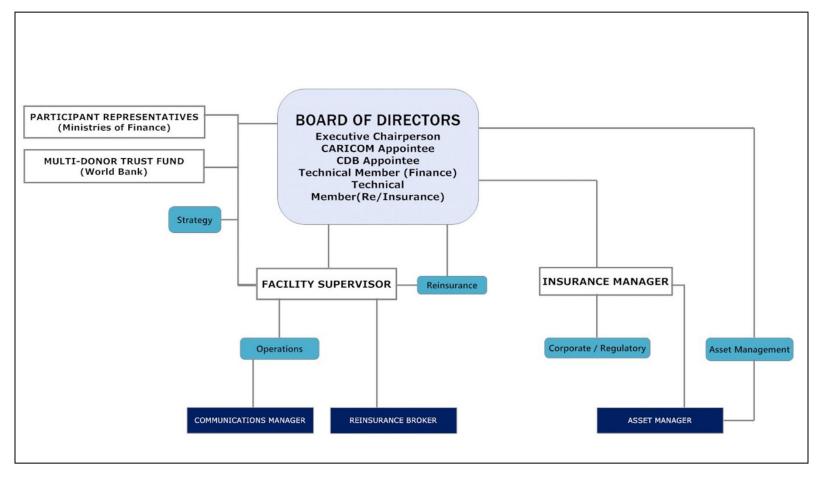
CCRIF, a not-for-profit company, is the first and only multi-country risk pool in the world

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## **CCRIF Organisational Structure**

CCRIF's operations are laid out in an Operations Manual and are executed by six service-provider companies:

- Facility Supervisor
- Insurance Manager
- Reinsurance Broker
- Asset Manager (there are two asset management companies)
- Communications Manager



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# **Chairman's Report**

sixteen member countries renewed their Earthquake and Tropical Cyclone policies with CCRIF. Although most countries maintained premiums at the same level as 2009/10, two factors contributed to some changes in coverage characteristics selected by governments and also led to a general increase in coverage limits for the 2010/11 policies.

Firstly, the Facility introduced revised policies based on CCRIF's secondgeneration model. This model represents the levels of tropical cyclone and earthquake risks faced in the Caribbean region at higher resolution than the initial model and uses a full modelled-loss approach as opposed to the index-based approach previously employed. Also, the fact that the tropical cyclone model now explicitly includes losses due to storm surge is regarded as a key improvement.

Secondly, as part of CCRIF's planned strategy to minimise premium costs to its participating countries, policy pricing was again reduced by 10% - this is reflective of our very strong financial position. Also, countries were allowed to co-fund their premium with a portion of their paid-in Participation Fee. This is part of the revised policy for members who have reached three continuous years of coverage with the Facility. Notably, as a result of increased appreciation of seismic risk following the Haiti earthquake in January 2010, twelve countries increased their coverage limit for earthquakes.

n behalf of the Board of Directors and team of the Caribbean Catastrophe Risk Insurance Facility (CCRIF), I am pleased to provide you with our fourth Annual Report, which provides details of our operations and presents our audited financial statements for the year ending May 31, 2011.

During this fiscal year we welcomed to the Board in September 2010, Mrs Desirée Cherebin, Caribbean Development Bank (CDB) nominated Director, acting in the capacity of finance specialist on the Board. During this year as well, Dr Warren Smith, CDB-nominated Director was elected as President of the the Board CDB and and Team congratulates him on this achievement and wishes him all the best.

Today, CCRIF remains the world's first and only multi-national catastrophe fund, offering unique parametric hurricane and earthquake coverage to 16 participating governments in the Caribbean Region. The 2010/11 policy renewal process was an intense one, involving extensive discussions with member countries and the donor community. Ultimately, all The 2010 Atlantic Hurricane season was described by the National Oceanic and Atmospheric Administration (NOAA) as one of the busiest on record since the satellite era began. There were nineteen named storms and of these, twelve became Hurricanes with five of them reaching a status of Category Three or higher. During the season, the Hurricane policies for four CCRIF member countries were triggered due to the passage of Tropical Cyclones Earl and Tomas. Total payments made by CCRIF were over US\$ 17 million.

CCRIF made a payment of US\$4,282,733 to the Government of Anguilla on 16 September following the passage of Tropical Cyclone Earl which passed close to the island on August 30, 2010.

Payments also were made to the Governments of Barbados, Saint Lucia and St. Vincent & the Grenadines following the passage of Tropical Cyclone Tomas which passed close to these islands on 30 and 31 October, 2010. Barbados received US\$8,560,247; Saint Lucia - US\$3,241,613 and St Vincent & the Grenadines - US\$1,090,388. As usual, all payouts were made within fourteen days of the events, after verification of the initial calculations. In the case of Tomas, 50% of the funds were actually made available to the countries within seven days, at their request and due to the severe impact of the system.

There was minimal seismic activity in member countries during the 2010/11 policy year compared to the last policy year in which there was the occurrence of a devastating 7.0 magnitude earthquake in Haiti. Most significant this policy year was a magnitude 4.7 earthquake that struck the south-western parts of Jamaica in May 2011, though only minor damage was reported. Although the earthquake generated some government losses in the CCRIF model, it did not trigger a payment from the Facility. The loss generated was significantly below the attachment point of Jamaica's policy. This event was however, a reminder to countries of the ever-present earthquake hazard.

The active 2010 hurricane season further highlighted the imposing costs which natural disasters continue to bring to Caribbean countries. The risk spectrum imposed by natural disasters on the region range from the more frequent, less intense events to the less frequent but larger and more catastrophic events and highlights the need for a holistic approach to effectively manage all of these risks.

### Highlights of the Fiscal Year 2010 - 2011

As with the last two years, this year was a very busy one for CCRIF. Using our Strategic Plan and objectives as our point of departure, the Facility focused its efforts on a range of initiatives, projects and programmes all with the aim of benefitting our members.

Apart from meeting the liquidity needs of affected governments and undertaking a number of key internal reviews, we also provided our members with various forms of technical assistance including access to the Real-Time Forecasting System (RTFS). This tool, which provides users with real-time Tropical Cyclone impact information, was upgraded in 2010 to provide unique account access for every individual user. During this year we conducted further reviews of the second-generation Hazard and Loss Estimation Model (2G Model) by way of recalibration and configuration using upgraded data sets. The basis for these revisions was the updating of inputs, sensitivity analysis and revised parameter selection.

The Excess Rainfall product continued to be the Facility's primary research and development focus for 2010/11 particularly because of its relevance in addressing some of the losses associated with heavy rain. There has been some delay in the launch of the product, primarily due to the complexity of the project and the need and commitment to addressing the myriad challenges which have presented themselves in the rigorous development of the product.

We continued to work towards developing partnerships with regional entities. To this end, we continued to support the efforts of the Caribbean Electrical Utility Service Corporation (CARILEC) to develop a parametric insurance facility for its members.

During this year, we operationalised the scholarship component of CCRIF's Technical Assistance Programme, awarding seven scholarships to students from across the region to pursue graduate and post-graduate studies at the University of the West Indies (UWI) and at extra-regional universities.

In August 2010 we released the preliminary results of the study on the Economics of Climate Adaptation (ECA) in the Caribbean in a brochure entitled:

'Enhancing the climate risk and adaptation fact base for the Caribbean (Preliminary Results)'. This initiative also is part of the Technical Assistance Programme and is aimed at assisting decision makers throughout the Caribbean defining region in and developing sound climate change adaptation strategies and business cases which can be incorporated into national development plans.

Another highlight of this year was the discussions between CCRIF and the Munich Climate Insurance Initiative (MCII) towards developing the 'Climate Risk Adaptation and Insurance in the Caribbean' programme. This initiative is intended to design and implement products that combine risk reduction and insurance for low income groups such as small-holding farmers and day labourers in the Caribbean. The products will be at medium-level targeted weather extremes (e.g. hurricanes and droughts) which are likely to increase in frequency and intensity due to climate change.

This initiative, along with the ECA study, is part of the wider role that CCRIF is playing within the discussion on climate change. Within these discussions at the international level, CCRIF is often highlighted as the only working model of a multi-national and parametric-based catastrophe risk pool and is considered a viable template for expansion and/or replication globally as part of the overall climate change adaptation framework.

As in previous years, CCRIF continued to grow, manage and invest its capital conservatively. Currently, CCRIF can comfortably pay losses for a 1 in 1,000year series of catastrophe events. Aligned to our financial management is the issue of governance. For CCRIF this is extremely important as we believe that continuously we must be fully accountable to our members and supporting donors. As such, we continued to integrate at all levels of our decisionmaking and business planning the concepts of sustainability, transparency and accountability.

As we move into another policy year, CCRIF continues to be recognised in the government, insurance and disaster management sectors regionally and globally, as an important mechanism to reduce financial risks due to natural hazards and as a key component of comprehensive disaster management in the Caribbean which can be used as a model for other regions in the world. continue CCRIF will to pursue

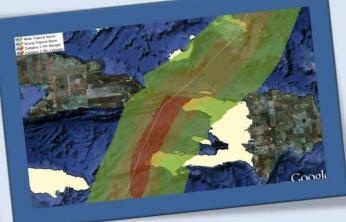
opportunities for providing assistance and attracting funding to build disaster resilience within member governments and the broader Caribbean region.

Next year will be no less challenging. Our focus will include the offering of the excess rainfall product; working with members to establish country risk officers; launching phase two of the ECA study; influencing the wider climate change discussions on how the CCRIF model can be included in disaster risk management strategies, and can be a critical component of a country's climate change adaptation strategy; and hosting the World Forum of Catastrophe Programmes in Jamaica. These are just a few of the initiatives that we hope to advance as we continue to find ways to make substantive contributions towards heightening resilience in our member states as we move towards a path of sustainable prosperity.

Milo Pearson Executive Chairman, CCRIF















### YEAR IN REVIEW

### **Tropical Cyclone and Earthquake Review**

CCRIF monitors and reports on all tropical cyclone and earthquake activities in the Caribbean Basin that has the potential to affect one or more of its member countries. Two types of events are defined and routinely reported by CCRIF to its members and stakeholders – non-triggering and triggering events (see text box below for definitions of triggering and non-triggering events).

### **Triggering Event**

*Tropical Cyclone:* Any Tropical Cyclone event which produces a modelled government loss of greater than zero in one or more countries.

*Earthquake:* Any earthquake event which produces a modelled government loss of greater than zero in one or more countries.

Triggering events are summarised in specific CCRIF Event Briefings and are circulated to all stakeholders and made available on the CCRIF web site – <u>www.ccrif.org</u>

### **Non - Triggering Event**

*Tropical Cyclone:* Any named Tropical Cyclone event which generates winds of Tropical Storm strength or above in one or more grid cells of at least one country but which does not produce any modelled government loss.

*Earthquake:* Any earthquake event with a body-wave magnitude of greater than 4.5 within a box bounded by the following - Latitude  $2^{\circ}$  and  $41^{\circ}$  N Longitude  $97^{\circ}$  and  $51^{\circ}$  W and which generates a peak ground acceleration of at least 0.01g in one or more grid cells of at least one country but which does not produce any modelled government loss.

Non-triggering events are summarised in the CCRIF Quarterly Report, which is circulated to all stakeholders and is available on the CCRIF web site.

### **Caribbean Catastrophe Events**



### Hurricanes

The 2010 Atlantic Hurricane Season was well above average, with nineteen named storms including twelve Hurricanes. According to the National Oceanic and Atmospheric Administration (NOAA), "Largescale features strongly influenced this year's hurricane activity, as they often do. This year, record warm Atlantic waters, combined with the favourable winds coming off Africa and weak wind shear aided by La Niña energised developing storms".

This increased activity in the Caribbean Basin led to member countries experiencing nine reportable events, with four policies being triggered as a result of two of these storms. These nine events will be further reviewed below.

### Earthquakes

There was minimal seismic activity in member countries during the 2010/11 policy year. Most significant was a magnitude 4.7 earthquake that struck the south-western parts of Jamaica in May

### Storms in the 2010 Atlantic Hurricane Season

Hurricanes	Tropical Storms
Alex Danielle Earl Igor Julia Karl Lisa Otto Paula Richard Shary Tomas	Bonnie Colin Fiona Gaston Hermine Matthew Nicole

2011, with only minor damage being reported. This event will be further reviewed in the section "Review of Earthquake Events".

### **Review of Tropical Cyclone Events**

Because damage to a particular territory from a named storm is strongly dependent on the

distance between the storm and the territory, it is not only the intensity of a storm that is important but its exact path across or past each particular **CCRIF** member For country. a landexample, falling Category 1 storm in most cases will do more damage than а Category 5 storm 100 miles away. The following nine tropical cvclone events will be reviewed below:

- Alex
- Earl
- Danielle
- Fiona
- Igor
- Matthew
- Nicole
- Richard
- Tomas

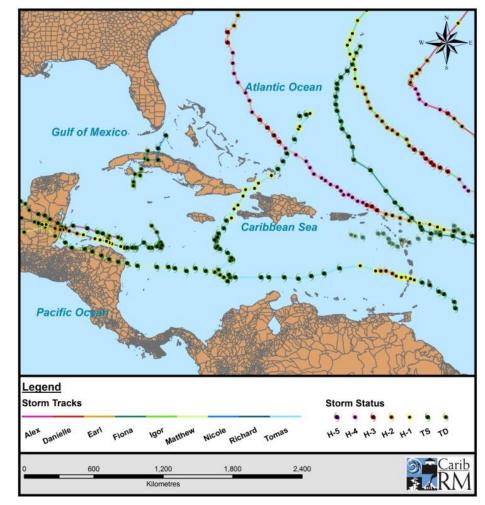


Figure 1: CCRIF reportable tropical cyclone events, 1 June 2010 – 31 May 2011 Source: track data from NOAA-NHC, earthquake locations from USGS

### **Tropical Cyclone Alex**

Tropical Storm, later Hurricane Alex, the first named system of the 2010 Atlantic Hurricane Season, made its first landfall at Belize City, Belize at around midnight GMT on June 27, 2010 having meandered across the Caribbean Sea during the previous 6 days (Figure 2) It crossed Belize moving east to west in about 6 hours, with peak 1minute sustained winds prior to landfall (as estimated by the National Hurricane Center, NHC) of 50 knots (57mph), dropping to 35 knots (40mph) during its passage across Belize.

The wind footprint of Alex, as modelled in the CCRIF Second-Generation Hazard Model, is shown in Figure 3. As can be seen, Alex achieved the minimal requirements of a defined event under the CCRIF Policy by having winds of greater than 39mph somewhere in Belize. However, the entire wind footprint is at weak Tropical Storm force (peak winds at or less than 50mph) apart from a few very localised areas of slightly higher winds.

#### **Impact of Tropical Cyclone Alex on Belize**

The overall impact of Alex on Belize was low. While wind (and coastal) impacts of Alex on Belize were minimal, heavy rain affected the country. However, rainfall did not reach critical levels to cause major flooding and other damage and loss.

The CCRIF 2G Loss Model recorded a very small loss from this event, well within Belize's deductible, therefore not triggering the country's hurricane policy.



Figure 2: Track of Alex and location/wind speed at 6-hourly NHC reporting times

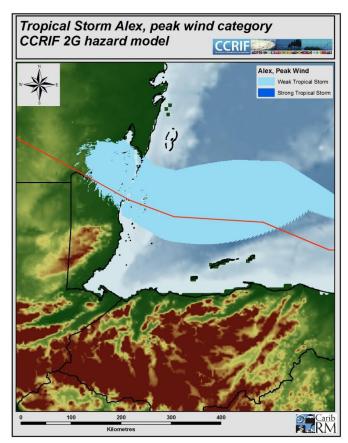


Figure 3: Wind footprint of Alex across Belize from CCRIF Second-Generation (2G) model

### **Tropical Cyclone Danielle**

Tropical Cyclone Danielle started life as Tropical Depression Six on August 21, 2010 in the mid-Tropical Atlantic, becoming a Tropical Storm the following day and a Hurricane the day after that. Its track curved northwestwards well before nearing the eastern Caribbean and, after threatening Bermuda for a while, made an abrupt turn to the northeast and tracked well to the east of Bermuda. It attained Category 3 status on August 27 south of Bermuda, but gradually weakened and passed Bermuda as a weak Category 2 storm. Bermuda was well outside of the Tropical Storm force wind envelope, and the event therefore did not qualify as being an eligible event under the CCRIF Policy. As would be expected, the modelled loss from the event was zero.

### Tropical Cyclone Earl

Tropical Cyclone Earl emerged off the African coast as an area of low pressure on August 22, 2010. It became Tropical Depression Seven and then Tropical Storm Earl on August 25 before intensifying into a hurricane on August

As shown in the wind footprint in Figure 4, Earl swung slightly north of west as it reached the northern part of the eastern Caribbean, strengthening as it did so. It passed close to the north of Barbuda, and then even closer to Anguilla before passing the northernmost of the British Virgin Islands, Anegada and heading towards the southern Bahamas. The wind footprint for Earl did achieve the minimal requirements of a defined event under the CCRIF Policy by having winds of greater than 39mph in three member states; Antigua & Barbuda, St Kitts & Nevis and Anguilla.

The islands of Antigua, St Kitts & Nevis all had modelled sustained winds of weak Tropical Storm force (less than 50 mph), while Barbuda encountered Category 1 hurricane winds (74-95 mph) and Anguilla Category 2 winds (96-110 mph). 29. Classified as a Cape Verde-type hurricane, it was the seventh depression, fifth storm, third hurricane and second major hurricane of the 2010 Tropical Atlantic Hurricane Season.

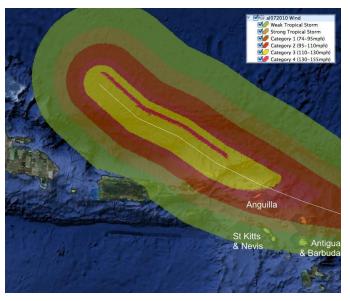


Figure 4: Wind footprint of Earl from CCRIF Second Generation (2G) model

These modelled wind speeds were generally consistent with, though somewhat higher than, surface windspeed estimates from NOAA-NHC. As expected for the level of modelled wind speed, the CCRIF loss model generated small government losses in Antigua & Barbuda and St Kitts & Nevis, both below their trigger levels; while the loss in Anguilla was much more substantial, and triggered that country's policy. The explicit modelling of coastal damage and loss in CCRIF's secondgeneration model had greatest influence in Anguilla, where the vast majority of economic activity is exposed to coastal hazards (waves and storm surge).

#### **Impact of Tropical Cyclone Earl**

Damage reports from the nontriggering countries, Antigua & Barbuda and St. Kitts & Nevis, indicated that rainfall-induced localised flooding was the main impact along with some tree damage. High waves and localised storm surge of several metres affected all of the northern Leeward Islands. Rainfall was heavy, with around 175mm (7 inches) reportedly measured in Antigua. Localised flooding was reported from all of the islands affected.



Damage to police jetty in Anguilla as a result of the passage of Hurricane Earl

As a low-lying island, Anguilla is impacted by coastal storm surge and wave damage, which

have long-term detrimental impacts on the tourism-based economy. Local weather authorities in Anguilla reported at least 5 inches of rain and 10-foot waves. Actual damage included major roof losses, as well as flooding of government and other buildings. Power lines were downed across the island, and coastal damage was significant, including many beached vessels and beach erosion. The CCRIF model output indicated an estimated loss of US\$38,194,203 in Anguilla. This was driven largely by the losses in coastal areas as a

result of storm surge.



Photo shows clean-up activity in Anguilla following Hurricane Earl

CCRIF paid the Government of Anguilla US\$4.28 million following the passage of Tropical Cyclone Earl. This amount was due to the Government based on the particular characteristics of the insurance policy for hurricanes which forms part of the country's disaster risk management strategy. The value paid represented almost 20 times the annual premium of US\$225,000 that the Government paid for hurricane coverage with CCRIF.

### **Tropical Cyclone Fiona**

Fiona began as an area of unstable weather off the coast of Africa during the 4<sup>th</sup> week of August and eventually became a Tropical Storm on August 30, 2010. The system struggled to develop any further as a result of the high wind shear associated with Tropical Cyclone Earl, which was moving north ahead of Fiona. Fiona was associated with peak sustained winds of 65 mph and a minimum pressure of 997 mbar. Fiona rapidly degenerated to a tropical wave just south of Bermuda on September 4 and was associated with approximately an inch of rainfall in Bermuda.

As shown in the wind footprint graphic at right, the northeastern Caribbean islands were just outside of the Tropical Storm force wind envelope, and the storm broke down before reaching Bermuda.



Figure 5: Wind footprint of Fiona from CCRIF Second Generation (2G) model Under the CCRIF Policy therefore, Fiona did not qualify as being an eligible event. As would be expected, the modelled loss from the event was zero.

### **Tropical Cyclone Igor**

Tropical Cyclone Igor began as a classic Cape Verdetype system, emerging off the coast of West Africa on September 6 as a large area of low pressure. The system quickly organised into a Tropical Depression on September 8, strengthening to a Tropical Storm on September 10 and becoming a Hurricane the following day. Igor peaked as a high Category 4 Hurricane on September 15 with associated maximum wind speeds of 155 mph and a minimum pressure of 925 mbar.

As shown in the wind footprint graphic at right (Figure 6), Igor passed well to the northeast of the northern part of the eastern Caribbean, though it produced high waves and some high wind and rain squalls from Barbados northwards. Igor then headed directly for Bermuda but gradually decreased in intensity, so that it passed about 40 miles west of Bermuda as a Category 1 Hurricane.

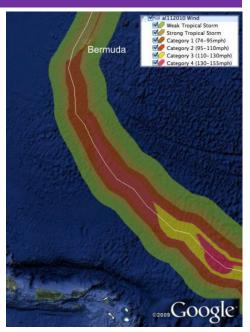


Figure 6: Wind footprint of Igor from CCRIF Second Generation (2G) model

As can be seen from the wind footprint, Igor achieved the minimal requirements of a defined event under the CCRIF Policy by having winds of greater than 39mph only in one member state, Bermuda. For Bermuda, modelled wind speed was right at the Tropical Storm/Hurricane force transition (74 mph). As expected for the level of modelled wind speed, the CCRIF loss model generated only a small government loss in Bermuda, which was below that country's trigger level and therefore no payout was due.

### Tropical Cyclone Matthew

Tropical Cyclone Matthew formed on September 23, 2010 and was the fifteenth tropical cyclone and thirteenth named storm of the 2010 Tropical Atlantic Hurricane Season. At its maximum intensity in the southwestern Caribbean Sea, Matthew was associated with 60 mph winds and a sea-level pressure of 998 mbar. Maximum sustained winds decreased significantly as then Tropical Storm Matthew made landfall in Central America and moved inland over Honduras and towards Belize.

At about 15:00 GMT on September 25, Matthew weakened to a strong Tropical Depression and data supplied by the US National Hurricane Center suggest that the point of landfall was near 16.2° N, 87.8° W. Matthew brought 1-minute maximum sustained winds to the landfall region of around 40 mph (64 km/h) but wind gusts in the area may have been higher.

As shown in the model wind footprint graphic below, Matthew passed over the south of Belize (the only CCRIF country affected) but with winds below Tropical Storm force. Hence Matthew did not qualify as a qualifying event under CCRIF's hurricane policy. The CCRIF model wind footprint corresponded with data from the National Hurricane Center.

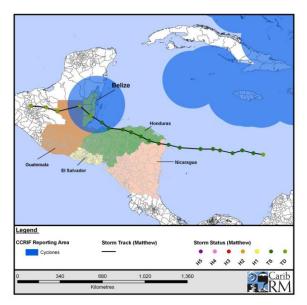


Figure 7: Track for Tropical Cyclone Matthew Source: NOAA/NHC

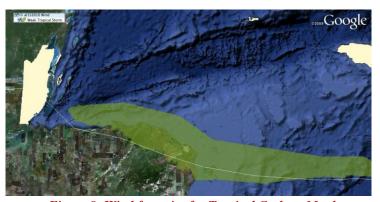


Figure 8: Wind footprint for Tropical Cyclone Matthew from CCRIF 2G hazard/loss model

#### **Impact of Tropical Cyclone Matthew**

Matthew resulted in some flooding in Belize. However, there was no loss of life or significant property damage, and there were no occurrences of disabled infrastructure. Other than Belize, very

### Tropical Cyclone Nicole

Tropical Cyclone Nicole emerged in the northwestern Caribbean Sea on September 28, 2010 as a disorganised area of cloudiness and thunderstorms and was partially related to the remnants of Tropical Storm Matthew and a monsoonal low pressure system present in the area.

The system became Tropical Depression 16 on September 28 and was upgraded to Tropical Storm Nicole 24 hours later as it approached Cuba. Although generally poorly defined, it generated torrential rainfall and thunderstorms, particularly in the eastern and southern sections as it moved slowly to the northeast towards the

Bahamas.

The large system affected a number of CCRIF member countries - the Cayman Islands, Jamaica and the Bahamas. Heavy rains, high winds and rough seas were experienced across the region, but Jamaica was the most severely affected in terms of persistent, torrential rainfall. Figure 10 shows the estimated rainfall totals for Nicole from the Tropical Rainfall Measurement Mission (TRMM) satellite ensemble.

Sustained wind speeds associated with the system did not exceed 40 mph with its lowest pressure being measured at 996 mbar. Nicole quickly dissipated to a Tropical Depression on September 29 as it moved through the

heavy rains occurred over southern Mexico, particularly in Oaxaca, Chiapas, Tabasco, and southern Veracruz states, causing landslides and floods.



Figure 9: Track for Tropical Cyclone Matthew Source: NOAA/NHC

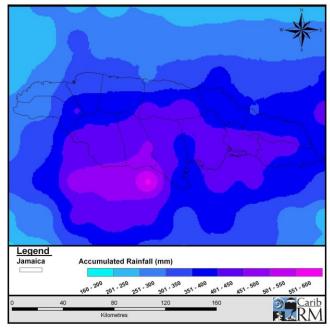


Figure 10: TRMM rainfall totals for Nicole Source: NASA/JSA TRMM

Florida Straits.

As the winds and ocean hazard parameters associated with Nicole were well below Tropical Storm force in the region of the closest CCRIF member countries (the Bahamas, the Cayman Islands and Jamaica) the event did not qualify as a triggered event under CCRIF's Hurricane policies with these countries.

### Impact of Tropical Depression #16 (loosely associated with Tropical Cyclone Nicole)



Impact of a remnant low that developed around Jamaica as Tropical Storm Nicole moved towards the Bahamas

As Tropical Storm Nicole moved towards the Bahamas and away from Jamaica, a remnant low developed in the region around Jamaica. This event resulted in significant damage and loss of life in Jamaica. The system was particularly associated with heavy and intense rainfall which resulted in significant flooding. The on-the-ground rainfall data from the Jamaica Meteorological Service showed that rainfall accumulations in excess of 4 inches (100 mm) had been recorded over a 12-hour period at various weather stations across the island. Data from NASA/JSA TRMM characterising this event indicated that as much as 20 inches (500 mm) of rain fell in the southern parishes of St Elizabeth, Manchester, Clarendon, St Catherine and St Andrew over a 72-hour period from September 27

to September 30, thereby confirming the intensity of the rainfall associated with the system.

The Planning Institute of Jamaica (PIOJ) estimated after assessments that the damage resulted in 1.9% of GDP. This was based on the assessments that estimated that the floods cost the government at least US\$150 million damage to the road network, drainage systems, river protection and associated infrastructure. Additionally, loss of farm roads was estimated at US\$5.8 million and loss of crops and livestock was estimated at US\$5.8 million.

### **Tropical Cyclone Richard**

Tropical Cyclone Richard began as a tropical wave on October 13 over the northern coast of Venezuela. By October 19 the system had strengthened into a broad area of low-level circulation and eventually became the 19<sup>th</sup> Tropical Depression of the season on October 20. The system was eventually upgraded to a Tropical Storm on October 21 before becoming a Hurricane on October 24 and making landfall in Belize, as a Category 1 storm, just 20 miles south of the former capital and most populous city, Belize City.

Richard achieved the minimal requirements of a defined event under the CCRIF Policy by having winds of greater than 39mph in only one member state, Belize. For Belize, modelled wind speed at the coast was just Hurricane force (>74 mph) but fell rapidly just inland.

The peak NOAA H\*WIND 1-minute sustained wind speed estimate for Belize was 66 knots (76 mph), although this was estimated about an hour after landfall. The highest surface wind recorded was 75 knots (93 mph) while the storm was still well offshore Belize.

The CCRIF loss model generated a substantial government loss in Belize, but the loss was below the country's trigger level (which was set at the 30-year return period) and therefore no payout was due.

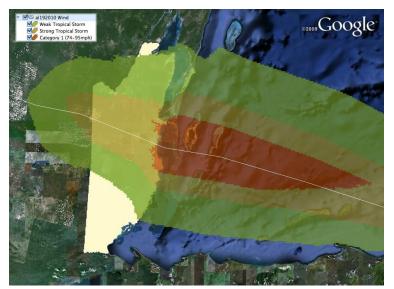


Figure 11: Wind footprint of Tropical Cyclone Richard – an output from the CCRIF Second-Generation Model

### **Impact of Tropical Cyclone Richard**

The total direct loss estimate released by the Government of Belize based on Tropical Cyclone Richard was US\$25.2 million. Damage included significant agricultural losses, some of which would have been from rainfall and which would not have been reflected in the CCRIF modelled loss estimate.

Following the event, the Government of Belize released BZ\$3 million (US\$1.5 million) for immediate emergency response and relief efforts. Although there were no reports of deaths there were reports of significant infrastructural damage. Reports indicated considerable damage in areas close to landfall, with downed power lines and trees and damage to roads and building apparent with some flooding occurring in low lying areas.

In Belize City, where there are many wood and tin structures, it was estimated

that thousands of homes lost their roofs or suffered severe damage with reports of blown off roofs or entire structures being blown off their silts which hold them above flood prone land. Due to the unstable nature of these structures, they are particularly vulnerable to high winds.

Damage to the road networks within the broad impact zone was minimal. The Ministry of Works indicated that all repairs were accommodated under their normal maintenance program.

The coastal areas bore the brunt of the impact associated with Richard. Field assessment teams confirmed the destruction of all major tourism related piers in Belize City; these included the Radisson Hotel & Marina Pier, Princess Hotel & Marina Pier and the water taxi terminal pier. Some beach erosion was also reported in coastal areas.

### Tropical Cyclone Tomas

Invest91, an area of disturbed weather which developed to the southeast of the eastern Caribbean during the last week of October, was designated Tropical Storm Tomas on October 29 and then was upgraded to Hurricane status on October 30.

After a sharp northward tack during the night of October 29, Tomas tracked directly over Barbados as an intense Tropical Storm during the early morning hours, the large eye structure passing right over Barbados at around 4:30am local time (see radar image from MeteoFrance, Martinique, in Figure 12). Tomas then tracked westwards, reaching Category 1 Hurricane status just west of Barbados and passing between Saint Lucia and St Vincent at around 4pm local time on October 30. The southern part of Saint Lucia was within the strongest, northern eyewall of Tomas, while the northern parts of St Vincent received the southern and leading/trailing eyewalls.

The wind footprint shows that Tomas achieved the minimal requirements of a defined event under the CCRIF Policy by having winds of greater than 39mph in four member states in the eastern Caribbean - Barbados, Saint Lucia, St Vincent & the Grenadines, and Grenada. Grenada is included due to the tropical storm wind footprint just touching Carriacou, the northernmost part of Grenada's sovereign territory.

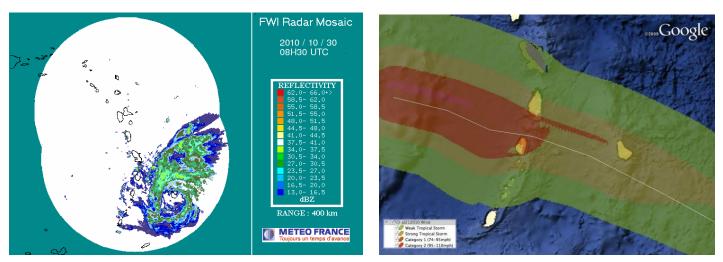


Figure 12: Radar image from MeteoFrance, Martinique

Figure 13: Wind footprint for Tropical Cyclone Tomas

Ground data from Barbados, consistent with model estimates. suggested sustained Tropical Storm-force winds at between 60 and 75 mph across most of the island, with peak gusts of 110 mph recorded near the southern tip of the island. St. Vincent & the Grenadines also reported winds of 75 mph when Tomas passed nearby that territory. Tomas affected Saint Lucia as a Category 1 Hurricane with reported maximum sustained winds of 90 - 95 mph with higher gusts.

NOAA-NHC wind estimates for Barbados, Saint Lucia and St. Vincent & the Grenadines, as indicated in the H\*WIND produced, suggested peak 1-minute sustained surface winds of 61-70 mph for all three of the islands (Figure 14). NHC deemed it likely that surface wind speeds of hurricane strength would have been felt on the island of St Vincent and in southern Saint Lucia, with hurricanestrength gusts possible across all three affected countries. According to NHC, Tropical Storm force winds also may have been felt in the northernmost part of the country of Grenada, on the island of Carriacou. This is consistent with the few surface measurements available.

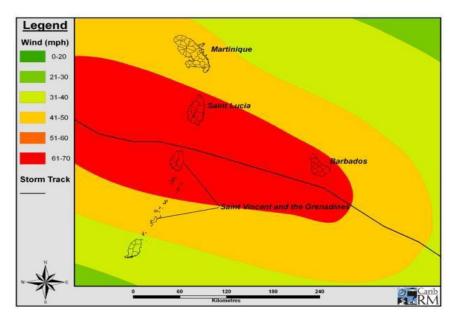


Figure 14: H\*WIND peak surface wind estimate for Tomas, October 2010. Source: NOAA-NHC

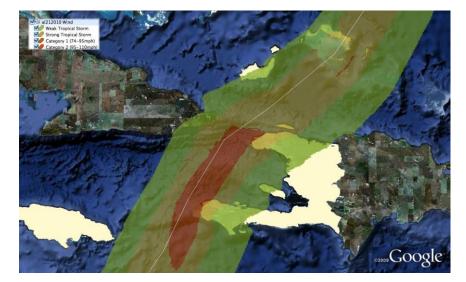


Figure 15: CCRIF wind footprint of Tomas' passage through the Northern Caribbean

After impacting the Eastern Caribbean and weakening to a Tropical Storm in the Caribbean Sea, Tomas re-strengthened to a Hurricane as it approached Jamaica, Haiti, the southern islands of the Bahamian chain, and the Turks & Caicos Islands.

The Tropical Storm wind footprint shows that the storm does not quite touch the extreme eastern end of Jamaica, so Tomas was not a qualifying event there. Hurricane force winds just grazed the extreme western ends of Haiti's southwest and northwest peninsulas, while the Bahamas and the Turks & Caicos Islands were affected only by Tropical Storm force winds.

**Impact of Tropical Cyclone Tomas** 



For Barbados, the entire island was affected by severe Tropical Storm force winds, with gusts to Hurricane force. Due to the track of Tomas directly over the island, these winds persisted at a high level for a relatively long time. Storm surge and wave action was also significant. In terms of losses, the CCRIF model generated substantial government losses in Barbados, Saint Lucia and St Vincent & the Grenadines with Hurricane coverage triggered in all three countries. Total payouts were as follows: Barbados -US\$8,560,247; Saint Lucia - US\$3,241,613 and St Vincent & the Grenadines -US\$1,090,388.

Barbados endured the biggest actual loss by dollar amount (as it is a significantly bigger economy than the other two) as well as the biggest loss relative to GDP (just over 1.5%), the latter due largely to the fact that near-hurricane force winds affected the entire island and due also to high coastal exposure. Both Saint Lucia and St Vincent & the Grenadines endured modelled losses of around half of one percent of GDP. It is important to note that although the damage in St. Lucia was significant, these losses were largely driven by rainfall which would not have been covered under the CCRIF policy and which would have induced secondary hazards such as flooding and landslides which caused even further devastation.

For Haiti, the loss estimate in the CCRIF modelled loss was approximately US\$15 million. While economic losses in Haiti were likely to be significantly higher than the CCRIF estimate, much of that impact would have been caused by the rainfall aspects of Tomas, which are not modelled in the CCRIF loss model. The CCRIF model estimated losses of less than \$1 million each for the Bahamas and Turks & Caicos Islands. In both territories, the modelled loss was below the threshold that can be reasonably documented on the ground. While damage occurred in both territories, it appeared to have been very light.

Rainfall totals of between 7 and 12 inches (175 to 300 mm) were recorded across

Barbados, St. Lucia and St. Vincent & the Grenadines thereby resulting in general flooding as well as damage to the agricultural sector in these countries.

### **Review of Earthquake Events**

#### 16 May 2011, Jamaica Earthquake

A magnitude 4.7 earthquake struck the south-western parts of Jamaica at 15:07:07 UTC on

May 16, 2011. Initial estimates from the US Geological Survey (USGS) located the epicentre of the event at 17.897°N. 77.895°W - 62 km south of Montego Bay in the parish of St James and 117 km west of the capital, Kingston (see Figure 16). The provisional depth assigned to the event was 31.6 km. Reports indicated that although the ground shook for several seconds, no significant damage, injuries or deaths were recorded. Although the magnitude earthquake 4.7 government generated some

losses in the CCRIF model, it did

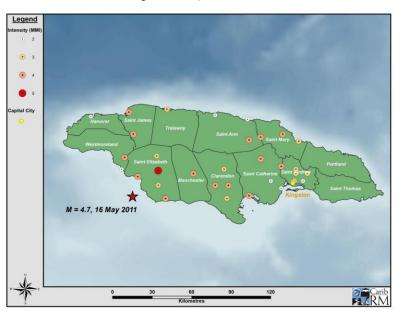


Figure 16: Location of 16 May earthquake

not trigger a payment from CCRIF. The loss generated was significantly below the attachment point on Jamaica's policy.

### **CCRIF Product Developments**



The underlying framework for CCRIF's product developments is the Strategic Plan. CCRIF's product developments are aligned to two of its strategic objectives:

- To offer products and services responsive to members and stakeholders needs
- To support disaster risk management

These product developments are designed to be innovative and sustainable to meet the needs of Caribbean governments in an effort to enhance their disaster risk response and management capabilities. To achieve this, CCRIF's product developments for the 2010/11 policy year centred around five main areas as follows:

- Second -Generation (2G) Hazard and Loss Estimation Model
- Regional Rainfall Model and Excess Rainfall Product
- Real -Time Forecasting System (RTFS)
- Electric Power Distribution Systems
- Caribbean Agricultural Insurance

The progress on each of these developments will be described below.

### **Second-Generation Loss Model**

The second-generation (2G) Hazard and Loss Estimation Model (HLEM) was revised by Kinetic Analysis Corporation (KAC) in response to issues that were raised by CCRIF's reinsurers during the introduction of the model for June 1, 2010 renewals. At the end of the policy year, feedback from reinsurers was integrated into the revised model, now known as the **"CCRIF Multi-Peril Risk Estimation System" (CCRIF-MPRES).** This revised model enabled CCRIF to lock down the model and pricing curves in time for the June 1 renewals for the 2011/12 policy year.

In April 2011, CaribRM, produced the *"Verifying CCRIF's* Tropical report. Cyclone Hazard and Loss Modelling", which presented the results of an analysis of the behaviour of the second-generation (2G) model after the 2010 Atlantic Hurricane Season. The goal of the analysis was to determine how the 2G model performed in terms of estimating the parameters of the hazard events and associated losses in order to assist in reducing the basis risk inherent in the loss indexing approach, compared with the first generation EQECAT model.

The analysis addressed the following basic questions:

 How closely are the CCRIF model wind footprints matched to the National Hurricane Center's (NHC's) H\*WIND and other modelled footprints?

- How does ground meteorological data fit with the CCRIF footprint for wind?
- Do the final losses generated by the model correspond with government and independent estimates?
- How does the breakdown of impact costs affect what can be considered government losses?

The report also presents the results of a review of ground and satellite-based rainfall data.

The report shows that, in general, the performance of the CCRIF 2G model was acceptable, with close correlations to the NOAA-NHC wind speed data and the TRMM rainfall data. Modelled losses were compatible with on-the-ground loss estimates where contributions to these losses from aspects not covered by CCRIF policies – such as rainfall and landslides – were excluded.

The analysis also included a review of the application of CCRIF funds in countries where a policy was triggered by an event. In 2010, Tropical Cyclones Earl and Tomas triggered policies in Anguilla, Barbados, Saint Lucia and St Vincent & the Grenadines resulting in a total payout of US\$17,174,981.

**Regional Rainfall Model and Excess Rainfall Product** 



CCRIF is developing the Excess Rainfall product in direct response to the interest expressed by many CCRIF participating countries and stakeholder partners in making available catastrophe flood coverage. The product will be aimed primarily at extreme high rainfall events of short duration (a few days).

The regional rainfall model, upon which CCRIF had hoped to base the parametric policy, was launched in February 2010. Since that time, efforts have focused on completing the climatology analysis and in early 2011, an initial rainfall climatology at ~17km<sup>2</sup> spatial and 3-hour temporal resolution was completed.

Following a comprehensive review of climatological outputs from the regional rainfall model which was developed for CCRIF by Kinetic Analysis Corporation (KAC) in collaboration with the Caribbean Institute of Meteorology and Hydrology (CIMH), CCRIF concluded that the model and, particularly, the historical rainfall record produced by the model using NOAA data, was not yet sufficiently robust for use to underpin a parametric policy. This resulted in a further delay in the launch of the planned excess rainfall policy.

Work will therefore continue on the regional rainfall model early in the new policy year as CCRIF believes that this will provide the best long-term platform for excess rainfall coverage. Plans for the launch of the excess rainfall product will also be made early in the new policy year 2011/12. Notwithstanding the delays in the launch of the product, CCRIF has developed a strategy for the roll-out of the product as a means to inform CCRIF member countries about it and to encourage them to add this to their portfolio of catastrophe insurance.

**Real-Time Forecasting System (RTFS)** 



Once again, in this policy year, CCRIF provided its members with real-time hurricane hazard and impact information throughout the 2010 Atlantic Hurricane Season through the RTFS (Real-Time Forecasting System), which is produced for CCRIF by Kinetic Analysis Corporation.

The system enables users to access realtime estimates of the expected hazard levels and impacts on population for all tropical cyclones during the hurricane season. By providing potential hazard footprint maps and site-specific hazard and impact data through this platform, national preparedness and response mechanisms within CCRIF member states are enhanced.

Excluding CCRIF team members, 96 user accounts were created to enable access to the CCRIF RTFS (which is located in the members-only section of the CCRIF website). RTFS user accounts were created for identified persons from all of the CCRIF participating states and in most instances included CCRIF primary contacts and officials from national disaster management and meteorological offices. Also included in the group of users were representatives of a number of regional agencies, including CDEMA and the CARICOM Regional Organisation for Standards and Quality (CROSQ). Also, a number of international organisations currently working in Haiti and assisting in recovery efforts were provided with access to the RTFS. Notable among these were the International Research Institute for Climate and Society at Columbia University Earth Institute, the UN Office for the Coordination of Humanitarian Affairs, the International Federation of Red Cross and Red Crescent Societies, and the World Food Programme.

For the duration of the Atlantic Hurricane Season (June to November), the RTFS was accessed 331 times by users in 14 countries. Understandably, the greatest access of the system occurred during the passage of Hurricane Tomas with 65 views of data during that event. See Figure 17 for access figures by country and by event.

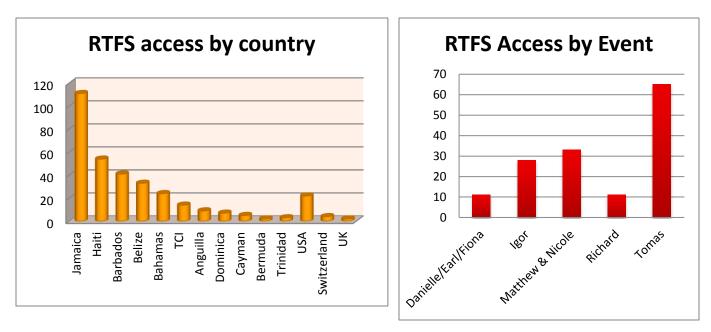


Figure 17: Access of RTFS by country and event: June – November 2010

CCRIF also published a booklet "A Guide to Understanding the Real Time Impact Forecasting System (RTFS)" that was widely distributed to key stakeholders during July 2010. This booklet was produced as a resource document to enable disaster and emergency managers to effectively utilise the real-time hurricane hazard and impact information that the RTFS provides during the hurricane season.

At the end of the policy year, CCRIF focused on making preparations for members to use RTFS in the upcoming 2011 Atlantic Hurricane Season which begins on June 1.

Preparations/activities included:

• Development of a 2-day course curriculum to build the capacity of members and key stakeholders to use the RTFS. This course will be conducted via an online platform on the CCRIF website by CIMH, Kinetic Analysis Corporation (KAC) and CCRIF in July 2011. The course is entitled **"Understanding and Using the CCRIF Real-Time Forecasting System... Building regional capacity for estimating the expected hazard levels and impacts on population for all tropical cyclones during the hurricane season**"

- Preparation of a training manual to facilitate training in the RTFS
- Issuing invitations to key stakeholders (Ministries of Finance contacts, and disaster and meteorological officers) in CCRIF member countries as well as international development partners to register for access to the RTFS
- Preparation of the CCRIF website to enable the delivery of the online

RTFS training programme and to be able to archive storms

- Verification by CIMH of TAOS-RTFS model outputs so as to gauge any biases which could have arisen in the programmes
- Continued discussion with CDEMA regarding full utilisation of the RTFS

Much of this activity was based on an overall assessment of the use. understanding and stakeholder perception of the RTFS conducted in February 2011. The report. "An Assessment of the Use of the RTFS and Recommendations for the Way Forward", concluded that, overall, respondents felt that the RTFS was useful and could be part of the overall disaster management framework of their countries.

The assessment included recommendations for:

- Increased communication surrounding access and use of the RTFS
- Development of a more in-depth, structured training programme and increased communication regarding participation in training opportunities
- Working more closely with CIMH and CDEMA to encourage optimal use of the RTFS
- Appointing an RTFS Coordinator to provide technical support during the hurricane season
- Archiving storms for access to storms after they occur

## **Electric Power Distribution Systems**



Discussions continued over this policy year with the Caribbean Electrical Utility Services Corporation (CARILEC) regarding an insurance product for the Region's electric utilities. Regulatory issues to set up the captive are being addressed. CCRIF believes that initial interest will be highest for a relatively simple product and the technical work is proceeding on that basis. Analytical work is almost complete for a simple "cat-in-abox" product. The Facility Supervisor also met with the International Finance Corporation (IFC) which demonstrated high initial interest in supporting the programme.

# Programmes, Projects and Partnerships

#### Scholarship/Prof. Dev. Programme

- •Students across the region to benefit
- •Scholarships for BSc and MSc programmes
- •Continued professional
- development

### Regional 'Strategic' Knowledge Building

- •Partnerships with regional institutions
- •Funding for regional technical projects in natural hazards/risk science

### Support for Local DRM Initiatives

 Support for NDCs, NGOs and other communitybased organisations in local hazard risk management and climate change initiatives

The three components of the CCRIF Technial Assistance Programme

Under its strategic objective three "To support disaster risk management", CCRIF is committed to supporting its members in the development and implementation of strategies for disaster risk management by building on existing mechanisms, institutions, tools and capacities. To meet this objective, CCRIF focused on three core areas over the period as follows:

- Design and implementation of programmes in collaboration with other Caribbean organisations to strengthen regional governments' disaster response and mitigation capacity
- Engagement in programmes and actions that were designed to develop institutional enabling environments and regional supporting mechanisms for knowledge sharing, scaling up

good practices, capacity building and technology

• Development of strategic alliances through MoUs and other mechanisms with regional institutions to reduce the existing vulnerabilities in the small island states of the region

These areas were rolled into specific programmes and projects in collaboration with key partners, facilitating the development and strengthening of many strategic alliances.

CCRIF's flagship programme – the Technical Assistance (TA) Programme – was approved by the CCRIF Board in December 2009 and aims to help Caribbean countries deepen their understanding of natural hazards and catastrophe risk, and the potential impacts of climate change on the region. A critical component of this programme is the development of regional capacity and knowledge bases to support the development of sound adaptation strategies and enhancement of regional climate change resilience through improved risk management. The **Technical Assistance Programme consists** of three main components:

• Component 1: Scholarship/ Professional Development Programme

- Component 2: Regional 'Strategic' Knowledge Building
- Component 3: Support for Local Disaster Risk Management (DRM) Initiatives

Under the umbrella of the Technical Assistance Programme, CCRIF began implementation of a number of subprojects. These included:

- The Economics of Climate Adaptation (ECA) study
- Scholarship Programme with the University of the West Indies
- Education and Professional Development in Disaster Risk Management
- Technical Assistance for the Reconstruction of Haiti
- Climate Risk Adaptation and Insurance in the Caribbean Programme

The progress on each of these will be described briefly below.

## **Economics of Climate Adaptation Study**

## KEY REGIONAL FINDINGS FROM THE ECA STUDY

- Current climate risk in the Caribbean is already high, with expected losses of up to 6% of local GDPs
- Climate change could result in a damage increase equaling an additional 1 – 3% of GDP in the worst case scenario
- Some countries could avoid up to 90% of the expected damage by implementing cost-effective adaptation measures

CCRIF' Economics of Climate Adaptation (ECA) Initiative

On August 18, 2010 CCRIF released the preliminary results of its study on the Economics of Climate Adaptation (ECA) in the Caribbean. In releasing the results, CCRIF's Executive Chairman Milo Pearson indicated that the results will "enable countries in the region to develop factbased adaptation strategies that can be incorporated into national development plans to increase resilience against climate hazards."

The preliminary results for eight countries in the Region (Anguilla, Antigua & Barbuda, Barbados, Bermuda, the Cayman Islands, Dominica, Jamaica, and Saint Lucia) are published in a short brochure entitled, "Enhancing the climate risk and adaptation fact base for the Caribbean (Preliminary Results)".

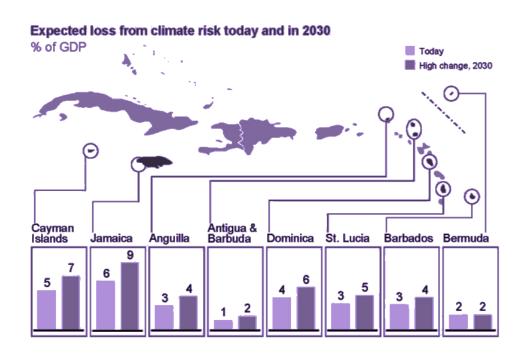
The ECA study, launched in February 2010, was conducted by CCRIF, with Caribbean Risk Managers acting on behalf of the Facility, and supported by regional partners, the Caribbean Community Climate Change Centre (CCCCC), the UN Economic Commission for Latin America and the Caribbean (UN-ECLAC) and others. McKinsey & Company and Swiss Re provided analytical support. The study has been welcomed by Caribbean countries which realise that climate change has the potential to greatly exacerbate their risks from hurricanes and storms. Findings from the study indicate that annual expected losses from wind, storm surge and inland flooding already amount to up to 6% of GDP in some countries and that, in a worst case scenario, climate change has the potential to increase these expected losses by 1 to 3 percentage points of GDP by 2030.

Former Secretary General of CARICOM Edwin Carrington said that the study "makes an important contribution to developing the capacity to address the climate change challenges facing the Caribbean ... [and] will be of immense value to both Caribbean policymakers

## and the business sector, in their efforts to develop and implement sound adaptation strategies and plans."

Decision makers can select both risk mitigation (e.g. constructing sea walls and enforcing building codes) and risk transfer initiatives (e.g. insurance) to address current climate hazards and respond to the growing threat of climate change. Depending on a country's characteristics, the preliminary results of the study suggest that risk mitigation initiatives can cost-effectively avert up to 90% of the expected loss in 2030 under a high climate change scenario. Risk transfer measures play a key role in addressing the financial consequences of low-frequency, high-severity weather once-in-100-year events such as catastrophes by limiting the financial impact of these events. The expected loss that can be averted cost-effectively is driven by various factors, for example, the value of buildings and the share of caused loss expected bv coastal flooding/storm surge. The best approach for each country is determined specifically by its topography, exposure to hurricanes, and value and vulnerability of assets.

The benefits of the ECA study are clear. The study provides a sound economic fact base that countries can use to further develop their national climate adaptation and disaster management strategies. For example, the study prioritises areas and sectors at risk and provides clear inputs for building an economically viable portfolio of adaptation initiatives designed to increase each country's resilience. CCRIF's involvement in climate change has come about because within the wider discussion on climate change it is highlighted as the only working model of a multi-national and parametric-based catastrophe risk pool and is considered a viable template for expansion and/or replication globally as part of the overall climate change adaptation framework. Additionally, there is increasing recognition that there needs to be coupling of risk reduction and risk transfer activities for effective adaptation to climate change.



The ECA Study indicated that annual expected losses from wind, storm surge and inland flooding already amount for up to 6% of GDP in some countries. In a high climate change scenario, expected losses could increase by 1 to 3 percentage points of GDP by 2030.

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Scholarship Programme with the University of the West Indies

Back Row, l-r – Mr Rhon-Paul Soltau, scholarship recipient; Mr William Iton, University Registrar; Dr Simon Young, CEO Caribbean Risk Managers, Facility Supervisor CCRIF; Prof Alwyn Wint, Pro Vice-Chancellor, Undergraduate Studies; Prof Ronald Young, Pro Vice-Chancellor, Graduate Studies; and Mr Dorlan Burrell, scholarship recipient. Front Row, l-r – scholarship recipients, Mr Kevin Douglas, Ms Odene Baker, and Ms Gerarda Ramcharansingh

During this policy year, CCRIF and UWI strengthened its partnership through the introduction of the **CCRIF/UWI** Scholarship Programme. This programme is part of CCRIF's focus on enhancing disaster regional capacity in risk management by providing scholarships to students in the region who are pursuing studies in related undergraduate and graduate programmes. There also is support for ongoing professional development of persons in key regional organisations through their attendance in conferences and workshops. CCRIF believes that creating a cadre of technical experts in disaster risk reduction (DRR) and natural hazards in the region is not only an important contribution towards strengthening the region's capacity to manage hazards, but will ultimately contribute to sustainable prosperity of the region.

Under the UWI Scholarship Programme, CCRIF provided UWI with:

- 1. Three scholarships for the oneyear disaster management masters programme offered through the DRRC
- 2. Two 2-year scholarships for students entering their second of three years in Geography/Geology (Mona) and Civil with Environmental Engineering (St Augustine), one scholarship for each of the programmes

- 3. Scholarship coverage for the same students selected in (2) above in their third year, subject to satisfactory performance in their second year
- 4. US\$11,000/student for the masters programme and US\$8,000/student/year for the undergraduate programme, for a total of US\$49,000 for the 2010/11 academic year

The plan for the next policy year is to provide UWI with scholarships for:

- 3 masters students in 2011/12 academic year
- 3rd vear for the two the undergraduates receiving second year scholarships in the (2010/11)academic vear
- undergraduate two new scholarship in the same courses of study (outlined in #(2) above) entering their second year in 2011

## **Education and Professional Development in Disaster Risk Management**



Dr Warren Smith (CCRIF **Board member**) and Ms Wazita Scott

Mr Garry Wilkins(then Winston Gall, Mr Kerry **Powery** (Cayman Islands **Airport Authority**)

Ms Kathy-Ann Caesar (1<sup>st</sup> Dr Andrea Sealy (1<sup>st</sup> row, CCRIF Board member), Mr row, 4<sup>th</sup> from left) at WMO *left) at Satellite* meeting Meteorology course in Beijing

During this policy year, CCRIF provided financial support for Caribbean nationals to undertake further studies and also to engage in professional development opportunities outside the region. This support is described below.

A grant of £10,000 was provided to Ms Wazita Scott from St Vincent & the Grenadines to attend Reading University in the UK to pursue MSc degree an in Atmosphere, Ocean and Climate. The scholarship is being overseen by the Caribbean Institute for Meteorology and Hydrology (CIMH) under the terms of the Memorandum of Understanding between CIMH and CCRIF.

Mr Winston Gall, meteorological with technician the Cayman Islands Airport Authority, was granted US\$5,000 towards furthering his studies in Meteorology at the Graduate School of the US Department of Agriculture.

- Dr Andrea Sealy from the CIMH participated in the International Training Course on Satellite Meteorology held in Beijing, China in June 2010
- Ms Kathy-Ann Caesar also of CIMH • attended the World Meteorological Organisation (WMO) Virtual Laboratory Management Group, Fifth Meeting held in Beijing in July 2010. Both the International Course Satellite Training on Meteorology this and event

enhanced regional expertise in the area of satellite meteorology and in the development of specialised products to improve early warning systems in the region.

Mr Ronald lackson, Director • General of the Office of Disaster Preparedness Emergency and Management, attended the "Regional Seminar on Public Investment and Financial Mechanisms, Insurance and Reinsurance against Disasters in Latin America and the Caribbean" held in Mexico City in November 2010. The seminar was hosted by SELA. the Latin American and Caribbean Economic System.



## **Technical Assistance for the Reconstruction of Haiti**

Since the magnitude 7 earthquake struck Haiti in January 2010, CCRIF and CIMH have been providing technical assistance to support the reconstruction efforts in that country. After

the earthquake, CIMH developed publicly available, fully automated rainfall and flood prediction products and, in collaboration with CCRIF, has been assisting the international and regional communities with the use of these products. These tools and the data produced have helped planners and relief workers to make better decisions about where to re-settle citizens and re-build infrastructure to minimise people's exposure to flooding and landslides.

Rainfall data were made available through the International Research Institute for Climate and Society (IRI) Haiti weather and climate help desk (http://iri.columbia.edu/haiti) and are being used

by Meteo-France Martinique in support of forecasts over Haiti. The National Hurricane Center also has recognised the usefulness of these tools. Figure 18 shows a sample snapshot of precipitation predictions for Haiti.

Throughout the Hurricane Season, CCRIF and CIMH provided additional support, recognising the particular vulnerability of Haiti to heavy rainfall, which typically causes flooding and landslides in this

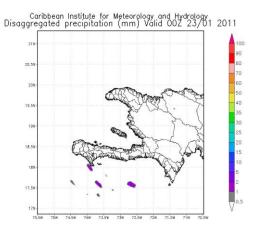


Figure 18: Sample Snapshot Precipitation Predictions for Haiti

highly deforested country. This support included providing high-resolution rainfall forecasts to the UN Office for the Coordination of Humanitarian Affairs (OCHA) as well as to many other government officials and NGOs in Haiti as well as briefing UN Cluster Heads in Haiti on the ongoing conditions and likely areas of highest impact during Hurricane Tomas. OCHA's Matthew Hewett indicated that the data was "invaluable to us in terms of explaining the risk to UN decision makers" which helped, for example, in the planning of tent camp evacuations.

CCRIF and CIMH are supporting the development of initiatives to assist with the rebuilding of Haiti's hydrometric network and the training of meteorological and hydrological technicians. In the next few months, CIMH will prepare a fully operational flood prediction product for each of three critical watersheds that have been identified by the CCRIF team. The operational product will be hosted on CIMH's website where users will be able to access the 48-hour hydrological forecasts for the three watersheds. This tool will provide users with guidance as it relates to the possible inundation extents and flood risk. It is expected that in the coming year this will also be made available through the CCRIF website.

Additional details about this initiative can be found in the final report entitled, "Forecasting Tools for Haiti," prepared by CIMH in May 2011.

## Climate Risk Adaptation and Insurance in the Caribbean Programme



The German Federal Ministry of the Environment and Nuclear Safety (BMU) agreed to support a project initially "Regional entitled institutions, adaptation, and insurance: Expanding coverage for medium level weather extremes in vulnerable countries using risk reduction and innovative insurance solutions coverage." This project is being implemented within the Munich Climate Insurance Initiative (MCII) bv а partnership made up of Munich Re, MicroEnsure and CCRIF.

Currently referred to as the Climate Risk Adaptation and Insurance in the Caribbean programme, it seeks to help vulnerable people better cope with extreme weather events. The programme will design and implement products that combine risk reduction and insurance for low income groups such as small farmers and day labourers in the region. The products target medium-level weather extremes (hurricane, drought), which are likely to increase in frequency and intensity with climate change. A communications team for the project was formed, consisting of the CCRIF Communications Manager and communications officers from MicroEnsure and Munich Re. The team started discussions on communications strategies and activities. Several introductory workshops will be held in the region over the coming months. Also, CaribRM (on behalf of CCRIF) and MicroEnsure will start datagathering field work in the Caribbean, starting with Saint Lucia, Guyana, Grenada, Belize and Jamaica.

## **Strategic Alliances and Partnerships**



In the pursuance of our mission – "to serve Caribbean governments and their communities in reducing the economic impact of natural catastrophes..." CCRIF recognises the critical role of establishing partnerships for sustainability. We engage in partnerships at three levels to fulfill our mission:

- 1. We work with our members in the region to establish and make available a knowledge bank of relevant and credible resource materials on risk transfer, CCRIF products and disaster risk reduction
- 2. We facilitate the exchange of technical, scientific and management information on risk transfer mechanisms so that our members are well informed prior to purchasing our products
- 3. We continue to work with key regional organisations to design and implement programmes to strengthen Caribbean governments' disaster response

and mitigation capacity as well as developing strategic alliances through MoUs and other mechanisms with regional institutions to reduce the existing vulnerabilities in the small island states of the region

4. We work with organisations at the regional and international levels on collaborative projects that are designed to develop institutional enabling environments and regional supporting mechanisms for knowledge sharing, scaling up good practices, capacity building and technology

These partnerships are already resulting in 'win-win' situations that benefit all actors involved leading to improvements in managing risks and sustainable development. But equally important is that these partnerships have resulted in enhancing the role of CCRIF within the region; its contribution to disaster risk management and it has enabled the Facility to take advantage of regional knowledge and expertise. The Facility is therefore a full partner in the development of the Caribbean region, providing technical assistance and alliances to improve disaster risk management in the region.

The table below provides an update on the implementation progress of our partnerships with key organisations in the region over the last year.

Partner	Progress in 2010-11 Policy Year
CARICOM Caribbean Community	<ul> <li>Members of the CCRIF Board and Team met with CARICOM officers in May 2011 to discuss various issues of mutual interest.</li> <li>The CARICOM Secretariat is exploring a request from CCRIF that the General Counsel for the Secretariat perform the role of Enforcer for the CCRIF.</li> <li>The CARICOM Secretariat is revising a draft MoU to reflect some of the recent interactions and possible synergies between CCRIF and the Sustainable Development Division of the Secretariat and to include some aspects of the CCRIF Technical Assistance programme.</li> </ul>
CARILEC Caribbean Electrical Utility Services Corporation CCCCC Caribbean Community Climate Change Centre	<ul> <li>Discussions regarding an MoU continued. The MoU will form part of the finalisation of the governance and operations structure for an electrical transmission and distribution system product being developed by CCRIF.</li> <li>CCRIF and CCCCC finalised an MoU between the two institutions. This MoU will facilitate capacity building through the elaboration and enhanced use of tools in the areas of catastrophe risk modelling, parametric insurance and alternative risk transfer and the introduction of new products and programmes and initiatives to assist Caribbean governments in better understanding and financing catastrophe risk exposures which will be enhanced as a result of climate change. The signing of the MoU will take place in August 2011.</li> <li>CCCCC also supported CCRIF in the conduct of the Economics of Climate Adaptation study.</li> </ul>
<b>CDEMA</b> Caribbean Disaster Emergency Management Agency	<ul> <li>As part of CCRIF's commitment under its MoU with CDEMA, CCRIF provided sponsorship to the 5<sup>th</sup> Caribbean Conference on Comprehensive Disaster Management. Co- hosted by CDEMA and Jamaica's Office of Disaster Preparedness and Emergency Management (ODPEM), the conference was held in Montego Bay, Jamaica on December 6 - 10, 2010.</li> </ul>

Partner	Progress in 2010-11 Policy Year
CIMH Caribbean Institute of Meteorology and Hydrology	<ul> <li>CCRIF and CIMH collaborated to provide assistance to Hait in its long-term recovery and reconstruction efforts.</li> <li>CIMH will continue to support CCRIF in providing real-time hurricane hazard forecasts through the RTFS for all member governments during the Atlantic Hurricane Season which starts on June 1, 2011. CIMH will work with CCRIF and KAC early in the next policy year to revise the RTFS training programme and to develop a new curriculum to address stakeholder needs to effectively use the RTFS. The training sessions will take place in July 2011.</li> </ul>
OECS Organisation of Eastern Caribbean States	• The OECS indicated an interest in developing a collaborative arrangement with CCRIF. During this year, an MoU document was drafted along with notes on possible ideas for collaboration with the OECS in the areas of disaster risk reduction and climate change. Further discussions will take place in the coming year.
UN-ECLAC UN Economic Commission for Latin America and the Caribbean	<ul> <li>Members of the CCRIF Board and Team met with officers of UN-ECLAC in May 2011 to discuss initiatives to be implemented within the MoU between the two organisations that was signed in February 2010 Discussions focused on the Damage and Loss Assessment studies and possible collaboration between the ECA initiative and the UN-ECLAC Review of the Economics of Climate Change (RECC) project – the current phase of the RECC project is scheduled to come to an end in June 2011.</li> </ul>
UWI University of the West Indies	<ul> <li>UWI hosted a handover ceremony on May 26, 2011 for the first six scholarships awarded under the CCRIF/UWI scholarship programme.</li> <li>Discussions will continue with the University of the West Indies Disaster Risk Reduction Centre (UWI-DRRC) regarding an MoU for collaboration in other areas that support disaster risk reduction and adaptation to climate change, for example, by providing CCRIF's catastrophe modelling tools to the University.</li> </ul>

# **Communications, Publications and Public Relations**



Figure19: Goals of CCRIF Communications Plan

CCRIF's communications and public relations strategy is contained in the CCRIF Communications Plan, which has three main goals as is presented in Figure 19 above. CCRIF's communications and PR activities are therefore designed to achieve these goals.

During the policy year to support its communications objectives, CCRIF

• Developed and delivered awareness raising and/or education programmes for CCRIF contacts and other relevant policy makers in CCRIF member countries; to nurture support for CCRIF programmes and to foster improvements in the understanding of CCRIF as a key component of country disaster risk reduction activities and an essential tool in climate change adaptation

 Developed and distributed various materials (22 publications that included a mix of technical documents and booklets, quarterly and annual reports, brochures and flyers) towards strengthening CCRIF's reputation as a respected Caribbean Community entity

- Distributed various press releases related to the work of the Facility as well as to payouts made after four hurricane policies were triggered
- Participated in various fora such as conferences and workshops
- Revamped and redesigned the CCRIF Website to create a resource rich site

In this section, information related to the following will be presented:

- CCRIF Publications and Features
- CCRIF Communications and PR
- CCRIF Website
- Events Sponsored by CCRIF
- Seminars and Workshops hosted
- Seminars, Conferences and Workshops attended



## **CCRIF Publications and Features**

Over the year, CCRIF produced 22 publications, including four quarterly reports, four quarterly newsletters, three technical reports, the 2009 -10 Annual Report, the revised CCRIF Strategic Plan 2009/10 – 2011/12, four brochures, three flyers, one technical booklet and

one curriculum document. These publications were distributed to member countries, CCRIF stakeholders and at conferences and workshops hosted by CCRIF and/or attended by members of the CCRIF Board and team.

Some of CCRIF's publications were:

- Booklet, A Guide to Understanding the Real-Time Impact Forecasting System (RTFS)
- Brochure, *Enhancing the climate risk and adaptation fact base for the Caribbean* (*Preliminary Results*)
- Report, Verifying CCRIF's Tropical Cyclone Hazard and Loss Modelling: Assessment of 2010 Tropical Cyclone Events

Additionally, CCRIF also contributed to a range of other publications – both printed and electronic – which address insurance,

- A chapter in the publication, *SIDS-SIDS Success Stories*. CCRIF was invited by the Chief of the SIDS1 Unit, Division for Sustainable Development, UN Department of Economic and Social Affairs (DESA) to contribute to a chapter in a publication on success stories of SIDS-SIDS cooperation. The publication, co-sponsored by the UNDP Special Unit on South-South Cooperation and the SIDS Unit/UN-DESA, complemented the updated Secretary General report on the implementation of Mauritius Strategy for the Further Implementation of the Barbados Programme of Action for the Sustainable Development of Small Island Developing States.
- An article in *Risk Professional*, the bi-monthly magazine of GARP, the Global Association of Risk Professionals. Based on an interview with Executive Chairman Milo Pearson, the article is entitled, "Climate Risk at Hurricane Force" and describes the genesis of CCRIF. The author states that "There are quite a few private-sector entities now looking at the [CCRIF] model for pooling risk."
- Two articles in Earth Conscious magazine. An article entitled, "CCRIF hosts Regional Workshop on Economics of Climate Adaptation" was published in the June 2010 issue and the December 2010 issue included an article entitled, "Climate Change and Insurance in the Caribbean." Earth Conscious magazine is a quarterly magazine published in Trinidad & Tobago that explores issues related to climate change, sustainable tourism, energy, disasters and other environmental issues.

disaster management, climate change and environmental issues. Notable among these were:



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<sup>&</sup>lt;sup>1</sup> Small Island Developing States

• An article in *Bermuda - Premier International Finance Centre*, a book prepared for OECD's Global Forum on Transparency and Exchange of Information for Tax Purposes hosted by Bermuda on May 31 to June 1, 2011. CCRIF contributed an article entitled, "The Caribbean Leads the Way with CCRIF" written by Dr Simon Young, CEO of CaribRM, CCRIF Facility Supervisor. The article describes CCRIF's work and notes the contribution made by Bermuda to capitalisation of the Facility through a donation to the multi-donor Trust Fund. The Government of Bermuda is unique in being a donor as well as a CCRIF member.



• Segments of the television series, *Ready 2010*. CCRIF was featured on *Ready 2010*, a Barbados-produced television series that focuses on



preparedness for natural and man-made hazards in the Caribbean region. Executive Chairman Milo Pearson participated in a one-hour interview, portions of which were used in segments of the five-part series aired during prime time during the period June - August 2010 in seventeen Caribbean countries. In the interview, Mr Pearson discussed all aspects of CCRIF, including the organisation's objectives, upcoming CCRIF events, the Technical Assistance Programme – with special focus on the Economics of Climate Adaptation (ECA) project, and the payout to Haiti and reconstruction plans after the January earthquake.

## **CCRIF Communications and PR**

CCRIF regularly disseminates information to approximately 500 stakeholders. The CCRIF mailing list includes:

- primary country contacts within the ministries of finance of existing and potential member countries;
- reinsurance companies;
- stakeholders from disaster management agencies, meteorological offices;
- international development partners; and
- general stakeholders who include environmental management professionals

Persons who attend workshops and meetings in which CCRIF participates are regularly added to this list. In addition to these targeted persons, CCRIF communicates with over 500 members of the press and has developed close working relationships with a number of editors and reporters both regionally and internationally.

CCRIF issued 6 press releases during the year. The topics of these press releases are listed below:

- Caribbean Countries Renew Hurricane and Earthquake Coverage
- Caribbean Economics of Climate Adaptation Study results released
- CCRIF to make payout to Anguilla after Hurricane Earl
- Government of Anguilla receives US\$4.28M insurance payout following passage of Hurricane Earl

- Caribbean Governments receive US\$12.8M insurance payout from CCRIF following passage of Tomas
- CCRIF Selects New Reinsurance
   Broker

During the period June 1, 2010 to May 31, 2011, there was significant coverage of CCRIF in the news with 324 instances of articles on CCRIF being published in printed and online newspapers and journals, online news portals, organisation websites and discussion blogs. Some of this coverage is as a result of press releases generated by CCRIF. Other accounts are due to growing recognition of CCRIF's role in disaster risk management. Forty-three percent of this coverage or 139 articles were in regard to payouts made by CCRIF to the Government of Anguilla after Tropical Cyclone Earl and to the Governments of Barbados, Saint Lucia, and St Vincent & the Grenadines after the passage of Tropical Cyclone Tomas on October 30 – 31, 2010.

There also were 54 articles describing CCRIF's contribution to climate adaptation, including discussion of the preliminary results of the ECA study. Twenty-nine articles presented CCRIF as a model of a climate and disaster risk insurance facility which could be emulated by other regions in the world.

Figure 20 shows the frequency of articles by topic area that appeared in the international and regional press.

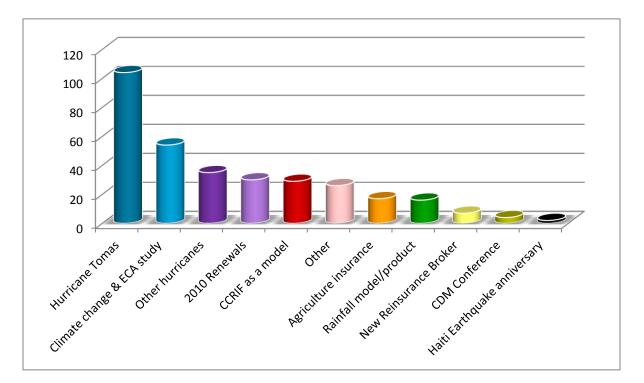


Figure 20: Press coverage by topic

Figure 21 below shows the distribution of coverage by month throughout the 12-month period, indicating the regional source of the publication. The figure shows the large increase in coverage in November 2010, right after the passage of Hurricane Tomas. During the course of the Atlantic Hurricane Season (June to November), 267 articles appeared – over 80% of the total number of articles for the year – with 125 being published in November.

Almost all countries within the Caribbean region carried stories about CCRIF including member states as well as non-members such as Suriname and Guyana. This region, along with the USA and UK provided the greatest coverage. There were 134 (41%), 87 (27%) and 57 (17%) articles from sources in the Caribbean, USA, Canada, and the UK, respectively.

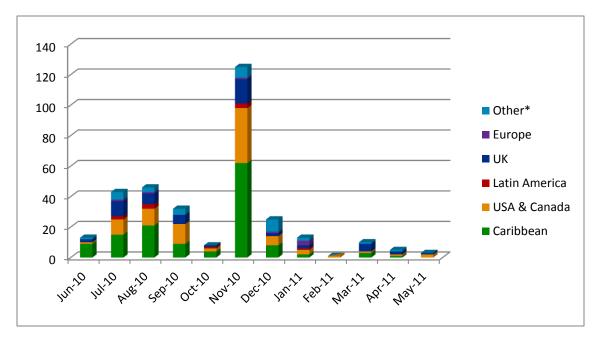


Figure 21: Press coverage by month and geographic region

Figure 22 shows the coverage of CCRIF by media source: 112 articles appeared in Caribbean printed and online newspapers and 43 in other newspapers; 95 articles in insurance and financial newspapers, journals and websites; 56 articles on websites of organisations such as the World Bank, SwissRe, ReliefWeb, UN- OCHA, and Caribbean governments, and there were 18 posts on online blogs and discussion fora.

In addition to articles that appeared in media publications, CCRIF was included in approximately 20 reports by agencies such as the World Bank, the Geneva Association, the Caribbean Natural Resources Institute (CANARI), the World Resources Institute, and UN-ECLAC.

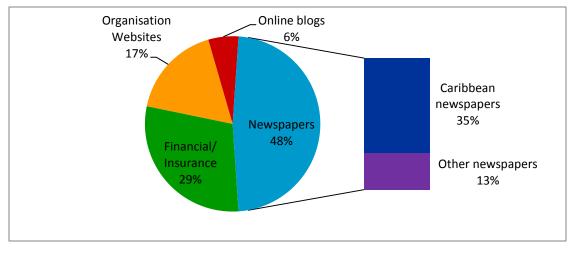


Figure 22: Press coverage by media type

## **CCRIF Website**



The new CCRIF website (www.ccrif.org) went "live" in June 2010. The new site was designed to improve CCRIF programme delivery and service, while increasing awareness of the Facility's mission and role. The website provides easy access to all CCRIF publications and reports as well as information about CCRIF's programmes, partnerships and projects. In the secure RTFS section of the website, CCRIF members were given the ability to log in using a unique username/password in order to access the Real-Time Forecasting System (RTFS) during the 2010 Hurricane Season. During the policy year, CCRIF started making modifications to its website to accommodate online training. The first set of online training to be delivered will be on the use of the RTFS, via a course, *Accessing and Using the CCRIF RTFS 2011* which will be offered in July 2011.

During this year, the CCRIF website was accessed 8,358 times; 2,152 (26%) of these visits were from the Caribbean. Figure 23 shows the access to the CCRIF website for the months July 2010 to May 2011 and Figure 24 shows the website access for each quarter in this year by country group. Note that the website was accessed most often during Quarter 2 (September – November), the latter part of the Hurricane Season (2,814 visits or 34% of the total). There were proportionately more visits from the Caribbean during the Hurricane Season (June – November), representing 31% of the total visits in that period, compared with 21% of the total visits outside of the Hurricane Season.

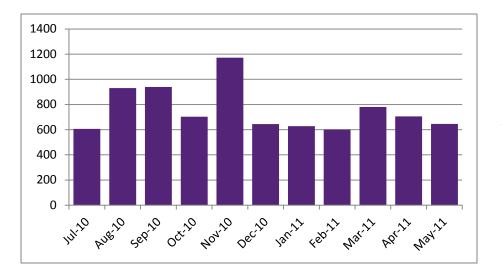


Figure 23: Visits to CCRIF Website: July 2010 – May 2011

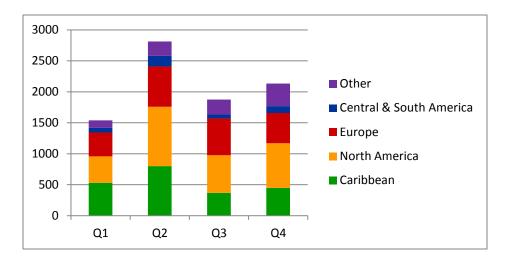


Figure 24: Visits to CCRIF Website by Country Group for each Quarter: June 2010 – May 2011

## **Conferences and Fora**



Dr. Jan Vermeiren, Executive Director of Kinetic Analysis Corporation (KAC), makes a presentation at the CCRIF Professional Development Session as part of the 5<sup>th</sup> Annual Conference on Comprehensive Disaster Management held in Montego Bay, Jamaica in December 2010

The CCRIF Board and/or members of the team participated in 23 conferences and meetings over the year. At approximately 80% of these conferences, presentations on CCRIF were made and materials and booklets on CCRIF were distributed. CCRIF sponsored four conferences Caribbean including the Disaster Management conference in which the Facility was a major sponsor. At this conference, CCRIF hosted one of the professional development sessions. The Professional Development Session (PDS), was held on December 6, 2010 in Montego Bay, Jamaica and was attended by 49 participants. Entitled "The Real-Time Impact Forecasting System (RTFS) as a Tool in Disaster Planning and Mitigation," the session provided CCRIF members and other key stakeholders with an improved understanding of how the RTFS can be used during the Atlantic Hurricane Season and how it supports disaster planning and management.

CCRIF sponsored four conferences over the year totalling US\$95,188. These conferences and a description of each are presented in the table below.

### Conference

## **Additional Information**

Fifth Caribbean<br/>Conference on<br/>ComprehensiveCCRIF was a major sponsor for the 5th Caribbean Conference on<br/>Comprehensive Disaster Management, co-hosted by CDEMA and Jamaica's<br/>Office of Disaster Preparedness and Emergency Management (ODPEM), and<br/>held in Montego Bay, Jamaica on December 6 - 10 2010. The Facility<br/>provided sponsorship to eighteen persons from the finance and<br/>meteorological offices in fourteen countries in the Region (including both<br/>member and non-member states) to attend the conference. At the

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## Conference

## **Additional Information**

conference, CCRIF hosted a professional development session, as well as delivered a presentation on the results of the Economics of Climate Adaptation Study at one of the conferences concurrent sessions and participated in the exhibition. In addition, as a major sponsor of the conference, CCRIF delivered remarks at the Opening Ceremony at which the Prime Minister of Jamaica was the main speaker. CCRIF's sponsorship was valued at US\$77,688.



th Caribbean Conference on Comprehensive Disaster Management

Rosehall Resort and Spa, Montego Bay, Jamaica, December 6-10, 2010

CDM: "Strengthening Partnerships for Resilience"

30 <sup>th</sup> annual	CCRIF provided sponsorship worth \$5,000 for the 30 <sup>th</sup> annual conference of				
conference of the	the Insurance Association of the Caribbean (IAC) held June 13 - 15 in				
Insurance	Montego Bay, Jamaica. Dr Simon Young, CEO of Caribbean Risk Managers				
Association of the	Ltd, CCRIF's Facility Supervisor, delivered a keynote address, discussing				
Caribbean	CCRIF and other parametric and catastrophe insurance and climate change				
	issues.				
Caribbean	CCRIF provided sponsorship valued at \$10,000 for the Caribbean				
Engineering	Engineering Conference on Bridges, hosted by the Caribbean Division of the				
<b>Conference on</b>	Institution of Structural Engineers, in partnership with the Jamaica Institute				
Bridges	of Engineers held September 20 - 21 in Kingston, Jamaica. The conference				
	included discussions about the impact of natural hazards such as hurricanes				
	and earthquakes on bridges and associated infrastructure.				
19th Caribbean	CCRIF provided sponsorship of US\$2,500 for the 19th staging of the				
Media Exchange	Caribbean Media Exchange on Sustainable Tourism (CMEx XIX) held in				
<b>Conference on</b>	Kingston, Jamaica from September 30 to October 4, 2010. The conference				
Sustainable	explored the linkages between tourism and various sectors including				
Tourism	culture, agriculture and education and examined the linkages between				
	climate change and tourism and how to make Caribbean tourism more				
	climate-friendly.				

Some of the key conferences attended by the CCRIF Board and team are listed in the table below

Conference	Additional Information
Caribbean	The CCRIF Board and Team participated in the Caribbean Agricultural
Agricultural	Insurance Symposium on Disaster Risk Management hosted by the Inter-
Insurance	American Institute for Cooperation on Agriculture (IICA) held June 16-

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Conforanco	Additional Information
Conference	Additional Information
Symposium on	18, 2010 in Antigua. The focus of the symposium was on insurance
Disaster Risk	within the agricultural sector. Dr Simon Young delivered a presentation
Management	on CCRIF's role as a potential catalyst and provider of new risk
	management tools for using index-based insurance in this sector. Dr
<u> </u>	Warren Smith also participated in this meeting.
Programming	Ms Ekhosuehi Iyahen represented CCRIF at the Programming
<b>Consultation on</b>	Consultation on Comprehensive Disaster Management (CDM) hosted by
Comprehensive	the Caribbean Disaster Emergency Management Agency (CDEMA) on
Disaster	August 19, 2010 that focused on new CDM initiatives in the region and a
Management	review of regional programming for Haiti. Ms lyahen delivered a
	presentation which focused on the high resolution rainfall modelling to
	inform early warning of potential heavy rain events in Haiti.
Climate Week NY°C	CCRIF Executive Chairman Mr Milo Pearson and Dr Simon Young, CEO of
2010	CaribRM, CCRIF Facility Supervisor, participated in Climate Week NY°C
	2010 – a forum hosted by The Climate Group, held in New York City
	during September 20-26, 2010. Swiss Re and The Climate Group hosted a
	panel entitled "Risk and Resiliency: Risk Transfer & Adaptation in
	Emerging Economies" in which Mr Pearson delivered a presentation,
	describing CCRIF's role in disaster disk management and climate change
	adaptation and highlighting the rapid payout made one week earlier to
	Anguilla after that country was affected by Hurricane Earl.
Energy Efficiency and	Mr Milo Pearson represented CCRIF at the "Energy Efficiency and Access
Access Forum	Forum" in Mexico City on September 28 - 29 2010. Hosted by the
	Secretariat of Energy of Mexico, the IDB and the World Bank, this
	international gathering aimed at sharing experiences and best practices
	on energy efficiency and access. Mr Pearson made a presentation which highlighted the Facility's efforts to work with CARILEC on developing a
	parametric product for overhead electrical transmission and distribution
	systems in order to improve resilience of that sector in the face of
	natural hazards.
Meeting of the	CCRIF Board Member, Mr Isaac Anthony and Dr Simon Young
Economic and	participated in a meeting of the Second Committee (Economic and
Financial Committee	Financial Committee) on October 26, 2010 at the 65 <sup>th</sup> session of the UN
at the 65 <sup>th</sup> session of	General Assembly in New York City. Mr Anthony was a member of a
the UN General	panel discussion entitled, "Economic and other constraints faced by
Assembly	Small Island Developing States in the context of climate change" that
100011019	discussed potential initiatives and instruments that might address debt
	sustainability and financing of climate change measures.
Meeting of the CTO	Ms Ekhosuehi Iyahen attended the 18th Ordinary Meeting of the
Sustainable	Sustainable Development Technical Committee of the Caribbean
Development	Tourism Organisation (CTO) in Barbados on October 8, 2010. Ms
<b>Technical Committee</b>	Iyahen's presentation focused on the results of the CCRIF ECA study, as
	specifically requested by the CTO.
<b>Regional Seminar on</b>	Mr Milo Pearson and Dr Simon Young participated in the "Regional
<b>Public Investment</b>	Seminar on Public Investment and Financial Mechanisms, Insurance and
and Financial	Reinsurance against Disasters in Latin America and the Caribbean" held
Mechanisms,	in Mexico City on November 22 – 23, 2010. The seminar was hosted by

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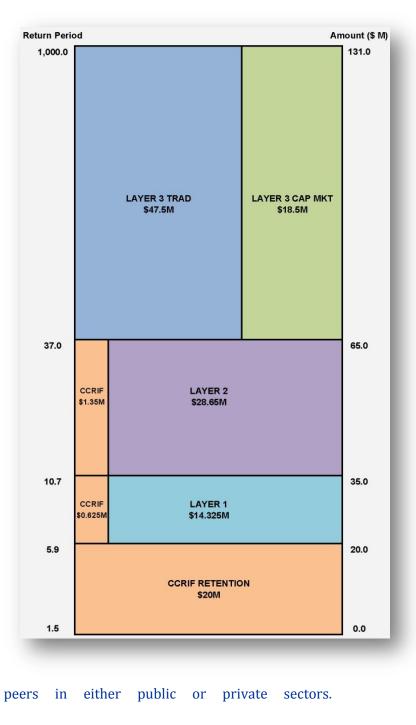
Conference	Additional Information
Insurance and	SELA, the Latin American and Caribbean Economic System, a regional
<b>Reinsurance against</b>	intergovernmental organisation that groups twenty-eight Latin
Disasters in Latin	American and Caribbean countries. Mr Pearson delivered a presentation
America and the	which highlighted the ECA study, stressing that the results of the study
Caribbean	illustrate the importance of a balanced portfolio of risk mitigation and
	adaptation measures in each country.
COP16 – the United	CCRIF was actively involved in the region's preparations for, and
Nations Climate	participation in COP16 – the United Nations Climate Change Conference
<b>Change Conference</b>	which took place in Cancún, Mexico, from November 29 to December 10,
	2010. During COP16, CCRIF participated in two events: the inaugural
	World Climate Summit – a business conference, hosted by World Climate
	Ltd, which gathered world's leading businesses, financiers, and
	governments with the aim of accelerating solutions to climate change;
	and a side event entitled "Adaptation, risk reduction and insurance,"
	organised by the Munich Climate Insurance Initiative (MCII). CCRIF was
	described in news reports after the Conference as the best model for a
	climate and disaster risk insurance facility.
Second Session of the	Ms Ekhosuehi Iyahen, Project Development Manager at CaribRM,
<b>Regional Platform for</b>	represented CCRIF at the Second Session of the Regional Platform for
Disaster Risk	Disaster Risk Reduction in the Americas held March 14 – 17, 2011 in
<b>Reduction in the</b>	Nayarit, Mexico. The aim of the conference was to serve as a forum for
Americas	presenting and validating the regional report on the progress of the
	implementation of the Hyogo Framework for Action.
Meeting of the US	Executive Chairman Mr Milo Pearson attended the quarterly meeting of
National Association	the US National Association of Insurance Commissioners held on March
of Insurance	26, 2011 in Austin, Texas. Participating in the session of the Catastrophe
Commissioners	Insurance Working Group, he provided an update on CCRIF, highlighting
	the payouts made since the Facility's inception in 2007.
Fourth United	Board member, Mr Isaac Anthony participated in the Fourth United
Nations Conference	Nations Conference on the Least Developed Countries (LCD IV) held on
on the Least	May 9 – 13, 2011 in Istanbul, Turkey. The World Bank and the Global
<b>Developed Countries</b>	Facility for Disaster Reduction and Recovery (GFDRR) organised an
	event to share experiences on disaster risk management from disaster
	onset to building back better, and enhancing developing countries' long- term development resilience. Representing the Caribbean, Mr Anthony
	participated in a panel discussion, highlighting lessons that CCRIF has
	learned in its first four years and showing how the Facility could be used
	as a model for other regions around the world.
Meeting of the Board	At the invitation of newly-appointed CDB President Dr Warren Smith,
of Governors of the	CCRIF was represented by Dr Simon Young, CEO of CaribRM (CCRIF
Caribbean	Facility Supervisor), at the 41 <sup>st</sup> meeting of the Board of Governors of the
Development Bank	Caribbean Development Bank held in Trinidad & Tobago on May 25 - 26
Development Dank	2011.
	4V11,

## **CCRIF's Financial Stability**

CCRIF issued 29 annual policies to 16 CARICOM countries for the 2010-2011 policy/financial year. Annual premium income totaled approximately US\$20.8 million. Capital raised from donor contributions and held in a Trust Fund by the World Bank totalled approximately US\$67.5 million, with approximately US\$5 million remaining at the end of the financial year. A further ~US\$19.5 million has been contributed in the form of participation fees from member governments.

CCRIF's aggregate exposure for policies written was just under \$620 million. CCRIF purchased US\$111 million of reinsurance capacity above a US\$20 million retention to support the claims paying capacity of the Facility (see figure at right). Reinsurance was purchased from the international reinsurance markets, including Swiss Re, Munich Re, Partner Re, Hanover Re and Lloyd's of London syndicate Hiscox. US\$18.5 million of the top layer of risk was placed into the capital markets via a catastrophe swap between CCRIF and the World Bank Treasury. The top of the reinsurance structure, at \$131 million, provided claimspaying capacity for aggregate annual losses with a 1 in 1,000 chance of occurring.

With CCRIF's own additional capital, the claims paying capacity of CCRIF for the 2010-2011 policy year was significantly greater than the modelled aggregate annual loss with a 1 in 1,000 chance of occurring, thus comfortably falling within CCRIF's guidelines for financial security and substantially better than any of its





AUDITED FINANCIAL STATEMENTS 2010 - 2011

### CONSOLIDATED FINANCIAL STATEMENTS

### FOR THE YEARS ENDED MAY 31, 2011 AND 2010

### CONSOLIDATED FINANCIAL STATEMENTS

### FOR THE YEARS ENDED MAY 31, 2011 AND 2010

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### **REPORT OF INDEPENDENT AUDITORS**

### To The Board of Directors and Shareholder of Caribbean Catastrophe Risk Insurance Facility

In our opinion, the accompanying consolidated balance sheets and the related consolidated statements of income, changes in shareholder's equity and cash flows present fairly, in all material respects, the financial position of Caribbean Catastrophe Risk Insurance Facility and its subsidiary (the "Group") as at May 31, 2011 and 2010, and the results of their operations and their cash flows for the years then ended, in conformity with accounting principles generally accepted in the United States of America. These financial statements are the responsibility of the Group's management. Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits of these financial statements in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

). Pricewaterhause Capers

September 2, 2011

 $\label{eq:pricewaterhouseCoopers, 5^{th} Floor Strathvale House, P.O. Box 258, Grand Cayman, KY1-1104, Cayman Islands, T: +1 (345) 949 7000, F: +1 (345) 949 7352, www.pwc.com/ky$ 

### CONSOLIDATED BALANCE SHEETS

(expressed in U.S. dollars)

	<u>May 31,</u>		
	<u>2011</u>	<u>2010</u>	
ASSETS Cash and cash equivalents (Note 4)	\$ 1,857,206	\$ 8,044,502	
Investments, at fair value (cost \$100,695,016 (2010: \$89,393,955)) (Note 5)	105,445,365	\$ 8,044,502 84,891,198	
Unrealized gains on options (Note 10)	39,736		
Unrealized gains on credit default swaps (Note 10)	304,087	-	
Development costs (Note 17)	389,040	-	
Accrued interest	1,353,331	1,397,042	
Prepaid expenses	163,469	39,935	
Amounts due from Multi Donor Trust Fund (Note 6)	4,566,175	454,348	
Total assets	\$ <u>114,118,409</u>	\$ <u>94,827,025</u>	
LIABILITIES AND SHAREHOLDER'S EQUITY			
Liabilities	ф <b>Элг</b> сол	¢ 504 501	
Accounts payable and accrued expenses (Note 7) Due to broker	\$ 375,605	\$ 524,591	
Income from parametric contracts received in advance (Note 8)	1,820,595 1,550,000	4,474,780	
Participation fee deposits (Note 9)	19,323,512	21,988,512	
Unrealized losses on forward and futures contracts (Note 10)	407,630	21,988,912	
Chicanzea 1655e5 on 161 ward and fatales contracts (176te 176)			
Total liabilities	23,477,342	27,285,193	
Shareholder's equity	1 000	1 000	
Share capital (Note 11)	1,000	1,000	
Share premium (Note 11) Technical assistance reserve (Note 11)	119,000 709,803	119,000 480,575	
Retained earnings	89,811,264	<u>480,373</u> <u>66,941,257</u>	
Retained earnings	07,011,204	00,941,237	
Total shareholder's equity	90,641,067	67,541,832	
Total liabilities and shareholder's equity	\$ <u>114,118,409</u>	\$ <u>94,827,025</u>	

Approved for issuance on behalf of the Board of Directors of Caribbean Catastrophe Risk Insurance Facility by:

Milo Pearson	September 2, 2011
Director	Date
Desirée Cherebin	September 2, 2011
Director	Date

### CONSOLIDATED STATEMENTS OF INCOME

(expressed in U.S. dollars)

	Year ended May 31,			
	2011	2010		
Operating income				
Income from parametric contracts (Note 2)	\$ 20,777,214	\$ 21,488,509		
Expenses on parametric reinsurance contracts (Note 2)	( <u>10,188,150</u> )	( <u>8,766,913</u> )		
Net income on parametric contracts	10,589,064	12,721,596		
Ceding commissions on parametric reinsurance contracts	354,649	146,445		
Total operating income	10,943,713	12,868,041		
Operating expenses				
Claims paid on parametric contracts (Note 12)	17,174,981	7,753,579		
Brokerage and facility supervisor fees	800,525	600,304		
Total operating expenses	17,975,506	8,353,883		
Net operating (loss)/income	( 7,031,793)	4,514,158		
Other income and expenses				
Investment income (Note 13)	3,939,156	3,447,804		
Income from Multi Donor Trust Fund (Note 6)	27,196,019	17,838,307		
Amortization of development costs (Note 17)	( 18,000)	-		
Technical assistance expenses (Note 3)	( 470,772)	( 818,219)		
Administrative expenses (Notes 14 and 15)	( <u>515,375</u> )	( <u>860,675</u> )		
Net income for the year	\$ <u>23,099,235</u>	\$ <u>24,121,375</u>		

### CONSOLIDATED STATEMENTS OF CHANGES IN SHAREHOLDER'S EQUITY

	Share apital	Share premium		Technical assistance reserve	_	Retained earnings		<u>Total</u>
Balance at May 31, 2009	\$ 1,000	\$ 119,000	\$	-	\$4	3,300,457	\$ 43	3,420,457
Transfer to technical assistance reserve	-	-		1,298,794	(	1,298,794)		-
Net income for the year	-	-		-	2	4,121,375	24	4,121,375
Utilization of technical assistance reserve	 		(	818,219)		818,219		
Balance at May 31, 2010	1,000	119,000		480,575	6	6,941,257	6	7,541,832
Transfer to technical assistance reserve	-	-		700,000	(	700,000)		-
Net income for the year	-	-		-	2	3,099,235	23	3,099,235
Utilization of technical assistance reserve	 		(	470,772)		470,772		
Balance at May 31, 2011	\$ 1,000	\$ 119,000	\$	709,803	\$ <u>8</u>	9,811,264	\$ <u>9(</u>	) <u>,641,067</u>

(expressed in U.S. dollars)

### CONSOLIDATED STATEMENTS OF CASH FLOWS

(expressed in U.S. dollars)

			r ended ay 31,
		2011	2010
Operating activities			
Net income for the year	\$	23,099,235	\$ 24,121,375
Adjustments to reconcile net income to net cash from			
operating activities:			
Adjustment for items not affecting cash: Participation fees used towards income from parametric contracts	(	2,440,000)	_
Change in fair value of investments	(	9,253,106)	6,808,221
Net realized loss/(gain) on investments	(	158,462	( 3,313,403)
Unrealized gains on derivative instruments	(	233,503)	( 1,006,739)
Amortization of development cost	,	18,000	-
Changes in assets and liabilities:			
Purchase of securities	(	105,540,732)	(129,245,228)
Proceeds from sale of securities		91,870,203	96,920,344
Net movement in short term investments		2,211,006	( 2,886,702)
Accrued interest		43,711	( 785,543)
Due to Broker	,	1,820,595	-
Amounts due from Multi Donor Trust Fund	(	4,111,827)	6,365,192
Accounts payable	(	148,986)	261,773 (7,112,500)
Income from parametric contracts received in advance Prepaid expenses	(	2,924,780) 123,534)	( 7,112,300) ( 9,517)
Flepaid expenses	(_	125,554)	( <u>9,317</u> )
Net cash used in operating activities	(	5,555,256)	(
Investing activities			
Development Cost	(	407,040)	<u> </u>
Net cash used in investing activities	(	407,040)	<u> </u>
Financing activities			
Participation fee deposits (refunded)/received	(	225,000)	100,000
radopadon ree acposito (rerandea)/recerved	<u> </u>		
Net cash used in/provided by financing activities	(	225,000)	100,000
Net change in cash and cash equivalents	(	6,187,296)	( 9,782,727)
Cash and cash equivalents at the beginning of year	-	8,044,502	17,827,229
Cash and cash equivalents at the end of year	\$ <u>_</u>	1,857,206	\$ <u>8,044,502</u>

#### NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

# FOR THE YEAR ENDED MAY 31, 2011 AND 2010

(Expressed in United States dollars)

#### **<u>1.</u>** Incorporation and principal activity

Caribbean Catastrophe Risk Insurance Facility, Ltd. (the "Company") was incorporated on February 27, 2007 under the laws of the Cayman Islands and obtained an unrestricted Class "B" Insurer's licence under the provisions of the Cayman Islands Insurance Law on May 23, 2007. The Company's sole shareholder is the CCRIF Star Trust (the "Trust"). The Trustees of the Trust are based in the Cayman Islands.

The principal activity of the Company is to provide catastrophe risk coverage through parametric contracts, specifically relating to tropical cyclones and earthquakes ("Acts of Nature"), to certain Caribbean countries ("Participating Countries").

The Company also owns all of the beneficial interests in the Global Managed (7) \$ Fund (the "Investment Fund" or "Subsidiary") (a Segregated Portfolio of London & Capital Satellites SPC). Accordingly, the Company consolidates the results of the Investment Fund within these financial statements. The purpose of the Investment Fund is to conduct part of the investment activities of the Company. The Company and the Investment Fund are collectively referred to as "the Group" in these consolidated financial statements.

#### 2. Parametric contracts

The principal activity of the Group is to provide catastrophe risk coverage to governments of Participating Countries, through parametric contracts, specifically relating to defined Acts of Nature that occur in or in close proximity of the Participating Countries.

Each Participating Country determines the level of aggregate coverage and attachment points which are then used to determine their individual premiums. Claims are based on calculated index values using specified terms, conditions and formulae set out in the "Claims Procedures Manual" (hereinafter the "Claim Payout") and not with reference to actual losses incurred by the respective Participating Countries. Accordingly, Claim Payouts are not triggered by actual losses but rather the occurrence of the specified Acts of Nature within the defined policy parameters. For the 2010/11 policy year (which terminated on May 31, 2011), the combined aggregate coverage limits for all Participating Countries were \$386 million (2010: \$407.8 million) for tropical cyclones events and \$232.4 million (2010: \$193.4 million) for earthquake events, respectively.

The Group has ceded layers of this exposure to commercial reinsurers and the International Bank for Reconstruction and Development ("World Bank"). The following is a summary of the coverage in the program for the period up to May 31, 2011 and 2010:

- The Group retains all losses up to \$20 million (2010: \$20 million) per annum.
- 95.5% (2010: 100%) of the next \$15 million (2010: \$15 million) of losses are reinsured with 5 (2010: 4) reinsurers with an A.M.Best rating of at least A. The Group retains 4.5% (2010: nil) of losses in this layer.
- 95.5% (2010: 100%) of the next \$30 million (2010: \$35 million) of losses are reinsured with 5 (2010: 5) reinsurers with an A.M.Best rating of at least A. The Group retains 4.5% (2010: nil) of losses in this layer.
- The next \$66 million (2010: \$82.5 million) of losses are ceded 72.35% to 5 (2010: 63.6% to 5) commercial reinsurers with an A.M.Best rating of at least A, and 27.65% (2010: 36.4%) to the World Bank.
- The Group retains all subsequent losses above \$131 million (2010: \$152.5 million).

Notwithstanding the arrangements outlined above, currently all losses incurred in the Group's retention limits are reimbursed to the Group by the Multi Donor Trust Fund until exhaustion of the funds available within that fund (see Note 6).

Losses are determined in accordance with the formulae set out in the contracts and are recorded as an expense on occurrence of a covered event. At May 31, 2011 and 2010, there were no unpaid losses.

#### NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

# FOR THE YEAR ENDED MAY 31, 2011 AND 2010

(Expressed in United States dollars)

#### 3. Significant accounting policies

These consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America ("US GAAP") and are stated in United States dollars. A summary of the significant accounting and reporting policies used in preparing the accompanying consolidated financial statements is as follows:

**Basis of Preparation:** The financial position, results of operations and cash flows of the Company and Subsidiary have been included in these consolidated financial statements. All material balances and transactions (and related gains/losses) between the Company and the Subsidiary have been eliminated upon consolidation.

<u>Management estimates and assumptions</u>: The preparation of financial statements in accordance with US GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of income and expenses during the reporting period. Actual results could differ from these estimates.

<u>Cash and cash equivalents</u>: Cash and cash equivalents comprise of call accounts with the Group's banker and investment custodian. The carrying amount reported approximates fair value.

**Investments:** Investments consist of investments in exchange-traded funds, retail mutual funds, corporate debt securities, sovereign debt securities and short-term investments.

The fair value of exchange-traded funds is based on quoted market prices. The fair value of fixed income securities are determined based on quoted market prices and prices determined using generally accepted pricing models as provided by the Group's investment manager and custodian. The fair value of the retail mutual funds is based on the daily net asset values provided by fund administrators.

Unrealized gains and losses on investments are recorded as a change in fair value in the Consolidated Statements of Income. Realized gains and losses on investments are determined on the specific identification method and are credited or charged to the Consolidated Statement of Income.

Interest and dividend income is recorded on the accruals basis.

**Forward and futures contracts:** The Group permits one of its investment managers to invest, within prescribed limits, in financial exchange traded futures contracts and to sell securities not yet purchased ("Short Selling") to reduce or increase exposures and for managing the asset allocation and duration of the fixed income portfolio as well as for speculative investments. Initial margin deposits are made upon entering into futures contracts and can be made either in cash or securities. During the period the futures contracts are open, changes in the value of the contracts are recognized as unrealized gains or losses by "marking-to-market" on a daily basis to reflect the market value of the contracts at the end of each day's trading. Variation margin payments are made or received, depending upon whether unrealized losses or gains are incurred. When the contracts are closed, the Group records a realized gain or loss equal to the difference between the proceeds from (or cost of) the closing transaction and the Group's basis in the contracts. Futures contracts are valued based on exchange traded prices.

The Group also permits one of its investment managers to invest in forward foreign exchange contracts to reduce or increase exposure to foreign currency fluctuations in its securities which are denominated in currencies other than the U.S dollar. These contracts are also valued daily using the "marking-to-market" method and are recognized in the balance sheet at their fair value, being the unrealized gains or losses on the contracts as measured by the difference between the forward foreign exchange rates at the dates of entry into the contracts and the forward rates at the reporting date. Open forward and futures contracts are valued using Level 2 and Level 1 inputs (as defined as page 8), respectively.

Realized gains and losses and movement in unrealized gains and losses on both futures and foreign currency forward contracts are recorded as a component of investment income in the Consolidated Statements of Income.

## NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

# FOR THE YEAR ENDED MAY 31, 2011 AND 2010

(Expressed in United States dollars)

## 3. Significant accounting policies (continued)

<u>Credit default swaps ("CDSs") and over-the-counter ("OTC") options</u>: The Group permits one of its investment managers to enter into CDSs to manage its exposure to the market or certain sectors of the market, to reduce or increase exposure to defaults of underlying debt instruments or create speculative exposure to debt issuers to which it is otherwise not exposed. OTC options are purchased or written to gain speculative exposure to, or hedge against, changes in the value of equities. CDSs and OTC options are generally valued based on estimates provided by broker dealers or derived from proprietary/external pricing models using quoted inputs based on the terms of the contracts. Net realized gains or losses are recorded with respect to periodic interest payments made or received on CDSs. Movement in unrealized gains and losses on CDSs and OTC options are recorded as a component of investment income in the consolidated statements of income.

**Other Options and Warrants:** The Group permits one of its investment managers to purchase exchange-traded options and warrants to gain speculative exposure to changes in equity price. When an option or warrant is purchased, an amount equal to the premium paid is recorded as an investment and is subsequently adjusted to the current market value of the option or warrant purchased. Premiums paid for the purchase of options or warrants which expire unexercised are treated by the Group as realized losses on derivative contracts. If a purchased put option is exercised, the premium is subtracted from the proceeds of the sale of the underlying security, foreign currency or commodity in determining whether the Group has realized a gain or loss on derivative contracts. If a purchased call option or warrant is exercised, the premium increases the cost basis of the security, foreign currency or commodity purchased by the Group. Movement in unrealized gains and losses on other options and warrants are recorded as a component of investment income in the consolidated statements of income.

**Fair value measurements:** US GAAP establishes a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets (level 1 measurements) and the lowest priority to unobservable inputs (level 3 measurements). The three levels of the fair value hierarchy under US GAAP are as follows:

- Level 1 Inputs that reflect unadjusted quoted prices in active markets for identical assets or liabilities that the Group has the ability to access at the measurement date;
- Level 2 Inputs other than quoted prices that are observable for the asset or liability either directly or indirectly, including inputs in markets that are not considered to be active;
- Level 3 Inputs that are unobservable.

Inputs are used in applying the various valuation techniques and broadly refer to the assumptions that market participants use to make valuation decisions, including assumptions about risk. Inputs may include price information, volatility statistics, specific and broad credit data, liquidity statistics, and other factors for debt securities. The fair value of investments in common stocks and exchange-traded funds is based on the last traded price. The Group uses the Net Asset Values ("NAV") to estimate the fair value of its investments in non-exchange traded mutual funds. Investments in debt securities are valued based on observable inputs for similar securities and may include broker quotes. A financial instrument's level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. However, the determination of what constitutes "observable" requires significant judgment by the Group's investment managers and custodians. The investment manager and custodian consider observable data to be market data which is readily available, regularly distributed or updated, reliable and verifiable, not proprietary, and provided by independent sources that are actively involved in the relevant markets. The categorization of a financial instrument within the hierarchy is based upon the pricing transparency of the instrument and does not necessarily correspond to the investment advisors' perceived risk of that instrument. Investments are initially recorded at cost on trade date (being the fair value at date of acquisition) and are subsequently revalued to fair value.

#### NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

# FOR THE YEAR ENDED MAY 31, 2011 AND 2010

(Expressed in United States dollars)

#### 3. Significant accounting policies (continued)

Investments whose values are based on quoted market prices in active markets, and are therefore classified within level 1, include active listed equities, certain U.S. government and sovereign obligations, and certain short-term, investments. The investment manager does not adjust the quoted price for such instruments.

Investments that trade in markets that are considered to be less active, but are valued based on quoted market prices, dealer quotations or alternative pricing sources supported by observable inputs are classified within level 2. These include certain sovereign obligations, most government agency securities, liquid corporate debt securities, certain mortgage products, state, municipal and provincial obligations. As level 2 investments include positions that may not be traded in active markets and/or may subject to transfer restrictions, valuations may be adjusted, generally based on available market information.

Derivative instruments can be exchange-traded or privately negotiated over-the-counter ("OTC"). Exchangetraded derivatives, such as futures contracts and exchange traded option contracts, are typically classified within level 1 or level 2 of the fair value hierarchy depending on whether or not they are deemed to be actively traded. OTC derivatives, including forwards, credit default swaps, and interest rate swaps, are valued by the investment manager using observable inputs, such as quotations received from the counterparty, dealers or brokers, whenever available and considered reliable. In instances where models are used, the value of an OTC derivative depends upon the contractual terms of, and specific risks inherent in, the instrument as well as the availability and reliability of observable inputs. Such inputs include market prices for reference securities, yield curves, credit curves, measures of volatility, prepayment rates and correlations of such inputs. OTC derivatives, such as generic forwards, swaps and options, have inputs which can generally be corroborated by market data and are therefore generally classified within level 2.

None of the Group's investments are classified within level 3.

**Income from Multi Donor Trust Fund:** In accordance with the grant agreement described in Note 6, the Group records income from Multi Donor Trust Fund on an accruals basis when costs reimbursable under the grant agreement are incurred and for which management intend to seek reimbursement. Accordingly, the Group does not record amounts available from the Multi Donor Trust Fund as income until such time when reimbursable costs are incurred (see Note 6) and management intend to seek reimbursement for such costs. Amounts due from Multi Donor Trust Fund represent unsettled claims for reimbursements under the grant agreement and accruals for reimbursable costs incurred for which no reimbursement claims had been submitted at the balance sheet dates.

**Income and expenses from parametric contracts:** Amounts payable/receivable for claims under the parametric policies written and ceded by the Group does not correlate directly to the policyholder's incurred insurable loss (see Note 2 for details). Accordingly, these policies are not accounted for as insurance contracts within these consolidated financial statements.

Income from parametric contracts is initially recognized as a liability (reinsurance ceded: as an asset) and subsequently reported at fair value. All subsequent changes in fair value of the parametric contracts are recognized in earnings as income (reinsurance expenses) attributable to parametric contracts. The fair value of the contracts is determined based on management's best estimate of the discounted payouts (recoveries) resulting from the reasonably probable occurrence, magnitude and location of insured events (based on historical trends and statistics) during the unexpired period of the contracts. At May 31, 2011 and 2010, there was no unexpired period on either the written or ceded parametric contracts; accordingly, the fair value of these instruments was \$nil and accordingly, all income and expenses on such contracts are recognized as income/expenses in the consolidated statements of income.

## NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

# FOR THE YEAR ENDED MAY 31, 2011 AND 2010

(Expressed in United States dollars)

#### 3. Significant accounting policies (continued)

**<u>Participation fee deposits</u>**: Participation fee deposits are paid by Participating Countries to enter the program. Deposits received are recorded as a liability in the financial statements. Participation fee deposits are recognized as income when:

- they are no longer refundable to the Participating Countries (see Note 9); and/or
- they are required to fund losses (see Note 9)

Deposits that are utilized to fund losses will be reinstated to the extent available from subsequent retained earnings up to the maximum amount of the initial deposits.

**Foreign currency translation:** Foreign currency assets and liabilities are converted to U.S. dollars at the rate of exchange prevailing at the balance sheet date. Transactions in foreign currencies are converted into U.S. dollars at the rate of exchange prevailing at the date of the transaction. Foreign exchange differences are included in the Consolidated Statement of Income in the year to which they relate.

<u>Uncertain income tax positions</u>: The authoritative US GAAP guidance on accounting for, and disclosure of, uncertainty in income tax positions requires the Group to determine whether an income tax position of the Group is more likely than not to be sustained upon examination by the relevant tax authority, including resolution of any related appeals or litigation processes, based on the technical merits of the position. For income tax positions meeting the more likely than not threshold, the tax amount recognized in the financial statements, if any, is reduced by the largest benefit that has a greater than fifty percent likelihood of being realized upon ultimate settlement with the relevant taxing authority. The application of this authoritative guidance has had no effect on the Group's financial statements.

**Technical assistance reserve:** Effective June 1, 2010, the Group commenced appropriating retained earnings to the technical assistance reserve. The amount to be credited to the reserve is established by the Company's Board of Directors based on a discretionary percentage applied to the prior year's investment income. The Company's Board of Directors has the discretion to eliminate or modify the basis of the appropriation in the future if it deems appropriate. The reserve was set up to fund special research projects such as the economic climate adaptation projects, scholarships in the field of climatology, certain marketing activities and ad-hoc donations. Expenses deemed to be "technical assistance" are transferred to retained earnings from the Technical Assistance reserve when such are incurred.

**Development cost:** Development costs are amounts capitalized with respect to the development of the second generation catastrophe loss model which became operational, effective June 1, 2010, upgrade to the second generation loss model which became operational subsequent to May 31, 2011 and the excess rainfall model which is expected to became operational in the near future. The Group amortizes the development cost on a straight line basis over 10 years from the date the respective models become operational.

<u>Comparative amounts</u>: Certain comparative amounts have been reclassified to conform to the current year presentation.

## 4. Cash and cash equivalents

Cash and cash equivalents comprise:	<u>2011</u>	<u>2010</u>
Current and call accounts	\$ <u>1,857,206</u>	\$ <u>8,044,502</u>

Cash and cash equivalents are primarily held by one bank in the Cayman Islands and managed within guidelines established by the Board of Directors.

#### NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

#### FOR THE YEAR ENDED MAY 31, 2011 AND 2010

(Expressed in United States dollars)

#### 5. Investments

Most of the Group' investing activities are conducted through the Investment Fund, which is managed by an investment manager under an investment management agreement (see Note 1). During the year ended May 31, 2011, the Group opened another investment account and those investments are managed by another investment manager based on guidelines established by the Board of Directors.

The following table summarizes the Group's investments that are measured at fair value at May 31, 2011:

	Fair Value Measurements Determined Using:					
	Level 1 inputs		Level 2 inputs		vel 3 outs	Total
Retail mutual funds	\$	-	\$ 10,430,396	\$	-	\$ 10,430,396
Exchange-traded funds	891	,012	-		-	891,012
Corporate debt securities		-	83,060,100		-	83,060,100
Sovereign debt securities	7,231	718	-		-	7,231,718
Short term investments	3,832	139			_	3,832,139
	\$ <u>11,954</u>	869	\$ <u>93,490,496</u>	\$		\$ <u>105,445,365</u>

The following table summarizes the Group's investments that are measured at fair value at May 31, 2010:

	Fair Value Measurements Determined Using:					
	Level 1 inputs			evel 2 puts	rel 3 outs	Total
Retail mutual funds Corporate debt securities	Ψ		\$ 69	1,162 ,302,960	\$ -	\$
Sovereign debt securities	9,543,931	l	07	-	-	9,543,931
Short term investments	<u>6,043,145</u> \$ <u>15,587,076</u>	-	\$ <u>69</u>	- ,304,122	\$ 	<u>6,043,145</u> \$ <u>84,891,198</u>

At May 31, 2011, the Group holds positions in 6 open ended mutual funds, incorporated in Ireland and Luxembourg. The objectives of the funds are primarily to maximise total return and capital growth by investing in, among other securities, short to long term fixed and floating-rate investment grade and non-investment grade debt securities, and other debt securities issued by issuers located European companies and other wealthy nations. Management considers these funds to be relatively liquid as the funds process subscriptions and redemptions on a daily basis, subject to their respective terms and conditions.

Under certain circumstances, the respective administrators of the mutual funds have the ability to suspend redemptions if it is considered to be in the best interests of the shareholder group (of the respective funds) as a whole.

At May 31, 2011, approximately 17% and 58% (2010: 29% and 25%) of the debt securities were issued by counterparties in the United Kingdom and the United States, respectively. Most of the remaining debt securities were issued by counterparties in various other European countries. Approximately 27% (2010: 52%) of the debt securities had a credit rating of A- or higher, 52% (2010: 48%) were rated BBB or higher, 12% (2010: nil) had a credit rating of lower than BBB and 9% (2010: nil) were not rated. The debt securities portfolio had an average maturity of approximately 6 years (2010: 4 years) from May 31, 2011.

Short term investments consist of cash held with the investment managers, term deposits and margin call accounts (see Note 10). Also included in short term investments, are amounts denominated in British Pound Sterling of \$171,152 (2010: \$1,300,416), Euros of \$1,550,845 (2010: \$1,483,893) and Australian dollars of \$387,630 (2010: \$32,248). The margin call accounts are restricted cash balances required to be posted with respect to the futures contracts (see Note 3 and 10).

#### NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

# FOR THE YEAR ENDED MAY 31, 2011 AND 2010

#### (Expressed in United States dollars)

## 6. Multi Donor Trust Fund

The CCRIF Trust Fund (hereinafter referred to as the "Multi Donor Trust Fund" or "Donor Trust"), was created by the World Bank as part of a grant agreement with the Company. Under this arrangement, the World Bank has established a grant framework to assist the Company financially in its operations. Costs reimbursable under the grant agreement include certain:

- (a) professional service fees, administrative fees, banking initiation fee, and registration fees, including related travel expenses which are incurred by the Company in connection with the establishment of the program;
- (b) administrative fees, professional fees, audit costs, exchange rate costs, banking fees, reinsurance premiums, and remuneration and travel expenses of board members of the Company;
- (c) insurance payouts of the Company, to the extent that such payouts are not covered by any reinsurance purchased by the Company (see Note 3); and
- (d) such other operational expenses of the Company agreed with the World Bank.

The Donor Trust has an expected life of 5 years, starting in 2007, which is extendable upon negotiations between the World Bank and the donors to the Donor Trust. At the termination of the grant arrangement, the reimbursements will cease. Any unused funding at the date of termination will no longer be available to the Group.

During the years ended May 31, 2011 and 2010, the following costs were reimbursed and/or reimbursable by the Donor Trust:

	<u>2011</u>	<u>2010</u>
Expenses on parametric reinsurance contracts	\$ 9,833,501	\$ 8,620,468
Claims paid on parametric contracts	17,174,981	7,753,579
Directors' fees and expenses	49,257	317,973
Facility management fees and expenses	45,560	797,325
Other allowable recurring expenditure	92,720	348,962
	\$ <u>27,196,019</u>	\$ <u>17,838,307</u>

At May 31, 2011 and 2010, the following cost reimbursements were due from the Donor Trust:

	<u>2011</u>	<u>2010</u>
Expenses on parametric contracts	\$ 4,566,175	\$ -
Directors' fees and expenses	-	90,065
Facility management fees and expenses	-	257,933
Other allowable recurring expenditure	<u> </u>	106,350
	\$ <u>4,566,175</u>	\$ <u>454,348</u>

At May 31, 2011, prior to settlement of the above outstanding reimbursements of \$4,566,175 (2010: \$454,348), \$5,137,059 (2010: \$28,053,487) was available from the Donor Trust to finance future reimbursable costs of the Group during the remaining period of the arrangement described above, of which \$4,141,725 (2010: \$7,225,918) represents funds committed to the Facility via the grant agreement and the balance of \$995,334 (2010: \$20,827,569) represents funds in the Donor Trust not yet granted to the Group but that may be transferred to the Group in future amendments to the grant agreement.

## NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

# FOR THE YEAR ENDED MAY 31, 2011 AND 2010

(Expressed in United States dollars)

#### 7. Accounts payable and accrued expenses

Accounts payable comprises accruals for expenses at year end. Included within accounts payable is an amount of \$40,000 (2010: \$209,144) relating to technical assistance expenses incurred (see Note 3).

## 8. Income from parametric contracts received in advance

Income from parametric contracts received in advance represents amounts paid by Participating Countries with respect to the 2011/12 policy during the year ended May 31, 2011 (2010: amounts paid with respect to the 2010/11 policy during the period ended May 31, 2010).

## 9. Participation fees deposits

Participating fee deposits represent non-recurring amounts required to be paid by each Participating Country to enter the program. The deposits are equivalent to the annual premiums written in respect of each Participating Country. It is Management's intent that participation fee deposits are available to fund losses in the event that funds from retained earnings, reinsurers and the Donor Trust (see Note 6) are insufficient. If deposits are used to fund losses, it is also Management's intent that any subsequent earnings generated by the Group will be used to reinstate the deposits to their original carrying value. The participation fees are refundable, without interest, in the event that the Group does not renew the coverage to participating countries. Participation fees are not refundable if a Participating Country leaves the program for more than one year in any five year period, and would be recognized as income at that point. Participating Countries, who leave the program resulting in participation fees being voided, may, at the discretion of the Directors, be required to repay participation fees if they want to rejoin the program subsequently. Further, participation fees deposits are partially refundable when a Participating Country's premium is reduced due to a reduction in coverage purchased, to the extent of the revised annual premiums.

During the year ended May 31, 2010, the Board of Directors approved a modification to the participation agreements such that up to 50% of the participation fees deposits paid by the Participating Countries could be used towards their respective 2010/2011 premiums and during the year ended May 31, 2011, some Participating Countries elected to use a proportion of their participation fees deposits to partially settle their 2010/2011 premiums (refer to consolidated statements of cash flow).

## **<u>10. Derivative instruments</u>**

US GAAP provides guidance on disclosures about derivative instruments and hedging activities to provide users of financial statements with an enhanced understanding of the use of derivative instruments and how these derivatives affect the financial position, financial performance and cash flows of the Group. US GAAP requires qualitative disclosures about the objectives and strategies for using derivative instruments, quantitative disclosures about the fair value of, and gains and losses on, derivative instruments, as well as disclosures about credit-risk-related contingent features in derivative agreements. The Group does not designate its derivatives as hedging instruments.

The Group transacts in a variety of derivative instruments including futures, forwards, swaps and options with each instrument's primary risk exposure being interest rate, credit, foreign exchange, equity or commodity risk. The fair value of these derivative instruments is included as a separate line item in the consolidated balance sheets with changes in fair value reflected as net change in unrealized gains/ (losses) on derivatives within investment income in the consolidated statements of income (see Note 13).

## NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

# FOR THE YEAR ENDED MAY 31, 2011 AND 2010

(Expressed in United States dollars)

#### 10. Derivative instruments (continued)

The following table indicates the net gains and losses on derivatives, by contract type, as included in investment income in the consolidated statements of income (see Note 13):

		<u>2011</u>	<u>2010</u>
Commodity and equity contracts Credit contracts Foreign exchange contracts	\$( (	2,918,142) 45,421) 3,723,779)	\$ 186,250 498,741 4,067,325
Total	\$(	6,687,342)	\$ 4,752,316

#### Credit default swap transactions

The buyer of a CDS is generally obligated to pay the seller a periodic stream of payments over the term of the contract in return for a contingent payment upon the occurrence of a credit event with respect to an underlying reference obligation. Generally, a credit event for corporate or sovereign reference obligations means bankruptcy, failure to pay, obligation acceleration, repudiation/moratorium or restructuring. For CDSs on asset-backed securities, a credit event may be triggered by events such as failure to pay principal, maturity extension, rating downgrade or write-down. If a credit event occurs, the seller typically must pay the contingent payment to the buyer, which is typically the par value (full notional value) of the reference obligation, though the actual payment may be mitigated by terms of the agreement, allowing for netting arrangements and collateral. After a credit event occurs, this amount may be reduced by anticipated recovery rates, segregated collateral and netting arrangements that may incorporate multiple transactions with a given counterparty.

The contingent payment may be a cash settlement or a physical delivery of the reference obligation in return for payment of the face amount of the obligation. If the Group is a buyer and no credit event occurs, the Group may lose its investment and recover nothing. However, if a credit event occurs, the buyer typically receives full notional value for a reference obligation that may have little or no value. As a seller, the Group receives a fixed rate of income throughout the term of the contract, provided that no credit event occurs. If a credit occurs, the seller may pay the buyer the full notional value of the reference obligation.

During the year ended May 31, 2011, the Group had total notional exposure of approximately \$94.16 million (2010: \$200 million) in CDS contracts, the vast majority as a buyer of protection ("receiving protection"). Where the Group was providing protection, the maximum exposure in any one month was approximately \$23 million (2010: \$5 million). The notional amounts approximate the maximum potential amount of future payments that the Group could be required to make if the Group were the seller of protection (or receive if the Group were a buyer of protection) if the respective credit events were to occur. During the year ended May 31, 2011, the Group realized gains of \$4,535,932 (2010: \$4,269,108) and incurred losses of \$4,885,441 (2010: \$3,770,367) in CDS transactions.

As of May 31, 2011, the Group is the buyer ("receiving protection") on a total notional amount of \$23 million (2010: \$nil) and is the seller ("providing protection") on a total notional amount of \$nil (2010: \$nil). Disclosed in the Derivative Instruments footnote, notional amount approximates the maximum potential amount of future payments that the Group could be required to make if the Group were the seller of protection and a credit event were to occur.

#### NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

# FOR THE YEAR ENDED MAY 31, 2011 AND 2010

(Expressed in United States dollars)

#### **<u>10. Derivative instruments (continued)</u>**

Credit default swaps are carried at their estimated fair value, as determined in good faith by management. In determining fair value, management considers the value provided by the counterparty as well as the use of third party vendors. In addition to credit quality, management monitors a variety of factors including cash flow assumptions, market activity, market sentiment and valuation as part of its ongoing process of assessing payment and performance risk. As payment and performance risk increases, unrealized appreciation is recognized for bought credit protection contracts and unrealized depreciation is recognized for sold credit protection contracts.

Investments in other derivatives fluctuated throughout the year. The exposures on derivative contracts are generally short-term as these contracts are settled or lapse within a short time frame. The positions held in foreign exchange contracts at May 31, 2011, are reflective of the average positions held in forward and futures contracts during the year.

As at May 31, 2011, the Group had the following outstanding forward foreign currency and futures contracts:

	Expiry date	Notional value	Fair Values at May 31, <u>2011</u>
United States Dollars forward (bought US\$ sold £)	June 24, 2011	\$15,556,157 (at forward rate of US\$1,645491: £1)	\$(240,559)
United States Dollars forward (bought US\$ sold €)	June 24, 2011	\$19,086,437 (at forward rate of US\$1,436829: €1)	( <u>167,071</u> )
			\$ ( <u>407,630</u> )

At May 31, 2011, the Group held securities denominated in foreign currencies with a fair value of \$19,086,437 and \$15,556,157 relating to the Euros and British Pound Sterling, Australian dollar, respectively. See Note 5 regarding short-term investments denominated in foreign currencies. The Group uses forward and futures contracts to increase/decrease exposure against foreign currency risks.

At May 31, 2011, unrealized gains on options consisted of options on euro Bund futures. These options were exercised during June 2011 and/or lapsed subsequent to year end.

## NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

# FOR THE YEAR ENDED MAY 31, 2011 AND 2010

(Expressed in United States dollars)

#### 10. Derivative instruments (continued)

As at May 31, 2010, the Group had the following outstanding forward foreign currency and futures contracts:

	Expiry date	Notional value	Fair Values at May 31, <u>2010</u>
Canadian Dollar forward (bought CAD\$ sold US\$)	June 25, 2010	CAD\$2,500,000 (at forward rate of CAD\$0.951565: US\$1)	\$ ( 1,796)
United States Dollars forward (bought US\$ sold £)	June 25, 2010	\$20,367,060 (at forward rate of US\$1.4343: £1)	(164,926)
United States Dollars forward (bought US\$ sold CAD)	June 25, 2010	\$2,308,829 (at forward rate of US\$0.923532: CAD\$1)	( 68,295)
United States Dollars forward (bought US\$ sold €)	June 25, 2010	\$27,845,460 (at forward rate of US\$1.2321: €1)	( 31,292)
Euro-Bund future	June 8, 2010	\$3,850,800	( 5,179)
Euro-Bund future	June 8, 2010	\$4,364,240	( 5,870)
British Gilt future	September 28, 2010	\$3,566,100	( <u>19,952</u> )
			\$ ( <u>297,310</u> )

At May 31, 2010, the Group held securities denominated in foreign currencies with a fair value of \$20,106,304, \$12,995,152, \$779,974, \$362,022, \$412,084 and \$407,993 relating to the Euros, British Pound Sterling, Australian dollar, Brazilian real, Russian Ruble and Turkish Lira, respectively. See Note 5 regarding short-term investments denominated in foreign currencies. The Group uses forward and futures contracts to increase/decrease exposure against foreign currency risks.

## NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

# FOR THE YEAR ENDED MAY 31, 2011 AND 2010

(Expressed in United States dollars)

#### 11. Share capital, share premium and technical assistance reserve

Authorized:	<u>2011</u>	<u>2010</u>
50,000 shares of \$1 each	\$ <u>50,000</u>	\$ <u>50,000</u>
Issued and fully paid:		
1,000 shares of \$1 each	\$ 1,000	\$ 1,000
Share premium	119,000	119,000
	\$ <u>120,000</u>	\$ <u>120,000</u>

The share premium account represents the excess of the proceeds from issued share capital over the par value of the shares issued. The share premium account was established in accordance with the Cayman Islands Companies Law, which restricts the uses of these reserves.

Pursuant to the Company's Articles of Association, the Directors may declare and authorize payment of dividends out of profits of the Company. Payment of any dividends is subject to approval by the Cayman Islands Monetary Authority ("CIMA").

Under the Cayman Islands Insurance Law the Company is required to maintain a minimum net worth of US\$120,000.

CIMA has statutory powers that enable it to use its discretion to require the Company to conduct its operations in accordance with general or specific conditions which may be imposed by CIMA or may be agreed between CIMA and the Company. Generally, such matters are set out in the Business Plan which the Company files with CIMA and, amongst others, includes reference to the risks assumed and retained by the Company, the funding and capitalization levels, and the Company's investment policies.

The technical assistance reserve at May 31, 2011 of \$709,803 (2010: \$480,575) represents unused funding available to the Company only for approved "technical assistance" expenses (See Note 3).

## 12. Claims paid

Claims paid in the year ended May 31, 2011 relate to two hurricane events (2010: one earthquake event) which triggered claim payments to Participating Countries.

#### **13. Investment Income**

Investment income comprises:

		<u>2011</u>	2010
Investment income received	\$	4,320,118	\$ 2,715,588
Change in fair value of investments		9,253,106	(6,808,221)
Net (loss)/gain on sale of investments	(	158,462)	3,313,403
Investment management, custody and fund administration fees	(	1,058,098)	( 946,730)
Foreign exchange gains	(	1,730,166)	421,448
Net realized (losses)/gains on derivative instruments	(	6,920,845)	3,745,577
Net unrealized gains/(losses) on derivative instruments		233,503	<u>1,006,739</u>
	\$	<u>3,939,156</u>	\$ <u>3,447,804</u>

# NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

# FOR THE YEAR ENDED MAY 31, 2011 AND 2010

(Expressed in United States dollars)

#### 14. Administration expenses

Administration expenses comprise:

	<u>2011</u>	<u>2010</u>
Audit and other professional fees	\$ 62,500	\$ 42,000
Captive management fees	115,000	100,000
Consultancy fees	( 210,180)	174,844
Directors' fees	72,500	48,000
Executive Director's fees	174,679	150,000
Directors' and Officers' insurance	25,000	25,000
Legal fees	8,252	3,507
Government fees	11,646	10,386
Meeting expenses	67,745	93,115
Publicity	136,165	174,753
Trust expenses (see Note 15)	38,250	34,750
Sundry expenses and bank charges	13,818	4,320
	\$ <u>515,375</u>	\$ <u>860,675</u>

## 15. Related party transactions

During the year ended May 31, 2011 and 2010, the Group incurred the following expenses on behalf of the Trust:

	<u>2011</u>	<u>2010</u>
Trustee fees Enforcer fees	\$ 28,250 10,000	\$ 24,750 10,000
	\$ <u></u>	\$ <u>34,750</u>

# 16. Taxation

No income, capital or premium taxes are levied in the Cayman Islands and the Company has been granted an exemption until May 29, 2027, for any such taxes that might be introduced. The Group intends to conduct its affairs so as not to be liable for taxes in any other jurisdiction. Accordingly, no provision for taxation has been made in these financial statements.

# NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

# FOR THE YEAR ENDED MAY 31, 2011 AND 2010

(Expressed in United States dollars)

# 17. Development cost

	<u>Second</u> generation Loss Model	<u>Second</u> generation Loss Model upgrade	<u>Excess</u> <u>rainfall</u> Loss model	<u>Total</u>
Cost				
Balance brought forward at June 1, 2009	\$ -	\$ -	\$ -	\$ -
Additions during the year	180,000	167,040	60,000	407,040
Disposals during the year	-	-	-	-
Balance carried forward at May 31, 2010	180,000	167,040	60,000	407,040
Accumulated depreciation				
Balance brought forward at June 1, 2010	\$ -	\$ -	\$ -	\$ -
Depreciation charge for the year	(18,000)	-	-	18,000
Adjustment for disposals during the year	-	-	-	-
Balance carried forward at May 31, 2011	(18,000)			18,000
Net book value at May 31, 2011	\$ 162,000	\$ 167,040	\$ 60,000	\$ 389,040

#### 18. Certain risks and financial instruments

#### (a) Geographical concentration of risk

The Group's principal activity comprises parametric catastrophe risk coverage for Participating Countries in the Caribbean region. Accordingly, the Group's risks are not geographically diversified.

## (b) Fair value

The carrying amount of the Group's financial assets and liabilities, excluding investments, approximate their fair value due to their short term maturities. Investments and derivative instruments are carried at fair value as described in Notes 3, 5 and 10.

## (c) Credit risk

Financial assets which potentially subject the Group to concentrations of credit risk consist of cash and cash equivalents, investments in debt instruments, futures and forward contracts, accrued interest receivable and the balance receivable from the Multi Donor Trust Fund. The maximum amount of loss the Group would incur if the counterparties to the transactions do not meet their obligations, would be the carrying amount of such assets in the balance sheet. The Group's cash and cash equivalents and investments are placed with or held in custody by high credit quality financial institutions. Similarly, the Group's investment policy requires that the investment managers invest in securities with a high credit quality (see Note 5). See Note 6 for details of amounts due from the balance due from the Multi Donor Trust Fund. Options, swaps, futures and forward contracts are subject to the credit risk of the respective counterparties. The Group manages this credit risk by transacting only with counterparties considered highly reputable and creditworthy.

## (d) Interest rate risk

The Group invests in fixed interest securities, the fair value of which will be affected by movements in interest rates. An analysis of the Group's investment portfolio is shown in Note 3. The fair value of the forward and futures contracts may also be affected by movements in interest rates.

#### NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

# FOR THE YEAR ENDED MAY 31, 2011 AND 2010

(Expressed in United States dollars)

#### 18. Certain risks and financial instruments (continued)

#### (e) Market risk

Market risk exists to the extent that the values of the Group's monetary assets fluctuate as a result of changes in market prices. Changes in market prices can arise from factors specific to individual securities or their respective issuers, or factors affecting all securities traded in a particular market. Relevant factors for the Group are both volatility and liquidity of specific securities and of the markets in which the Group holds investments.

#### (f) Liquidity risk

Liquidity risk exists to the extent that the Company and its underlying mutual funds investments may not be able to access cash and/or redeem their investments on a timely basis to settle losses. The frequency of redemption of the Investment Fund is monthly and subject to appropriate notice period. The underlying mutual funds investments and the Investment Fund are also subject to liquidity risk to the extent that certain securities may be thinly traded. The Group mitigates liquidity risk by maintaining a proportion of assets in cash and short-term investments.

#### (g) Foreign exchange risk

In the normal course of business, the Group may hold assets and liabilities in currencies other than U.S. dollars. To reduce its risk to foreign exchange fluctuations the Group may enter forward on the foreign exchange contracts. The Group is exposed to currency risks to the extent of any mismatch between foreign exchange forward contracts and the corresponding financial instruments denominated in foreign currencies. Foreign currency forward contracts commit the Group to purchase or sell the designated foreign currency at a fixed rate of exchange on a future date. See Note 10 for details of forward foreign exchange contracts entered into by the Group during the period.

#### (h) Futures contracts risk

In the normal course of business, the Group trades financial futures, which are carried at fair value. These futures contracts represent future commitments to purchase financial instruments on specific terms at specified future dates. The fair value of the futures contracts will fluctuate corresponding to the fair value of the underlying financial instruments (see Note 10). The notional value of the underlying financial instruments the Group's maximum risk of loss. The Directors consider this risk to be mitigated because of the short terms of the futures contracts and the underlying financial instruments being investment grade.

#### (i) Swaps

The Group enters into swap contracts to increase or decrease its exposure to changes in the level of interest rates and credit risk. The Group uses CDSs to provide protection against or gain speculative exposure to defaults of sovereign or corporate issuers (i.e. to reduce risk where the Group owns or has exposure to the issuers) or to take an active long or short position with respect to the likelihood of a particular issuer's default.

CDSs involve greater risks than if the Group had invested in the reference obligation directly. In addition to general market risks, CDSs are subject to liquidity risk and counterparty credit risk. The Group enters into CDSs with counterparties meeting certain criteria for financial strength. A buyer also may lose its investment and recover nothing should a credit event not occur. If a credit event did occur, the value of the reference obligation received by the seller, coupled with the periodic payments previously received, may be less than the full notional value it pays to the buyer, resulting in a loss of value.

In connection with equity swap contracts, cash or securities may be posted to or received from the swap counterparty in accordance with the terms of the swap contract. The Group earns or pays interest on cash posted or received as collateral.

### NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

# FOR THE YEAR ENDED MAY 31, 2011 AND 2010

#### (Expressed in United States dollars)

#### 18. Certain risks and financial instruments (continued)

Off-balance sheet risks associated with all swap contracts involve the possibility that there may not be a liquid market for these agreements, that the counterparty to the contract may default on its obligation to perform and that there may be adverse changes in currency rates, credit status, market prices and interest rates. Notional principal amounts are presented in Note 10 to indicate the extent of the Group's involvement in such investments.

#### (j) Options

The Group may purchase and sell ("write") options on securities, currencies and commodities on national and international exchanges and OTC markets. The buyer of a put option assumes the risk of losing its entire investment in the put option. If the buyer of the put option holds the underlying instrument, the loss on the put option will be offset, in whole or in part, by any gain on the underlying instrument. The buyer of a call option assumes the risk of losing its entire investment in the call option. If the buyer of the call

option sells short the underlying instrument, the loss on the call option will be offset, in whole or in part, by any gain on the short sale of the underlying instrument. The seller of a put/call option assumes the risk of an increase/decline in the market price of the underlying instrument, plus/less the premium received and gives up the opportunity for gain on the underlying instrument below/above the exercise price of the option.

#### **19.** Subsequent events

Management have performed a subsequent events review through September 2, 2011, being the date that the financial statements were available to be issued. Management concluded that there were no subsequent events which required additional disclosure in these financial statements.

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