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THE CARIBBEAN CATASTROPHE RISK INSURANCE INITIATIVE

Reducing Financial Vulnerability to Natural Disasters in the Caribbean: A Review of CCRIF's Operation After Its Third Season

April 2011

THE WORLD BANK

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Acronyms

CaribRM	Caribbean Risk Managers
CARICOM	Caribbean Community and Common Market
CARILEC	Caribbean Electrical Utility Service Corporation
CCCCC	Caribbean Community Climate Change Centre
CCRIF	Caribbean Catastrophe Risk Insurance Facility
CDB	Caribbean Development Bank
CDEMA	Caribbean Disaster Emergency Management Agency
CIDA	Canadian International Development Agency
CIMH	Caribbean Institute of Meteorology and Hydrology
COP-16	The 16th Conference of Parties to the United Nations Framework Convention on Climate Change and the Kyoto Protocol
DFID	U.K. Department for International Development
DRM/DRR	Disaster risk management, disaster risk reduction
DRRC	Disaster Risk Reduction Center, University of the West Indies
EBRD	European Bank for Reconstruction and Development
ECA	Economics of Climate Adaptation
EFG Bank	European Financial Group Bank
EIB	European Investment Bank
EU	European Union
HLEM	Hazard Loss Estimation Model
IBRD	International Bank for Reconstruction and Development (World Bank)
IDA	International Development Agency (World Bank soft loan arm)
ISD	Institute for Sustainable Development, University of the West Indies
KAC	Kinetic Analysis Corporation
MCII	Munich Climate Insurance Initiative
MDTF	Multi-donor Trust Fund
MOU	Memorandum of Understanding

NAV	Net Asset Value
OM	Operations Manual
SM	Sustainability Managers
TA	Technical Assistance
TAOS-RTFS	"The Arbiter of All Storms" Real-Time Impact Forecasting System
UN-ECLAC	U.N. Economic Commission for Latin America and the Caribbean, used in this report to refer to the Caribbean subregional headquarters of UN-ECLAC in Port of Spain, Trinidad
UWI	University of the West Indies
WINCROP	Windward Islands Crop Insurance, Ltd.

Executive Summary

This review provides an external assessment of the Caribbean Catastrophe Risk Insurance Facility (CCRIF) after its third year of operations—from June 1, 2009–May 31, 2010. The review is intended primarily for the Facility's Board of Directors, but it is hoped that it will also be informative and useful to participating countries, donors, and other stakeholders. Domiciled in the Cayman Islands, CCRIF is an independent, non-profit legal entity. The first facility of its kind in the world, CCRIF pools hurricane and earthquake risks and offers its members insurance coverage for those perils, insurance which provides a rapid cash payout in the event of a major event that exceeds pre-agreed hazard parameters. CCRIF was established in May 2007 at the request of the Caribbean Community and Common Market (CARICOM) on the heels of the severe damage inflicted on the Cayman Islands and Grenada by Hurricane Ivan in 2004. The World Bank led the technical work to develop CCRIF, with the benefit of financial support from the Government of Japan and the Jamaican Social Investment Fund. CCRIF has 16 members, all Caribbean countries or territories that are CARICOM Members or Associate Members.[1] Its initial capitalization and operations have been supported in part by a $67.4 million Multi-donor Trust Fund established with contributions from the World Bank and other multilateral and bilateral development partners and administered by the World Bank.[2]

The major event during CCRIF's third year of operations—June 1, 2009, to May 31, 2010—was the magnitude 7.0 Mw earthquake that struck Haiti with devastating effect on January 12, 2010. CCRIF paid out $7.75 million to Haiti within 14 days of the

1 The 16 countries and territories are: Anguilla, Antigua and Barbuda, the Bahamas, Barbados, Belize, Bermuda, Cayman Islands, Dominica, Grenada, Haiti, Jamaica, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Trinidad and Tobago, and the Turks and Caicos Islands.

2 Contributors include: Bermuda, Canada, France, Ireland, the United Kingdom, the Caribbean Development Bank (CDB), the European Union (EU), and the World Bank.

disaster—the first significant resource inflow that Haiti received, thus fulfilling CCRIF's fundamental objective of providing a rapid cash infusion to help finance the most urgent post-disaster needs. This was the sole event resulting in a CCRIF payout in 2009–2010. There were no other earthquakes of sufficient magnitude to trigger a payout and the 2009 hurricane season was mild, producing no storms of a magnitude within covered parameters.

CCRIF remains organizationally lean and strengthened key aspects of its operational structure and performance and governance in 2009–2010. It updated its Operations Manual to clarify the Board's and service providers' roles and accountabilities and also reviewed its 2009–2012 Strategic Plan, adding a governance and accountability objective. The lack of competition in the retendering of the contract for Facility Supervisor services, the concentration of expertise in the hands of key contractors, and the bunching of Directors' terms of service have given rise to concerns about possible risks to CCRIF's business continuity, which the Board has begun to address. CCRIF continued its efforts to transition the Board to a membership fully constituted as envisioned in its Trust Deed, completing this process in 2010–2011.

CCRIF's overall budget increased again in 2009–2010, but is flat for 2010–2011. A major factor in the increase has been the launch of CCRIF's technical assistance program and enhanced efforts to strengthen ties with Caribbean institutions and increase its outreach in the region more generally. A significant rise in the cost of two of CCRIF's key contracts—with the Facility Supervisor and the Insurance Manager—was another factor in the increase. Board and service provider costs previously rolled in to the core operational and administrative budget but pertaining to reinsurance placement, research and development, and technical assistance have been moved to separate budget lines to provide a more accurate picture of the costs of those lines of business. With these reallocations, core operational and administrative costs have remained within the guideline of 5 percent of gross premium income.

CCRIF's financial strength and risk bearing capacity have continued to strengthen. Its assets have surpassed the $100 million level targeted when CCRIF was established. Reinsurance is a crucial element of CCRIF's risk bearing capacity. In 2009–2010, it guaranteed that CCRIF would pay out no more than $20 million, barring a series of catastrophe events having a probability of occurring only about 1 in 1,000 years. Over and above its risk retention and reinsurance, CCRIF's additional resources give it the capacity to handle claims for an unprecedented series of events having an estimated return period of only 1 in 10,000 years, although it would require a recapitalization thereafter in order to continue operations. Returns on CCRIF's assets managed by London and Capital continued to outperform the benchmark.

In 2009–2010, CCRIF continued to search for ways to increase its value to its members and consolidate its role as an important contributor to disaster risk reduction in the Caribbean. Having reduced its premium rate for 2009–2010 by 11 percent, it reduced it again by 12.5 percent for 2010–2011. Responding creatively to its members' on-going fiscal constraints and in light of its own financial strength, CCRIF also offered its members the option of using a portion of their participation deposits to pay their 2010–2011 premiums. Some members took advantage of this option and all renewed policies for 2010–2011.

The launch of a technical assistance program and further efforts to strengthen relations with Caribbean institutions were also part of CCRIF's search for ways to enhance its value added in the region. The centerpiece of the technical assistance program was support to the Economics of Climate Adaptation project. This was carried out by CCRIF's Facility Supervisor, Caribbean Risk Managers (CaribRM) with analytical support from McKinsey & Company and Swiss Re and in collaboration with several CCRIF members and partners, including the U.N. Economic Commission for Latin America and the Caribbean (UN-ECLAC) and the Caribbean Community Climate Change Centre (CCCCC). This project aimed to provide the facts and tools required to develop quantitative climate change adaptation strategies that could receive international funding. CCRIF also began to offer a limited number of scholarships for undergraduate and graduate degrees in fields related to insurance and disaster risk reduction. CCRIF again funded the professional development seminar, "Hazard Risk Reduction Initiatives in the Context of a Changing Climate," at the annual Caribbean Conference on Comprehensive Disaster Management sponsored by the Caribbean Disaster Emergency Management Agency, with which CCRIF had signed a Memorandum of Understanding (MOU) in August 2009. CCRIF also signed a MOU with UN-ECLAC, sought to continue discussions with CARICOM and the Disaster Risk Reduction Center at the University of the West Indies on memoranda of understanding, and initiated such talks with CCCCC.

CCRIF continued its research and development program to finalize its second generation hazard loss estimation model, develop an excess rainfall product, and support the efforts of the Caribbean Electrical Utility Service Corporation (CARILEC) to develop a parametric insurance facility for its members. The second generation hazard loss estimation model (HLEM)was finalized in time for policy renewal and reinsurance placement for 2010–2011. Some reinsurers had technical questions and concerns that CCRIF continues to work to address with a view to obtaining improved reinsurance terms for 2011–2012. While being a high priority for the Board and several CCRIF members and potential members, progress on developing the excess rainfall product continued to lag due to the need for Kinetic Analysis Corporation, working under contract to CCRIF, to finalize the second generation model. The CARILEC facility is expected to be financially separate from CCRIF, but two CCRIF Board members will probably sit on its Board.

Main Recommendations

The principal recommendations arising from this review for the Board's consideration are as follow:

- *Operational Structure and Governance:* The Board should consider: (i) whether reconfiguring the functions of its service providers or changing its operational model from one of outsourcing services to one of full-time CCRIF staff might contain costs and reduce the risks of business interruption due to concentration of expertise; (ii) how to streamline procedures for appointing new Directors, while retaining the key role of CARICOM and the Caribbean Development Bank; and (iii) whether staggering the Directors' terms could contribute to business continuity.
- *Budget and Spending:* The Board should consider: (i) using a uniform budget format to facilitate cross-year comparisons; (ii) adopting the annual budget in early June at the start of each financial year, rather than in September; (iii) ensuring that discretionary expenditure is closely consulted with members and key stakeholders; and (iv) assessing proposed R&D expenditures in light of their projected increment to future income.
- *Reinsurance and Risk-bearing Capacity:* The Board should consider: (i) commissioning a periodic Statement of Actuarial Opinion on its solvency position to provide an independent view of its best risk-transfer strategy going forward and an annual or biannual actuarial report on its risk management strategy, i.e., its risk of ruin given its current strategy; (ii) continuing work to use CCRIF's Dynamic Financial Assessment model to assess how pricing and reinsurance might need to vary in light of changes in CCRIF's reserves or in the reinsurance market; and (iii) continuing its work, as a priority, to resolve reinsurers' concerns about its second generation HLEM.
- *Investment Strategy:* The Board should consider: (i) how best to balance investment risk and insurance risk to ensure appropriate diversification and weighting between the two; and (ii) whether adopting a benchmark longer than the LIBOR one-month cash rate could improve returns without undue risk.
- *Pricing, Premium Levels, and Rates:* The Board should consider: (i) refining the pricing policy to capture the loss volatility as well as the annual average loss for each member; and (ii) whether the level of reserves would support higher risk retention and/or a further reduction in the premium multiple.
- *Non-financial Risks, Transparency, and Consultations:* The Board should consider: (i) articulating and publishing for consultations its key business principles (e.g., pertaining to pricing, expenditure control, including with respect to technical assistance, and reserves accumulation); and (ii) strengthening efforts to help members think through the implications and consequences of different attachment and exhaustion points at a given pricing rate and premium level.
- *Technical Assistance, Partnerships, and Outreach:* The Board should consider: (i) ensuring that the scholarship program is transparent and accessible to all members through means such establishing and announcing a regular interval for applications, establishing an external advisory committee, and publishing on its website the rationale, decision-making process, and funding mechanism; (ii) consulting closely with donors on how to coordinate with their programs CCRIF's yet-to-be-launched program for funding community-level disaster risk mitigation projects and the types of technical assistance it can provide to a country in the wake of a disaster; (iii) convening a regular meeting between the CCRIF Board and representatives of key

donors—both from headquarters and the field—to exchange views and experiences; and (iv) commissioning an independent evaluation of CCRIF's financial and non-financial contributions to disaster risk reduction after the MDTF is fully drawn down.

- ***Innovations:*** The Board should consider: (i) specifically assessing whether potential R&D service providers have adequate capacity to deliver new products and their underlying models within the desired timeframe and, where necessary, reaching agreement with them on augmenting their capacity; and (ii) developing a well-structured communications, outreach, and sales strategy for the excess rainfall product to ensure a clear understanding and realistic expectations with respect to its scope.

1. Introduction

This is the third review of the Caribbean Catastrophe Risk Insurance Facility and covers its third season of operations—from June 1, 2009, to May 31, 2010.[3] CCRIF was established in May 2007 as an independent, non-profit legal entity to pool catastrophe risks and provide CARICOM Members and Associate Members with rapid access to an infusion of liquidity in the event of a major hurricane or earthquake.[4] Offering parametric insurance with payouts based on specific indicators of speed, location, and intensity, CCRIF was the world's first facility of its kind. Domiciled in the Cayman Islands, it is controlled by a five-person Board of Directors, which consists of one representative of the member countries, one representative of the donors that have contributed to the Multi-donor Trust Fund (MDTF) that supports the Facility[5], one financial and one insurance technical expert, and an Executive Chairman appointed by the other four directors.

This review assesses CCRIF's 2009–2010 operations and its challenges and opportunities going forward. While intended primarily for the Facility's Board of Directors, it is hoped that it will also be informative and useful to the participating countries, donors, and other stakeholders. The review also aims to contribute to on-going discussions within the broader disaster risk management community about the possibilities for scaling up CCRIF's role in the Caribbean and replicating or adapting its innovative model of *ex ante* disaster risk financing in other disaster-prone regions of the world.

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3 Previous reviews were "A Review of CCRIF's Operation After its First Season;" World Bank, December 1, 2008; and "A Review of CCRIF's Operation After Its Second Season;" World Bank, April 2010.

4 The 16 countries and territories are: Anguilla, Antigua and Barbuda, the Bahamas, Barbados, Belize, Bermuda, Cayman Islands, Dominica, Grenada, Haiti, Jamaica, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Trinidad and Tobago, and the Turks and Caicos Islands.

5 Bermuda, Canada, France, Ireland, the United Kingdom, the Caribbean Development Bank (CDB), the European Union (EU), and the World Bank contributed approximately $67.4 million to a Multi-donor Trust Fund to support CCRIF's initial capital and operating costs.

The review was carried out between August and December 2010.[6] Based on a document review and an independent assessment of CCRIF's disaster risk assessment models, reinsurance strategy, and asset management policy, the review also benefited from the team's interviews and consultations with members of the Facility's Board of Directors, representatives of its Facility Supervisor, Insurance Manager, Asset Manager, and Reinsurance Broker, as well as with member country officials, collaborating organizations, and other disaster risk management experts. The team wishes to thank all those who generously gave their time to share their insights so as to contribute to the review. These persons are identified more specifically in Annex B. The team would also particularly like to thank Ms. Ekhosuehi Iyahen, CaribRM, who, in addition to contributing her substantive insights, arranged appointments in for the team in many of the countries visited, and also Ms. Joy Duff-Alleyne, World Bank Guyana, for her invaluable support in making appointments and other logistical arrangements in that country.

6 The team conducting the review consisted of Todd Crawford, a consultant with prior experience in World Bank operations, and Jon Palin, a qualified actuary with significant experience in financial risk management.

2. 2009–2010 in Review

2.1 Overview

The major insurable event for CCRIF and its members in 2009–2010 was the magnitude 7.0 MW earthquake that struck Haiti on January 12, 2010. CCRIF paid out $7.75 million to Haiti within 14 days of the disaster, thus fulfilling its fundamental objective—to provide the policy holder with a rapid infusion of liquidity to help it finance the most urgent post-disaster expenditure. There were no other significant earthquakes and, as the 2009 hurricane season was mild, no other events triggered CCRIF payouts.

CCRIF's total exposure in 2010–2011 increased $17 million over 2009–2010. CCRIF retains the financial strength to manage that risk, given reinsurance and the growth of its own reserves. All CCRIF members renewed policies for 2010–2011, with some increasing the amount of their coverage. Several altered the mix of their coverage. Five, including Haiti, reduced their hurricane coverage and increased their earthquake coverage; only one did the opposite. Five increased coverage for both perils. Only one reduced both.

CCRIF continued to broaden and deepen its engagement with client countries, partner institutions, other stakeholders, and the general public. CCRIF signed a Memorandum of Understanding (MOU) with the Caribbean Disaster Emergency Recovery Agency (CDERA), now the Caribbean Disaster Emergency Management Agency (CDEMA) in August 2009 and another with U.N. Economic Commission for Latin America and the Caribbean (UN-ECLAC) in February 2010. Launching its technical assistance program, CCRIF sponsored its members' participation in a number of conferences, began to develop its scholarship program, and funded an Economics of Climate Adaptation (ECA) project to analyze selected CCRIF members' vulnerability to climate change and to identify cost effective adaptation measures.

2.2 Insurable Events and Payouts

Earthquakes

The major insurable event for CCRIF and its members in 2009–2010 was the major earthquake that hit Haiti on January 12, 2010. Measured as a magnitude 7.0 MW earthquake by the U.S. Geological Survey, the earthquake's epicenter was at a 13 km depth just 25 km west-southwest of Port-au-Prince. With this magnitude, the maximum payout under Haiti's earthquake policy was triggered—$7,753,579. The payment, coming within 14 days of the event as required by the policy's terms, was the first significant financial inflow that Haiti received. Thus, CCRIF fulfilled the fundamental objective for which it was established—to provide the policy holder with a rapid infusion of liquidity to help it finance its most urgent post-disaster expenditures. Although Haiti continued to be affected by aftershocks, including a magnitude 5.9 MW event on January 20 which caused additional losses, these shocks did not trigger an additional payout.[7]

The January 12 earthquake produced shaking in Jamaica, but not to the extent necessary under the parameters of its earthquake policy to trigger a payout. Further, no damage on the ground was reported in Jamaica.

On January 19, a magnitude 5.9 MW earthquake was felt across the Cayman Islands but did not trigger a policy payout. At a depth of 10 km and a distance of 70 km, CCRIF's model estimated that the earthquake would not produce significant damage or losses to the government. Information gathered on the ground subsequently corroborated this conclusion. Evidence suggests that this earthquake was unrelated to the Haiti earthquake and, instead, occurred along a different fault line.

Hurricanes

The 2009 Atlantic Hurricane Season was mild and produced no storms with the characteristics to trigger any CCRIF payouts. Despite pre-season forecasts of above average activity—and a revised forecast at the outset of the season predicting activity only slightly below the average—only nine tropical storms formed, well below average and the fewest since 1997. Of these nine, only three became hurricanes, and of the three, only Hurricane Bill, active August 15–24, became a category 4 hurricane. Although Bill produced tropical storm-force winds in Bermuda, it passed some 280 km west of the island, too distant to trigger Bermuda's policy; nor did it make landfall on or pass close enough to any other CCRIF member country. Neither of the two other hurricanes, which were of lesser force, made land falls on or passed close enough to other CCRIF members' territory.

7 Under the terms of the earthquake policy, payouts will not be made for subsequent earthquakes that strike within 25 days of the previous one. Further, the payment that Haiti received for the January 12 earthquake already amounted to its annual aggregate coverage limit for earthquakes.

2.3 Policy Renewals

All CCRIF members renewed policies for 2010–2011 and, in doing so, benefited from a further 12.5 percent reduction in the premium price—the third such consecutive reduction. Some have seen a change in the amounts and/or mix of their hurricane and earthquake coverage. This is partly due to their choices, influenced by the Haiti earthquake and/or by the prediction of a severe hurricane season, and partly because of a change in CCRIF's assessment of the risk under its second-generation hazard loss estimation model. It is more common for members to vary their coverage to maintain a fixed premium, than to vary their premium to maintain a fixed level of cover.

Hurricane Coverage

- As illustrated in Table 2.3 below, Antigua and Barbuda, The Bahamas, Belize, Barbados, Cayman Islands, Jamaica, St. Kitts and Nevis, Turks and Caicos, and St. Vincent and the Grenadines increased their hurricane coverage. Belize purchased the largest increase, 28 percent, followed by Barbados, 17 percent.
- Anguilla, Bermuda, Dominica, Grenada, Haiti, St. Lucia, and Trinidad reduced their hurricane coverage, with Grenada and Dominica making the largest reductions—48 percent and 32 percent, respectively.

Earthquake Coverage

- As illustrated in Table 2.3, of the 13 CCRIF members with earthquake coverage, 11 increased their earthquake coverage—Anguilla, Antigua and Barbuda, Barbados, Cayman Islands, Grenada, Haiti, Jamaica, St. Kitts and Nevis, St. Lucia, Trinidad and Tobago, and St. Vincent and the Grenadines.[8] St. Lucia and Haiti purchased by far the largest increases—181 percent and 110 percent, respectively.
- Belize and Dominica reduced their earthquake coverage by modest amounts.

Total Coverage

CCRIF members increased their total coverage by $17.2 million. This reflects a $21.8 million, or 5.4 percent, reduction in their aggregate hurricane coverage and a $39 million, or 20.2 percent, increase in their aggregate earthquake coverage. Antigua and Barbuda, Barbados, Cayman Islands, Jamaica, St. Kitts and Nevis, and St. Vincent and the Grenadines increased both their hurricane and their earthquake coverage. Only Dominica decreased both (see Table 2.3).

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8 While all CCRIF members have hurricane coverage, The Bahamas, Bermuda, and Turks and Caicos have not taken earthquake coverage.

Table 2.3: Changes in CCRIF Insurance Coverage Limits, 2009–2010 to 2010–2011 (U.S. $ millions)

	2009–2010			2010–2011								
Country	Hurricane	Earthquake	Total	Hurricane	$ Change	% Change	Earthquake	$ Change	% Change	Total	$ Change	% Change
Anguilla	4.87	1.05	5.92	4.86	–0.01	0	1.20	0.15	14	6.06	0.14	2
Antigua	6.39	1.82	8.21	7.12	0.73	11	2.21	0.39	21	9.33	1.12	14
Bahamas	27.35	0.00	27.35	29.11	1.76	6	0.00	0	0	29.11	1.76	6
Belize	13.49	1.76	15.25	17.3	3.81	28	1.63	–0.13	–7	18.93	3.68	24
Bermuda	16.91	0.00	16.91	14.47	–2.44	–14	0.00	0	0	14.47	–2.44	–14
Barbados	26.00	6.08	32.08	30.42	4.42	17	7.43	1.35	22	37.85	5.77	18
Cayman	48.14	3.03	51.17	48.58	0.44	1	3.14	0.11	4	51.72	0.55	1
Dominica	25.88	2.94	28.82	17.68	–8.20	–32	2.93	–0.01	0	20.61	–8.21	–28
Grenada	46.89	5.91	52.80	24.39	–22.50	–48	8.29	2.38	40	32.68	–20.12	–38
Haiti	40.29	7.75	48.04	35.58	–4.71	–12	16.25	8.5	110	51.83	3.79	8
Jamaica	57.66	50.24	107.90	66.39	8.73	15	59.52	9.28	18	125.91	18.01	17

(*continued on next page*)

(continues)

Table 2.3: Changes in CCRIF Insurance Coverage Limits, 2009–2010 to 2010–2011 (U.S. $ millions)

	2009–2010			2010–2011								
Country	Hurricane	Earthquake	Total	Hurricane	$ Change	% Change	Earthquake	$ Change	% Change	Total	$ Change	% Change
St. K & N	4.47	3.21	7.68	4.81	0.34	8	4.12	0.91	28	8.93	1.25	16
St. Lucia	35.81	4.04	39.85	35.68	–0.13	0	11.34	7.3	181	47.02	7.17	18
T & C	11.38	0	11.38	12.36	0.98	9	0.00	0	0	12.36	0.98	9
Trinidad	36.7	104.44	141.14	31.38	–5.32	–15	112.90	8.46	8	144.28	3.14	2
St. V & G	5.54	1.12	6.66	5.80	0.26	5	1.46	0.34	30	7.26	0.60	9
Total	407.77	193.39	601.16	385.93	–21.84	–5	232.42	39.03	20	618.35	17.19	3

Premium Payments

The net increase in CCRIF members' coverage did not result in an increase in their total premium payments. Indeed, CCRIF's total premium income for 2010–2011 dropped $0.7 million relative to the previous year. This outcome is primarily the result of the CCRIF Board's decision to reduce the premium rate by 12.5 percent, but adjustments in the mix and parameters of their policies also helped most CCRIF members to increase their aggregate coverage without having to pay a higher total. For Haiti and Trinidad and Tobago, the increase in the earthquake premium was fully offset by a reduction in the hurricane premium. Both Dominica and Grenada saw a reduction in their overall premium, reflecting their decision to reduce both hurricane and earthquake coverage. Only St. Lucia experienced an overall increase in its total premium, reflecting changes in the parameters of its policies as well as the substantial increase in its total coverage.

Premium payments for 2010–2011 were received from or on behalf of all CCRIF members by mid September, with the exception of Haiti and Antigua and Barbuda.[9] Recognizing that several members were facing fiscal constraints stemming in part from the global economic and financial downturn, the Board instructed the Facility Supervisor in September 2009 to ensure that CCRIF members were aware of the possibility of drawing on a portion of their participation fee to make part or all of their 2010–2011 premium payment. In addition, the Facility Supervisor explored the donors' interest in subsidizing some CCRIF members' premium payments. Cayman Islands, Dominica, Grenada, St. Lucia, and Turks and Caicos decided to draw on their participation deposits to pay part of their premiums. The Canadian International Development Agency (CIDA) and the Caribbean Development Bank (CDB) have agreed to provide grants of $1.57 million and $1 million, respectively, to pay Haiti's entire hurricane and earthquake premium. The CDB announced its willingness to provide again long-term low-interest loans to interested CCRIF members to support their 2010–2011 premium payments, but only Antigua and Barbuda planned to use funds from that source for the purpose.

2.4 CCRIF's Financial Stability

CCRIF continues to strengthen financially. For 2010–2011, CCRIF retained the first $20 million in risk and obtained $111.0 million in reinsurance. CCRIF retains all claims over

9 Strictly speaking, premium payments are due no later than May 31, as the policy year begins on June 1. The Board may, however, issue warrants as bridge finance for members that are experiencing administrative or other delays in paying. The delay in Haiti's case has been occasioned by the need for the government to obtain the legislature's approval to sign the grant agreements with the donors—the Canadian International Development Agency (CIDA) and the Caribbean Development Bank (CDB)—who were financing Haiti's premium payment. As of end-February 2011, the $1.0 million payment from the CDB on Haiti's behalf remained outstanding but was expected shortly. CCRIF received Antigua and Barbuda's full payment in January 2011.

$131 million. With this reinsurance,[10] CCRIF has the capacity to pay claims for a series of losses having a probability of occurring only once in 1,000 years, without needing to use more than $22.025 million of its own resources. CCRIF's substantial reserves—invested and managed by London and Capital and EFG Bank—give it the additional capacity to make payouts for a series of events having a probability of occurring only once in 10,000 years. Such losses would, however, completely exhaust CCRIF's reserves, putting its continued operations in serious jeopardy.

CCRIF's financial and risk management strategy is further assessed in Chapter 5.

2.5 Multi-donor Trust Fund

CCRIF continues to benefit from resources available under the MDTF that was created to help finance its establishment and initial years of operation.[11] The funds, managed by the World Bank, are available to reimburse CCRIF for certain administrative expenses, communications costs, research and development expenditures, reinsurance costs, and payouts under its hurricane and earthquake policies up to the level of its risk retention. As of end-May 2010, $28.1 million remained undisbursed from the contributions to the MDTF and available to CCRIF through January 16, 2012, the date on which the Grant Agreement between CCRIF and the World Bank is expected to terminate.[12]

The MDTF's contributions to CCRIF's operations and financial strength are further described and assessed in Chapter 5.

2.6 Member and Stakeholder Relations

CCRIF continued to broaden its engagement with client countries, partner institutions, other stakeholders, and the general public in 2009–2010. In August 2009, CCRIF signed a MOU with CDERA, now CDEMA. In February 2010, CCRIF signed a MOU with UN-ECLAC to increase collaboration with that institution. It began talks with the Caribbean Community Climate Change Centre (CCCCC) on possible areas for collaboration and a MOU. In addition, CCRIF sponsored its members' participation in a number of conferences and

10 Of the $111.0 million reinsurance, $92.5 million was arranged in traditional reinsurance markets and $18.5 million in a swap placed in the capital market by the World Bank Treasury on behalf of CCRIF. In addition to the first $20 million of risk that CCRIF retained in its entirety, it also took $2.025 million in the first and second layers of reinsurance.

11 The amount of the MDTF rose to $67.4 million as Bermuda, CDB, Canada, European Commission, French Republic, U.K., International Bank for Reconstruction and Development (IBRD), and Ireland made contributions. Investment income on the undisbursed balance (net of administrative charges) has since brought the total to about $71 million.

12 With reimbursements to CCRIF for 2010–2011 payouts for Hurricanes Earl and Tomas and other eligible expenditures, the MDTF balance available at end-December 2010 was approximately $5.1 million. The MDTF is expected to be exhausted before the termination of the Grant Agreement due to recurring expenditure, even in the absence of further claims.

workshops and began to roll out its technical assistance program. As part of this, it funded the ECA project to analyze selected CCRIF members' vulnerability to climate change and identify cost effective adaptation measures, as input for national climate change adaptation studies for which international funding could be sought. In addition, it provided through the Caribbean Institute for Meteorology and Hydrology (CIMH) training to member countries' officials in the use of "The Arbiter of All Storms" Real Time Impact Forecasting System (TAOS-RTFS, or RTFS) and has continued to finance their use of the system under a licensing agreement with its developer, Kinetic Analysis Corporation (KAC). CCRIF also initiated its scholarship program. Sustainability Managers (SM), CCRIF's public relations and public communications contractor, began revamping CCRIF's website and greatly increased dissemination of quarterly reports, newsletters, brochures, and bulletins to members, donors, other stakeholders, and the general public.

These developments are assessed in Chapter 6.

2.7 Innovation and New Product Development

In 2009–2010, CCRIF placed priority on finalizing the second-generation HLEM. Work also continued to develop the excess rainfall product, although its launch has suffered delays due to methodological and other difficulties. In addition, CCRIF continued to advise CARILEC on development of a parametric insurance facility to provide catastrophe insurance to its member for their overhead transmission lines.

These innovations and related matters are described further in Chapter 7.

2.8 Key Board Decisions and Actions

In other important decisions and actions during 2009–2010, the Board:

- Held a retreat to review the Strategic Plan, updating it through 2012 and adding a sixth objective regarding strengthening CCRIF's governance and transparency.
- Approved a Pricing and Financial Strategy, establishing as a goal for CCRIF's long-range financial sustainability the capacity to withstand a series of events with an estimated 1 in 1,000 year return period.
- Retained EFG Bank Cayman Ltd., a private banking subsidiary of Zurich-based EFG Bank International, in order to diversify management of CCRIF's growing assets, having previously decided that such diversification would be desirable once the principal sum managed by London and Capital reached $75 million.[13]
- Agreed to a proposal from London and Capital to amend CCRIF's Investment Guidelines to allow for investing 20 percent of the portfolio net asset value (NAV)

13 The Board formally ratified the decision to retain EFG Bank Cayman at its June 2010 meeting.

in investment grade securities issued by emerging market sovereigns, specific state-owned corporations, and multilaterals.[14]

- Approved a new two-year contract with the Executive Chairman of the CCRIF Board of Directors for a new term from December 2009–December 2011.[15]
- Published a Request for Expressions of Interest in a new contract to provide Facility Supervisor services.[16]
- Signed a new two-year contract with Sagicor for Insurance Manager services.
- Negotiated on a sole-source basis a one-year fixed fee contract with Aon-Benfield, the reinsurance broker, for services through May 2011, with the contract for such services for 2011–2012 to be retendered within the entire reinsurance community.
- Obtained the World Bank's "no objection" to the Operations Manual (OM). This had previously been revised in line with the Bank's recommendations and approved by the Board.
- Approved creation of a separate Technical Assistance (TA) budget category to be funded as necessary from year to year by a transfer of up to 50 percent of the previous year's investment income.

14 The Board subsequently approved this proposal, part of which is that investments in sub-investment grade assets, a category which had previously included all emerging market issues, will be limited to 7.5 percent of portfolio NAV, down from 15 percent specified in the original Investment Guidelines. The revised Investment Guidelines will apply to London and Capital and EFG Bank Cayman alike.

15 The Board subsequently extended the Executive Chairman's contract through end-December 2013 for business continuity reasons.

16 The Board subsequently decided to negotiate a new for such services with CaribRM, the only qualified firm to express interest. Signed on August 1, 2010, the contract is for one year, renewable for two additional years subject to satisfactory performance and with the possibility of a further one-year extension.

3. Operational and Governance Developments

3.1 Overview

CCRIF has strengthened key aspects of its operational structure and performance and governance. It remains organizationally lean, although its costs are rising as its partnership role expands with its members and various Caribbean institutions in disaster risk reduction and management. CCRIF reviewed and updated its 2009–2012 Strategic Plan, adding a governance and accountability objective. The external audit of CCRIF's 2009–2010 financial statements was again unqualified and the Management Letter indicated that no material weaknesses in internal controls over financial reporting had been found. CCRIF also took a number of steps that the review of its second year of operations had recommended. It updated the OM to clarify the Board's and service providers' roles and accountabilities and certain operating procedures. It enhanced its transparency through publication of its Strategic Plan and a wealth of other information on its website, and increased the targeted flow of information to members, donors, and various stakeholders. In addition, it continued its efforts to complete the Board transition to a membership fully constituted as envisioned in its Trust Deed.[17]

CCRIF faces operational and governance challenges as it looks to the future, as does any organization seeking to enhance its competitiveness and relevance. One such challenge is to ensure that CCRIF's organizational structure continues to meet its requirements for business continuity, competitively sourced services, and engagement with its Members. Further strengthening the record of Board decisions will also be important. Streamlining the process for appointing Board members is another challenge.

17 The transition was completed by September 2010 with the CARICOM's reappointment of Ken Blakeley on behalf of CCRIF members and the CDB's appointment of Desiree Cherebin on behalf of the donors.

3.2 Operational Structure and Performance

CCRIF remains operationally lean, but its overall costs are rising. The expansion of CCRIF's role as a partner with its members and certain Caribbean institutions undoubtedly accounts for part of the increase. With a view toward enhancing its value to its members and consolidating its standing as a widely-recognized Caribbean institution, CCRIF has gone from being principally a provider of catastrophe risk insurance to being also a provider of technical assistance to strengthen its members' disaster risk reduction and management capacity, and a partner in helping its members to develop climate change adaptation strategies in the run-up to COP-16. As the range of CCRIF's services broadens, so does the scope of management of those activities. Significant increases in the Facility Supervisor's and Insurance Manager's fees, as well as the expansion of CCRIF's communications and outreach activities have also contributed to rising costs.

One challenge that CCRIF faces in terms of assuring itself of competitively priced services comes from its unique nature among captive insurance companies. This may limit the pool of service providers which CCRIF can access. CCRIF's Request for Expressions of Interest (REI) when it retendered the contract for facility supervision services was published in an insurance industry journal, a number of Caribbean media outlets, and a UN data base of donor-funded procurement opportunities. In addition, the Executive Chairman directly contacted two firms with expertise in disaster risk modeling and insurance. Despite these efforts, CCRIF received only two responses, one from CaribRM, the incumbent Facility Supervisor, and the other from a management consulting firm that lacked specialized experience in both insurance and disaster risk modeling. The Board considered the World Bank's recommendation to re-advertise more broadly, but deemed such a course of action unlikely to elicit competition and, hence, decided to negotiate a new contract directly with CaribRM.

A risk of disruption to CCRIF's business continuity arises from this concentration of expertise and the lack of competition. Expertise in handling the financial, risk management, disaster risk modeling, and other technical aspects of CCRIF's business is concentrated in the Facility Supervisor. Changes in the personnel, strategic focus and business plan, or organization of the company providing Facility Supervisor services could affect the Board's access to the expertise required to avoid an interruption to its services. Similarly, CCRIF relies heavily on KAC for model and product development and licensing. The congruence of the terms of some of the Directors is another risk to business continuity.

3.3 Governance

During 2009–2010, the Board reviewed and updated its Strategic Plan for 2009–2012, adding a governance and accountability objective, "To create a governance framework built on transparency and accountability principles." The Board recognizes its obligations that stem from CCRIF's having been established with tax payer resources—obligations

Box 3.3: CCRIF's Strategic Objective 6 to Create a Governance Framework Built on Transparency and Accountability Principles

CCRIF will develop an effective management framework for sustained growth that addresses both decision-making and governance with a focus on high quality internal controls to enhance efficiencies and reduce the risk of business interruption. Governance for CCRIF is important because of the need to be fully accountable to its members and supporting donors. The concepts of transparency and accountability for sustainable development will be integrated at all levels of our decision making and into business planning as well as management information and control systems. The Board will ensure that the CCRIF Team provides reports that measure performance against these strategic objectives.

for fiduciary care, service to members, and transparency with respect to policies and procedures. The addition of this objective is fully in line with the thrust of several important recommendations of the review of CCRIF's 2009–2010 operations.

The OM is a key pillar of CCRIF's governance structure and, as recommended in the 2008–2009 review, CCRIF revised it in 2009–2010 to bring it in line with changes in its operating practices and to clarify key aspects of its structure and governance. Important matters that the revision addressed included clarifying: (i) procedures and parameters for appointing and remunerating Directors, including the specific parameters for remunerating the Executive Chairman; (ii) Directors' duties and Board rules of procedure; (iii) the scope of the code of ethics to include Directors and service providers; (iv) administration of insurance policies; and (v) CCRIF's organizational structure, including the service providers' respective reporting lines. The Strategic Plan and OM itself require that the Directors review the OM annually and the 2010–2011 review was well advanced by December 2010.

CCRIF has steadily increased its transparency—another important recommendation of the 2008–2009 review. SM revamped CCRIF's website, expanded CCRIF's media relations, and stepped up targeted communications with members, donors, and other stakeholders using quarterly reports, newsletters, press releases, and other bulletins. The website posts the 2009–2012 Strategic Plan along with a wealth of other information about CCRIF's products, services, and activities. The Board also considered making public the minutes of its meetings, as the 2009–2010 review had suggested, but decided against this step, choosing instead to enhance transparency through the communications efforts already described.

Following up on the new governance objective, one action that the Board has already flagged is to ensure that the minutes of its meetings provide an adequate record of its decisions. At its meeting in September 2010, the Board requested that the minutes not only record the Board's decisions, but also provide enough of the flavor of the discussion to convey the rationale for those decisions. Governance would also be enhanced by ensuring that the minutes record the actions taken in response to Directors' requests or instructions made at a previous meeting. For example, if the minutes for one meeting record that the Directors:

- requested an analytical paper in order to have the foundation for making a policy decision, it would be useful for the minutes of a subsequent meeting to record not just that the Directors had made the policy decision, but that it had received and reflected on the requested analysis in doing so; or
- authorized an amount for a certain expenditure or budget category, and the amount later exceeds the authorization, it would be helpful for the minutes to indicate explicitly that the Directors had approved the increase; or
- deferred a decision on an issue pending consultations with donors, it would strengthen the record for minutes of a subsequent Board meeting to indicate that such consultations had, in fact, been undertaken.

During 2009–2010, CCRIF continued its effort of more than a year to complete the transition to a Board of Directors fully constituted in line with the provisions of its Trust Deed.[18] The transition was completed in September 2010 with the reappointment by CARICOM of Ken Blakeley and the appointment by the CDB of Desiree Cherebin. A number of factors contributed to protracted nature of the transition.

- *On the member side*, it appeared from interviews conducted for this review that not all were aware that the transition was under way. CARICOM's and the members' own internal bureaucratic processes likely contributed to this. CARICOM circulars are addressed to the members' ministries of foreign affairs. The ministries of foreign affairs may then channel the communication as necessary to another ministry within whose jurisdiction the matter falls and that ministry will itself have its own internal administrative processes. As a result of these process steps and given the number of pressing matters confronting senior government officials, the CARICOM circular soliciting members' nominations may not in all cases have received the necessary attention.
- *On the donor side*, one of the three interviewed stated that it had had no one that it wished to propose; another indicated that it had been deterred by its internal procedures that would have required minister-level approval for a nomination; and the other indicated that it had understood that the request from the CDB was for a nominee from within the diplomatic mission itself, the difficulty there being that the mission staff were already stretched to the limit and unable to take on another duty.
- *In addition, neither the member nor the donor interviewees* appear to have been aware that they could have nominated private sector individuals. This was, however,

18 The Deed provides that the Trustees shall appoint two Directors upon written instructions from the Secretary General of CARICOM and an additional two upon written instructions from the President of the CDB. The four may appoint an Executive Chairman. While not explicitly stated in the Trust Deed, it is considered that the two CARICOM appointees represent the interests of the Members and the two CDB appointees, the interests of the donors.

well understood by both CARICOM and the CDB as the final outcome of the process was the appointment two Directors with significant private sector or a mix of public and private sector experience in insurance and banking.

The protracted process for completing the Board transition raises the risk of disruption of Board functions during future transitions. One of the incumbent Directors, appointed by CARICOM, is already mid-way through his three-year terms. Another, appointed at the same time by the CDB on behalf of the donors, will be stepping down early as he is assuming the presidency of the CDB. Conscious of this risk to continuity of Board operations, the Board decided in December 2010 to extend the term of the Executive Chairman's appointment through the end of 2013, by which time he will have served the six-year maximum established for Board appointments.

3.4 Recommendations

CCRIF continued to strengthen its operational structure and governance in 2009–2010. As it looks to the future, the Board should consider:

- Whether reconfiguring the functions of its service providers—for example, splitting the functions of financial risk management and transfer from those of R&D and hazard loss modelling—might enhance competition, contain costs, and reduce the risks of business interruption due to concentration of expertise.
- Whether changing the operational model from one of outsourcing services to one of full-time CCRIF staff, including a full-time Chief Executive or Chief Operating Officer, might contain costs and reduce the risks of business interruption.
- Whether additional steps are needed to ensure that the Board's decisions and the rationale there for are adequately and consistently recorded.
- How to streamline procedures for appointing new Directors, while retaining the key role of CARICOM and the CDB, and whether Directors' appointments could be staggered to maintain the necessary degree of expertise and knowledge of CCRIF's operations and ensure adequate oversight of CCRIF's service providers and operations.

4. Budget

4.1 Overview

CCRIF's overall spending increased from its first to second year and again, sharply, to its third year, 2009–2010. As a percent of premium income, overall expenditures grew from 4.96 percent in 2007–2008 to 5.84 percent in 2008–2009 and to 11.6 percent in 2009–2010, with 12.0 percent projected for 2010–2011, reflecting a small drop in premium income rather than a significant increase in planned expenditures.

The major factor in this increase has been the progressive broadening of the scope of CCRIF's activities. In 2007–2008 as a start-up, CCRIF's expenditures were focused on its core business of providing insurance. In 2008–2009, a research and development category was added to support work which had already been planned. In 2009–2010, "broad mandate" and technical assistance categories were added, recognizing the importance of strengthening CCRIF's brand as a Caribbean institution, enhancing stakeholder communications and partnerships, and expanding its value added to its members beyond providing insurance. For 2010–2011, a separate line item was created to break out expenditures associated with developing the annual risk management program and the "broad mandate" line item was subsumed within technical assistance. The creation of new budget categories and the transfer of certain expenses to them from the operational/administrative budget provide a better picture of costs associated with specific lines of business and activity, but also make cross-year comparisons of spending difficult.

A significant rise in the cost of CCRIF's contracts with the Insurance Manager and Facility Supervisor has also been an important factor in the overall growth of CCRIF's budget. The increase in the Insurance Manager's contract fee may reflect a change in the understanding between the Board and the Insurance Manager as to the amount of work associated with the contract's terms of reference (TOR) as the TOR itself was unchanged.[19] The doubling of the Facility Supervisor's fee under the new contract reflects both. The core duties—managing the annual risk transfer and reinsurance program, sales of policies, and supervision of R&D activities, new product development, and public communications—did not change, but responsibilities for overseeing the TA program and liaising with the World Bank on applications for withdrawals under the Grant Agreement were added.

Looking to the future, it will be important for the Board to continue to manage CCRIF's budget carefully. The costs of discretionary activities will need to be weighed against their value to the participating countries and in light of their opportunity costs. This will be all the more important in light of the anticipated depletion of the MDTF, which in the first three years, 2007–2010, provided cash flow to CCRIF equal to nearly 69 percent of its gross premium income.

4.2 Operating and Administrative Costs

CCRIF has a guideline that recurring operational and administrative expenses should be no more than 5 percent of premium income. This guideline is intended to be broadly in line with the ratio for other captive insurers, which is estimated at about 3 percent, while recognizing the differences between CCRIF and other captive insurers in terms of the scope of their operations. The operating budget does not break out fees paid to the investment manager, asset custodian, and reinsurance broker. These costs are, respectively, netted out of the income on managed assets and subsumed within the reinsurance premium. It also does not include the fee to the World Bank Treasury for arranging the capital market swap which has been an integral part of CCRIF's risk transfer program.

4.3 Research and Development Costs

CCRIF has a separate budget line for research and development expenditures, which do not fall within the 5 percent guideline. Creation of this budget reflects a recommendation made to the Board in the review of CCRIF's first season of operation. This budget funds non-recurring expenditures for developing the second-generation HLEM and new products, such as CCRIF's excess rainfall product and its support to help establish a CARILEC facility. Costs associated with new product development are regarded as investments—they are expected to create new revenue streams. The R&D budget also funds some recurring costs—it helps fund members' and partner institutions' access to KAC's RTFS and includes license fees to KAC for use of the second generation HLEM. A portion of the Facility Supervisor's contract fees and travel expenses is attributed

19 Section 3 of the Insurance Manager's contract provides for such increases at the Board's discretion.

Table 4.2: Operating and Administrative Costs[a] (U.S. dollars)

	2010/11 (Budget)		2009/10 Actual		2008/09 Actual		2007/08 Actual	
Premium income	20,777,213	100.00%	21,488,509	100.00%	21,838,512	100.00%	19,488,512	100.00%
TOTAL Operational/administrative	972,431	4.68%	1,031,799	4.80%	1,072,810	4.91%	966,060	4.96%
Facility supervisor	375,000	1.80%	427,400	1.99%	420,810	1.93%	402,755	2.07%
Board fees and expenses	225,000	1.08%	244,608	1.14%	231,411	1.06%	163,072	0.84%
Communications and strategy planning	115,000	0.55%	124,807	0.58%	110,349	0.51%	62,251	0.32%
Insurance manager	117,000	0.56%	101,161	0.47%	101,400	0.46%	66,251	0.34%
Audit fees (inc. actuarial)	68,000	0.33%	45,485	0.21%	45,874	0.21%	58,500	0.30%
Trust fees	25,833	0.12%	34,750	0.16%	43,000	0.20%	98,725	0.51%
Directors & officers insurance	25,000	0.12%	25,000	0.12%	31,775	0.15%	—	—
Outreach programme	—	—	13,020	0.06%	—	—	—	—
Regulatory fees	11,098	0.05%	10,386	0.05%	9,719	0.04%	16,591	0.09%
Legal fees	10,000	0.05%	3,507	0.02%	2,898	0.01%	12,245	0.06%
Bank charges	500	0.00%	1,675	0.01%	574	0.00%	695	0.00%
Product development	—	—	—	—	—	—	77,350	0.40%
Placement broker	—	—	—	—	—	—	7,625	0.04%
Real—time hazard monitoring	—	—	—	—	75,000	0.34%	—	—

[a] Exclusive of fees to investment manager, asset custodian, reinsurance broker, and World Bank Treasury.

Table 4.3: Research and Development Costs[a] (U.S. dollars)

	2010/11 (Budget)		2009/10 Actual		2008/09 Actual		2007/08 Actual	
Premium income	20,777,213	100.00%	21,488,509	100.00%	21,838,512	100.00%	19,488,512	100.00%
TOTAL R&D	560,489	2.70%	397,180	1.85%	203,361	0.93%	—	—
Model development	294,500	1.42%	141,323	0.66%	104,978	0.48%	—	—
Facility supervisor	100,000	0.48%	140,902	0.66%	77,500	0.35%	—	—
Board fees and expenses	46,500	0.22%	46,507	0.22%	—	—	—	—
Rainfall conference publicity	—	—	38,447	0.18%	—	—	—	—
Work under MOUs	—	—	30,001	0.14%	10,883	0.05%	—	—
General R&D	—	—	—	—	10,000	0.05%	—	—
CARILEC support	119,489	0.58%	—	—	—	—	—	—

a Exclusive of $1.5 million provided directly by Japan during CCRIF's first two seasons of operations.

to the R&D budget for management of R&D activities. Likewise a portion of the Executive Chairman's fees and travel expenses previously included in the operational and administrative budget is also broken out and attributed separately to the R&D budget. The R&D budget does not include support provided directly by third parties, such as the Jamaican Social Investment Fund and Japan during CCRIF's establishment and first two seasons of operations.

4.4 Technical Assistance and "Broad Mandate" Outreach Costs

Following on discussions that the Board began in 2008–2009 on ways to continue increasing CCRIF's value added to the member countries, it approved in September 2009 a separate budget line item for technical assistance and "broad mandate" outreach costs. This budget is to include unanticipated *ad hoc* activities by the Facility Supervisor (to be approved in advance), technical assistance to member country agencies, work with specialist partner agencies, such as CIMH and CDEMA, and sponsorship of conferences and CCRIF's and member countries' attendance at them. For example, CIMH has provided training to national meteorological and, through CDEMA, disaster management agencies in connection with dissemination and members' use of the RTFS. In addition, CCRIF sponsors and hosts a Professional Development Session at CDEMA's annual Comprehensive Disaster Management Conference. CCRIF's recently-announced program for scholarships in the fields of insurance and disaster risk management falls under this budget line.

The most significant component of the technical assistance budget in 2009–2010 was the ECA study. CCRIF provided over $622,000 to fund the work on this project, including fees to McKinsey & Company and Swiss Re for their analytical support and the cost of workshops with members' disaster risk management (DRM) and other officials and partner institutions. Another $20,000 is budgeted for 2010–2011.

For 2010–2011, the broad mandate budget has been subsumed in the technical assistance program. The major areas of technical assistance expenditure for 2010–2011 are knowledge building; collaborative work with partner organizations such as CDEMA, UN-ECLAC, CIMH, and CCCCC with which CCRIF has, or is discussing, a MOU; licensing fees to KAC for continued use of the RTFS; and scholarships and professional development. In addition, in recognition of the Executive Chairman's role in CCRIF's outreach activities, a portion of his fees and expenses previously included in the operational and administrative budget has been reassigned to the TA budget.

4.5 Risk Transfer

CCRIF established a new risk transfer budget category for the current 2010–2011 season. This separately identifies costs incurred in connection with the Facility

Table 4.4: Technical Assistance and "Broad Mandate" Outreach Costs (U.S. dollars)

	2010/11 (Budget)		2009/10 Actual		2008/09 Actual		2007/08 Actual	
Premium income	20,777,213	100.00%	21,488,509	100.00%	21,838,512	100.00%	19,488,512	100.00%
TOTAL Broad mandate	—	—	250,346	1.17%	—	—	—	—
Real-time hazard impact	—	—	133,186	0.62%	—	—	—	—
Outreach events/support	—	—	115,010	0.54%	—	—	—	—
Facility supervisor	—	—	2,150	0.01%	—	—	—	—
TOTAL Technical assistance	688,000	3.31%	818,219	3.81%	—	—	—	—
Knowledge building	150,000	0.72%	70,580	0.33%	—	—	—	—
MoU support	165,000	0.79%	—	—	—	—	—	—
Facility supervisor	100,000	0.48%	90,045	0.42%	—	—	—	—
Real-time hazard impact	85,000	0.41%	34,911	0.16%	—	—	—	—
Scholarships and professional development	84,000	0.40%	—	—	—	—	—	—
Board fees and expenses	44,000	0.21%	—	—	—	—	—	—
Community support	40,000	0.19%	—	—	—	—	—	—
Economics of climate adaptation	20,000	0.10%	622,683	2.90%	—	—	—	—

Table 4.5: Risk Transfer Program Management Costs[a] (U.S. dollars)

	2010/11 (Budget)		2009/10 Actual		2008/09 Actual		2007/08 Actual	
Premium income	20,777,213	100.00%	21,488,509	100.00%	21,838,512	100.00%	19,488,512	100.00%
TOTAL Risk transfer	262,500	1.26%	—	—	—	—	—	—
Facility supervisor	250,000	1.20%	—	—	—	—	—	—
Travel expenses	12,500	0.06%	—	—	—	—	—	—

a Exclusive of reinsurance premium and commissions to reinsurance broker and World Bank Treasury.

Supervisor's work to prepare the risk transfer strategy for the Board's approval and to arrange for reinsurance. These costs had previously been included in the operational and administrative budget. Excluded from the table below are the reinsurance premium itself and commissions paid directly to the reinsurance broker and the World Bank Treasury for arranging the risk transfer capital market swap.

4.6 Budget Cycle and Overall Spending

The annual budget is drafted at the beginning of each insurance year, but is not finalized and adopted until the beginning of the second quarter of the year. This practice appears to have arisen from the fact that CCRIF has generally not received all premium payments by the May 31 deadline. Some members lag in paying, usually due to the need to arrange financial support from another source. But the practice introduces a certain degree of uncertainty in budget management.

It is difficult to compare CCRIF's total expenditure directly across its four operational years. First, CCRIF has progressively entered into new areas of activity as it has expanded its partnerships with other Caribbean institutions and sought ways to enhance its value to its members beyond providing insurance. Second, the four separate budgets cover different types of expenditure. Some are essential recurring costs of operating CCRIF; some are discretionary but intended either as one-off investments to improve CCRIF's long-term position offering new products or on-going investments in increasing engagement with members and helping them to build their DRM and disaster risk reduction (DRR) capacity; and some are primarily charitable with only an intangible benefit to CCRIF through enhancing its reputation within the Caribbean.

Changes in the structure of the budget by creating more specific budget lines and reallocating costs to them from the operational and administrative budget have provided a clearer picture of CCRIF's core operational and administrative expenses. As redefined, these have remained within the 5 percent guideline for such expenditures. Indeed, had the budgets for the first three years been structured as for the fourth year, the operational and administrative budget would have been on the order of 4–4.5 percent of premium income.

Structural changes in budget presentation, which have kept operational and administrative expenditures within the 5 percent guideline, do not, however, obscure the need for continued close scrutiny of CCRIF's overall spending. This is all the more important given the imminent exhaustion of the MDTF which, during CCRIF's first three years of operation, 2007–2010, provided resources equal to nearly 69 percent of gross premium income. When this fund is depleted, the trade-offs among alternate uses of CCRIF's revenues—administrative and operational expenditures, additions to CCRIF's reserves to strengthen its risk bearing capacity, and discretionary expenditures such as R&D and TA—will be cast into starker relief. In considering these trade-offs, however, it is appropriate to be mindful that expenditures associated with new product development

Table 4.6: CCRIF's Total Expenditures[a] (U.S. dollars)

	2010/11 (Budget)		2009/10 Actual		2008/09 Actual		2007/08 Actual	
Premium income	20,777,213	100.00%	21,488,509	100.00%	21,838,512	100.00%	19,488,512	100.00%
TOTAL Expense budget	2,483,420	11.95%	2,497,544	11.62%	1,276,171	5.84%	966,060	4.96%
TOTAL Operational/administrative	972,431	4.68%	1,031,799	4.80%	1,072,810	4.91%	966,060	4.96%
TOTAL R&D	560,489	2.70%	397,180	1.85%	203,361	0.93%	—	—
TOTAL Broad mandate	—	—	250,346	1.17%	—	—	—	—
TOTAL Technical assistance	688,000	3.31%	818,219	3.81%	—	—	—	—
TOTAL Risk transfer	262,500	1.26%	—	—	—	—	—	—

a Exclusive of reinsurance premium, commissions and fees to investment manager, asset custodian, reinsurance broker, World Bank Treasury, and direct third party support.

can be viewed in a different light than other discretionary expenditures to the extent that they constitute an investment that can be expected to generate material new lines of revenue.

The Board recognizes the importance of controlling expenditures in order to ensure appropriate stewardship of CCRIF's resources and manage trade-offs among their competing uses, even though it has no guideline for total spending. For example, to this end, the Board decided that a maximum of 50 percent of earned investment income could be designated for technical assistance, a figure to be reviewed annually. Further, it requested that the Facility Supervisor, working with SM, consult with members and donors to develop specific recommendations for using these funds so as to ensure that the activities are demand driven.

4.7 Recommendations

The Board has remained cognizant of the public sources of CCRIF's income and the importance of ensuring appropriate stewardship and use of its resources. As it looks to the future, the Board should:

- Consider using a uniform budget format to facilitate cross-year comparisons and ensuring that annual budget proposals are presented along side of the previous year's budget and outcome;
- Consider adopting the annual budget in early June, at the start of each financial year, based on preliminary estimates of premium income and the previous year's investment returns, with any necessary adjustments made later;
- Ensure that discretionary spending is consulted with and broadly supported by members and key stakeholders; and
- Assess proposed R&D expenditures in light of the projected associated increment to future income.

5. Financial and Risk Management

5.1 Overview

CCRIF's exposure has continued to grow, its premium income has remained stable due to lower premium rates and, for the first three years, its policy payouts were below its average annual loss (AAL), exceeding that level only in the current, fourth year. For 2009–2010, all 16 members renewed policies, CCRIF's aggregate exposure grew to $601.2 million, and premium income stood at $21.5 million. Reflecting another mild hurricane season, payouts in 2009–2010 again remained below the average annual loss (AAL) for the third consecutive year. The sole payout—$7.75 million—was to Haiti following the January 2010 7.0 Mw earthquake. For 2010–2011, all 16 countries again renewed policies and CCRIF's exposure grew to $618.2 million, while premium income dropped slightly to $20.8 million. The latter reflected both the benefit to the members of the third consecutive reduction in the premium rate and the effects of the shift to the second generation HLEM. For the first time, payouts in 2010–2011—$17.2 million to date—have exceeded the AAL.

CCRIF remains financially strong—with reinsurance and its shareholder equity, it has the capacity to withstand a series of events estimated to have a probability of occurring once in every 10,000 years. CCRIF's assets reached $94.8 million by end-May 2010 and, since then, have surpassed $100 million, its declared objective. Reflecting its growing financial strength, CCRIF increased its risk retention from $12.5 million in 2008–2009 to $20 million in 2009–2010, keeping it at that level in 2010–2011. CCRIF obtained $132.5 million in reinsurance in 2009–2010, as in the previous year. While it sustained a drop in the amount and increase in the cost of its reinsurance for 2010–2011, reflecting uncertainties surrounding introduction of its second generation HLEM, this has not materially affected its financial resilience.

The rate of growth of CCRIF's capital is expected to slow substantially in 2011–2012 as the MDTF, which has continued to make important contributions to CCRIF's financial strength, is exhausted. Disbursements from the MDTF to CCRIF in 2009–2010 alone to reimburse it for eligible operational, R&D, risk transfer, and other eligible expenditures and for the policy payout to Haiti totaled $17.8 million, equal to nearly 83 percent of gross premium income for the year. Additional reimbursements for payment of $17.2 million in claims associated with Hurricanes Earl and Tomas during 2010–2011 and reimbursement in early 2011–2012 will deplete the MDTF. The result is that CCRIF's financial strength will grow more slowly in the future and will depend crucially on the Board's decisions regarding allocation of net premium income.

CCRIF's conservative investment policy continues to produce good returns. To diversify management risk, CCRIF retained a second investment manager as of the beginning of 2010–2011.

Looking to the year ahead, it will be important for CCRIF to resolve any lingering concerns that reinsurers may have about the second-generation hazard loss estimation model. The continued growth and robust level of CCRIF's reserves provide opportunities to reassess and fine tune, if appropriate, its risk retention and risk transfer policies, investment strategy, and pricing policies. Continued careful management of non-financial risks relating to members' understanding and perceptions of the value of CCRIF's products and services will also be important. Additional steps to increase CCRIF's transparency and further efforts to invite feedback from its members on key issues can make an important contribution in this regard.

Table 5.2a: Loss Probabilities for 2009–2010

Annual Claims (US$ millions)	Probability (percent)	Covered by
Nil	37.34	CCRIF
0–20	46.16	CCRIF
20–50	10.45	Reinsurance
50–100	4.84	Reinsurance
100–152.5	1.14	Reinsurance
152.5–601.2	0.07	CCRIF[a]

[a] As discussed in Section 5.4, CCRIF's financial strength does not shield it entirely from the risk of default. While it bore the risk for the first $20 million in claims and for all claims above $152.5 million in 2009–2010, its reserves and the balance of available donor resources were not sufficient to cover all remaining risks up to the total of its $601.2 million exposure. If an event had occurred that exceeded CCRIF's capacity to pay all claims in full, it would have paid claims on a *pro rata* basis until its reserves were exhausted and then, barring an extraordinary capital injection, would have become insolvent.

5.2 Policies, Risks, and Claims

For the 2009–2010 season, CCRIF wrote 29 policies, providing hurricane coverage to all 16 participating countries and earthquake coverage to 13. CCRIF's aggregate exposure in 2009–2010 was $601.2 million compared to $562.1 million in 2008–2009, $494.8 million in 2007–2008, and $618.2 million for the current, 2010–2011 season. There is considerable variation in individual policies, reflecting countries' size and risk exposure and the severity of events that they elect to cover. Coverage for participating countries varies from around $6 million to $144 million.

CCRIF's average annual loss (AAL) under the2009–2010 policies was $10.5 million, based on the EQECAT model it used for the year. The probabilities of different ranges of losses are shown in Table 5.2a. CCRIF is expected to have no claims in 37 percent of years, but has a 6 percent chance of annual claims of $50M or more.

CCRIF's payouts were less than its AAL during its first three seasons as a result of the fairly mild hurricane seasons, but have been higher than expected in the current fourth season. Claims paid totaled $0.9 million in 2007–2008, $6.3 million in 2008–2009, and $7.75 million in 2009–2010. Payments as of end-December 2010 in the fourth season totaled $17.2 million.[20] Table 5.3a summarizes information on policies, risks, reinsurance, and claims for the first four seasons through end-December 2010.

5.3 Reserves

CCRIF's assets totaled $94.8 million as of end-May 2010 and have since surpassed the objective of $100 million declared at inception. Members' participation fees, accumulated investment income, retained earnings from premium payments, and donor contributions disbursed through the MDTF have contributed to this capital growth.

CCRIF's had shareholder equity of $67,541,832 at May 31, 2010. Its liabilities, the balance between this and its total assets, consisted almost entirely of monies received from the participating countries, mainly as participation fee deposits but also as premiums paid in advance of the 2010–2011 season.

Cognizant of its members' fiscal constraints, stemming partly from the global economic downturn, and taking into consideration its own financial strength, CCRIF allowed countries to reduce their participation fee deposits for the current 2010–2011 season.

20 In 2007–2008: $419,000 to St. Lucia and $528,000 to Dominica following the November 29, 2007 earthquake. In 2008–2009: $6.3 million to the Turks and Caicos Islands following Hurricane Ike in September 2008. In 2009–2010: $7.75 million to Haiti following the 7.0 Mw magnitude earthquake that devastated Port au Prince on January 12, 2010. In 2010–2011 as of December 31, 2010: $4.3 million to Anguilla following Hurricane Earl; and a total of $12.9 million to Barbados ($8.6 million), St Lucia ($3.2 million), and St Vincent and the Grenadines ($1.1 million) following Hurricane Tomas.

Table 5.3a: Approximate Statistics for the First Four Seasons (As of December 31, 2010)

Year	2007–2008	2008–2009	2009–2010	2010–2011
Number of Countries Covered	16	16	16	16
Number of Policies Sold	29	30	29	29
Total Premium Income (US$ millions)	19.5	21.8	21.5	20.8[a]
Of which: Reinsurance Cost (US$ millions)	8.9	9.7	8.7	10.6
Expected Claims Payout (US$ millions)	7.9	9.6	10.5	10.3
Of which: Covered by Reinsurance (US$ millions)	4.6	5.5	4.8	4.1
Expected Claims Retained by CCRIF (US$ millions)	3.3	4.1	5.7	6.2
Premium Multiple of AAL	2.5	2.25	2.0	1.75
Total Reinsurance Multiple	1.9	1.7	1.7	2.6
Aggregate Excess of Loss Reinsurance (US$ millions)	10–120	12.5–145	20–152.5	20–131[b]
Retained Risk (US$ millions)	0–10 & 120+	0–12.5 & 145+	0–20 & 152.5+	0–20 & 131
Total Sum Insured (US$ millions)	494.8	562.1	601.2	618.2
Probability of No Claim Payout (%)	43	38	37	34
Probability of No Reinsurance Payout (%)	79	79	84	83
Actual Claims Experience (US$ millions)	0.9	6.3	7.8	17.2

[a] Includes receivables of $150,000 from Antigua and Barbuda and $1.0 million from Haiti (financed by the CDB) which were outstanding as of December 31, 2010.
[b] In the current 2010–2011 season CCRIF was unable to obtain reinsurance for the whole of the layers between $20 million and $131 million and, accordingly, retains exposure of $2.025 million within these layers.

Only two participating countries took full advantage of this, reducing their participation deposit to the minimum level of half of their annual premium. Some participating country officials who were interviewed were unaware of this option, while others decided not to take advantage of the option because it could be difficult in the government's budgeting process to raise the participation deposit again in the future if they wanted to increase cover.

While reducing participation fees is a positive development for the countries, it comes at a small cost to CCRIF in terms of interest income foregone. If all countries set their participation fees at the minimum level equal to 50 percent of their total premium, this would reduce CCRIF's assets (but not shareholder equity) by over $9 million. Based on CCRIF's past rate of annual investment return of over 5 percent this would reduce CCRIF's investment return by around $0.5 million each year.

Table 5.3b: CCRIF's Net Income (U.S. dollars)

Income/Expenditures	2007–2008	2008–2009	2009–2010	Total 2007–2010
Gross premium income	+19,488,512	+21,838,512	+21,488,509	+62,815,533
Investment income	+1,207,546	+2,597,588	+3,447,804	+7,252,938
Net reinsurance cost	0	0	0	0
Gross cost	–7,843,125	–9,277,106	–8,620,468	–25,740,699
MDTF reimburse.	+7,843,125	+9,277,106	+8,620,468	+25,740,699
Net claims paid	0	0	0	0
Gross payments	–946,997	–6,303,913	–7,753,579	–15,004,489
MDTF reimburse.	+946,997	+6,303,913	+7,753,579	+15,004,489
Net fees & expenses	–745,544	–966,157	–814,938	–2,526,639
Gross fees & exp.	–1,324,582	–1,406,171	–2,279,198	–5,009,951
MDTF reimburse.	+579,038	+440,014	+1,464,260	+2,483,312
Net income w/o MDTF	+10,581,354	+7,448,910	+6,283,068	+24,313,332
From MDTF	+9,369,160	+16,021,033	+17,838,307	+43,228,500
Net income incl. MDTF	+19,950,514	+23,469,943	+24,121,375	+67,541,832

The MDTF has been an important factor in the rapid growth of CCRIF's net income and reserves as it reimburses CCRIF for claims paid within its risk retention and for a wide range of other eligible expenditures. The latter include reinsurance costs, payments to service providers, and certain other operating and R&D expenses. The low level of CCRIF's payouts in its first three years of operation allowed it to increase its net income and build its reserves more rapidly than was projected. It also resulted in the MDTF being drawn down more slowly than expected. Barring a catastrophic event requiring a payout that exceeds CCRIF's reinsurance, CCRIF will be able to grow its reserves until the MDTF is exhausted, which is expected in 2011–2012. Table 5.3 summarizes the MDTF's significant contribution to CCRIF's net income. Information in it is taken from CCRIF's audited financial statements for May 31, 2010, but is presented in a different format.

As of end-May 2010, the end of CCRIF's third policy year, donors had contributed $67.4 million to the MDTF—Bermuda, Caribbean Development Bank, Canada, European Commission, France, IBRD, Ireland, and United Kingdom. Further contributions to the MDTF are not presently expected. The World Bank invests the undisbursed balance in the MDTF and the resulting income had added approximately another $4.7 million to the trust fund balance as of end-December 2010. World Bank administration fees amounting to approximately $1.1m were deducted. Of the total MDTF amount, $50.0 million had been committed in a Grant Agreement to CCRIF, of which $42.8 million had disbursed as of end-May. Thus, $28.0 million remained available to CCRIF as of that date, consisting of: $7.2 million committed but not yet disbursed under the CCRIF Grant Agreement, plus approximately $20.8 million that had not yet committed from the MDTF to CCRIF.

The MDTF will be exhausted in 2011–2012 and CCRIF's reserves, while not diminished as a result thereof, will grow substantially more slowly thereafter, even without large claims. In October 2010 the World Bank transferred an additional $20 million from

Box 5.3: Ideal Level of Reserves

The ideal level of reserves balances the requirements of security and value for money. CCRIF's Board and its members have a common interest in striking the right balance between the two.

Large reserves allow CCRIF to withstand large claims, while retaining more risk itself rather than purchasing reinsurance. With assets recently surpassing the declared objective at inception of $100 million, CCRIF's financial strength has grown considerably.

There is, however, a tension between reserve accumulation, which derives in part from CCRIF Members' annual premium payments, and the opportunity cost of the reserves. Given the Members' other expenditure needs, it is important for CCRIF to achieve the right balance between its own security and the value it provides to its Members. Given CCRIF's strong reserve position, it is in a good position to consider some further lowering of premium costs to the participating countries or an increase in its risk retention.

the MDTF to the CCRIF Grant Agreement, leaving a balance of slightly less than $1.0 million in the MDTF. Following reimbursements to CCRIF for the payouts to Anguilla, Barbados, St. Lucia, and St. Vincent and the Grenadines and for other the quarterly eligible expenditures including reinsurance premium, only about $4.1 million remained undisbursed under the CCRIF Grant Agreement.

5.4 Reinsurance

CCRIF uses catastrophe risk transfer instruments to protect itself against insolvency, because claims could exceed its own financial capacity. For its first four seasons, CCRIF purchased aggregate excess of loss reinsurance, which has been linked to the total level of claims made on CCRIF during the policy year, rather than to individual claims or countries. The reinsurance has consisted of a swap intermediated by the World Bank Treasury in capital markets and contracts with traditional reinsurers, for which Aon-Benfield has served as CCRIF's broker and advisor. Looking ahead to CCRIF's 2011–2012 risk transfer strategy, CCRIF considered using, as one component, Cat Bonds, intermediated through the World Bank or another financial institution, but decided that market conditions were such that this would not be financially advantageous when compared with the expected cost of traditional reinsurance.

As CCRIF's reserves have grown, it has raised its risk retention. At the same time, through 2009–2010, it also increased its reinsurance limit, thus augmenting the volume of claims it could pay without drawing on more than $20 million of its own resources. Table 5.4 illustrates the growth in CCRIF's risk retention and reinsurance. In 2010–2011, however, the amount of CCRIF's reinsurance fell, reflecting the reinsurers' concerns, described below, about the second generation HLEM that CCRIF had adopted.

The reinsurance renewal process for 2010–2011 was difficult because of reinsurers' misgivings about the second-generation loss model. First, and perhaps most importantly, based on their own models, they felt that the second-generation loss model, which KAC had developed, understated the expected loss from policies, perhaps by a factor of

Table 5.4: CCRIF's Risk Retention and Reinsurance (U.S. dollar millions)

Retained/Reinsured	2007–2008	2008–2009	2009–2010	2010–2011
CCRIF (retained)	0–10	0–12.5	0–20	0–20
Reinsured	10–120	12.5–145	20–152.5	20–131[a]
CCRIF (retained)	120–494.8	145–562.1	152.5–601.2	131–618.2

[a] CCRIF retains exposure of $2.025 million within this layer. The same should be noted with respect to CCRIF's $20 million retained risk in 2010–2011.

two. This is beneficial to CCRIF's participants but unattractive to reinsurers at current levels. For example, the claim made by Anguilla following Hurricane Earl was for $4.3 million compared to a $5 million limit, representing what CCRIF's second generation model estimated to be roughly a 1-in-100 year event. Based on their own models and on-the-ground observations of damage, however, reinsurers felt that it was really a more common 1-in-10 to 1-in-20 year event which should have resulted in a much smaller claim or even none at all. Second, the reinsurers had some concerns related to specific details of both the hurricane and earthquake models, such as treatment of the cyclical nature of hurricanes. Finally, they felt that the model was not complete, stable, and entirely accurate nor, despite KAC's and CCRIF's having provided them with data and information about the model earlier in the year, properly documented sufficiently far in advance of the renewal date.

Reflecting these misgivings, some reinsurers were reluctant to participate before having board-level conversations with the reinsurance broker, CCRIF did not quite manage to obtain all the cover it wanted, and the price it paid was higher than in previous years. Board-level discussion is unusual for a typical insurer of CCRIF's size. CCRIF retained $2.025 million of risk in the 20–131 million layer, over and above the first $20 million that it retained, thus increasing its exposure to claims by about 10 percent. In itself this is not a cause for concern given CCRIF's reserves. The price increased because only one reinsurer quoted for the reinsurance and all the cover was arranged at its rate. This gave CCRIF no room to negotiate or leverage one reinsurer's offer to obtain a better rate from another, nor could CCRIF compare prices at different layers between reinsurers. If the model had not changed, it might well have been a "flat renewal" with no change in rates.

CCRIF remains well respected by the reinsurance community, notwithstanding the community's concerns. CCRIF benefits from the considerable interest and goodwill that its special public-sector character and innovative parametric products have generated. Moreover, the intention behind the second-generation loss model is welcomed and its perceived weaknesses at launch do not appear to have harmed CCRIF's reputation.

Work is already under way to ensure that the 2011–2012 renewal is smoother. CCRIF has asked KAC to address technical issues in the model that the reinsurers raised and to improve its documentation. Also, KAC and the Facility Supervisor have been meeting with reinsurers to respond to their concerns about the model. This should strengthen the model's profile in the market as well as the reinsurers' familiarity with KAC which, as a small, new, niche organization, is not as well known in the market as EQECAT, the previous model provider.

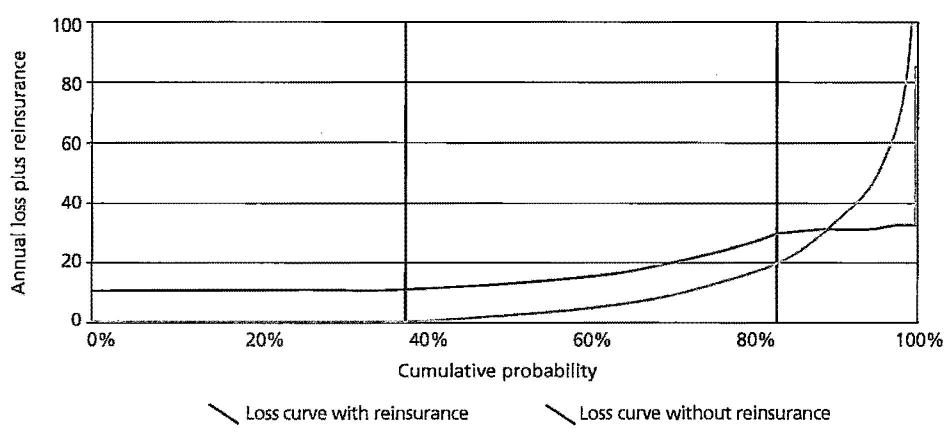
5.5 Risk-bearing Capacity

By insurance industry standards, CCRIF has strong risk-bearing capacity as is appropriate given its pioneering nature. CCRIF's level of reinsurance in 2009–

2010—covering losses from $20 million to $152.5 million ($132.5 million in excess of $20 million)—ensured that it would pay out no more than $20 million, unless the Caribbean were to have experienced a "millennial" event, i.e., a historically unprecedented series of catastrophe events with a probability of less than 1 in 1,000 years. In fact, with this amount of reinsurance, it had enough claims paying capacity for an event estimated by CCRIF's first generation model to have a return period of around 1,400 years. Moreover, drawing on its capital over and above its $20 million risk retention, CCRIF could withstand a series of catastrophe events estimated by the model to have probability of roughly 1 in 10,000 years.[21] CCRIF's risk bearing capacity in 2010–2011 is essentially the same. This is, however, no cause for unbounded optimism, as a payout resulting from a major disaster that struck three of CCRIF's largest policy holders could exceed the limit of CCRIF's reinsurance.

Reinsurance is central to CCRIF's risk-bearing capacity. Figure 5.5 shows the probability of CCRIF's annual losses for the current 2010–2011 season, without reinsurance and with reinsurance. Without reinsurance (the gray curve), CCRIF has a 34 percent chance of no loss; a 49 percent chance of a loss of less than $20 million, and a 17 percent chance of sharply rising losses in excess of $20 million. These three loss ranges are marked with the black vertical lines. The blue curve incorporates CCRIF's reinsurance and shows CCRIF's expenditure on reinsurance and uninsured losses. For the 83 percent of cases where losses are less than $20 million, CCRIF is spending $10.55 million on reinsurance

Figure 5.5: Loss Probability Curve



21 Two examples illustrate how CCRIF's total annual claims could breach $200 million, but both are very unlikely. The first scenario would be two or more storms leading to very high payouts for at least five of these CCRIF members: The Bahamas, Barbados, the Cayman Islands, Dominica, Grenada, Haiti, Jamaica, St. Lucia, or Trinidad and Tobago. The second scenario would be one big earthquake affecting Trinidad and Tobago or Jamaica and a big multi-island storm or two in the same year.

and receiving no reinsurance payment. But in return for the reinsurance premium, CCRIF can be confident that, in the absence of a millennial event, its expenditures on losses and reinsurance are capped at $32.575 million.

Deciding the amount of reinsurance to purchase requires balancing the need for protection from the risk of insolvency over the long-term against the cost of reinsurance and its effect on net income in the short-term. As the reinsurance premium paid is higher than the annual average loss, purchasing reinsurance reduces CCRIF's average net income in the short-term (barring events that result in payouts above the AAL). For example, CCRIF's AAL for 2010–2011 is calculated to be $10.32 million without reinsurance and $6.25 million with reinsurance. For this $4.07 million reduction in AAL, CCRIF pays a reinsurance premium of $10.55 million, or 2.6 times the $4.07 million reduction in expected claims. Reducing reinsurance would be expected to save CCRIF money on average but would expose it to potentially damaging large claims.

The reinsurance multiple of 2.6 times the AAL is considerably higher than previous seasons when it was between 1.7 and 1.9. This is primarily due to concerns over the second-generation loss model and a view that the quoted AAL understates the true risk. One reinsurer suggested that the true AAL could be double the quoted value, meaning that the reinsurance multiple could be half the quoted value.

Continuing to hold reinsurance against a high level of claims protects CCRIF not only from insolvency but also from the possibility that the loss model itself is not precisely correct. Despite the time and effort spent on any risk model, the probability of catastrophic hurricanes and earthquakes is difficult to quantify. For example, Hurricane Katrina in 2005 has been assessed by different organizations as both a 1-in-40 and 1-in-400 year event.[22] Similarly CCRIF cannot be sure that exhaustion of its reinsurance really is a millennial event.

Considerations of market relationships also enter into the decision regarding the amount of reinsurance to purchase. By having a higher retention in 2009–2010 than in the first two seasons, CCRIF was less likely to make a reinsurance claim, and this may have encouraged better reinsurance pricing. Also, increasing the upper limit of the reinsurance, which can be done at a relatively small cost, can make it easier to bring in an additional reinsurer.

For 2010–2011, CCRIF negotiated a reduced broker's fee substantially below the standard broker fee. The price paid for reinsurance includes a commission to the reinsurance broker Aon Benfield. The commission for the first three seasons had been determined by an agreed formula. As CCRIF has evolved from a newly-established, unknown entity of uncertain prospects to one that has robust reserves and is well-known in reinsurance markets, it has

22 "The Ascent of Money", Niall Ferguson, Penguin 2008. Page 183.

been able to negotiate a reduced fixed fee. This represents a saving of $129,000 on the previous formula. The formula itself was $224,000 less than the standard broker fee of 10 percent, meaning that CCRIF paid $353,000 less than standard.

The Board has been considering supplementing its traditional reinsurance with the use of catastrophe bonds in 2011–2012. One particular advantage of these is that they could provide cover for multiple years and would lessen CCRIF's vulnerability to volatility in reinsurance price or supply. These benefits would have to be weighed against their cost compared with the cost of traditional reinsurance and given current market conditions, the Board has shelved plans for a Cat-bond for the coming year. Familiarity with catastrophe bonds is, however, among the criteria used in the retender for a reinsurance broker as the Board will wish to be advised on an on-going basis regarding the possible use of such bonds.

It may be difficult to arrange reinsurance cover for the proposed excess rainfall product. This is an unusual and untested product and it will take time for reinsurers to get comfortable with the policies and the risk involved unless discussions start well in advance of the product launch date. CCRIF may need, or choose to, self-insure the product for the first few seasons.

5.6 Investment strategy

CCRIF has achieved its target for asset accumulation. Total assets reached $94,827,025 as of May 31, 2010, including cash of $8,044,502 held in bank accounts in the Cayman Islands and investments of $84,891,198 managed by London and Capital, administered by Citibank, and audited by Moore Stephens.[23] Assets have surpassed the $100 million target since then.

CCRIF's investment policy continues to be conservative. The policy's performance objective is to outperform the one-month U.S. dollar London Interbank Offer Rate (LIBOR) by at least 75 basis points per annum, while keeping volatility at or below a target of 3 percent per annum.[24] It requires that reserves be invested in a diversified portfolio of cash and fixed and variable rate debt instruments. It allows the manager to invest in pooled funds and use derivatives for portfolio management purposes only. Effective 2010–2011, the Board approved a change to the investment guidelines to allow investing 20 percent of the portfolio net asset value (NAV) in investment grade securities

23 Of the $1.9 million balance (the difference between CCRIF's total assets and the sum of those held in cash and with London and Capital), amounts due from the MDTF totaled $0.5 million, with the remainder accounted for by accrued interest and prepaid expenses. Note that this review does not analyze the strategy for investing the undisbursed balance in the MDTF, as the contributing donors have delegated responsibility for such investment to the World Bank.

24 In order to accommodate short-term fluctuations while still aiming for the 3.0 percent volatility target, the investment manager has a volatility allowance of 4.5 percent.

issued by specific emerging market sovereigns, state-owned corporations, and multilaterals (European Bank for Reconstruction and Development (EBRD) and European Investment Bank (EIB)). Holdings of sub-investment grade assets, a category which had previously included all emerging market issues regardless of rating, will be limited to 7.5 percent of portfolio NAV, down from 15 percent specified in the previous investment guidelines.

Performance through May 31, 2010, was strong. The investment portfolio achieved a return of 6.57 percent compared to a benchmark of 1.02 percent. Between inception and the same date, the portfolio achieved a return of 5.55 percent per annum compared to the benchmark of 1.86 percent per annum. London and Capital used derivatives to remove almost all currency risk and manage duration risk. Based on its assessment of developments and prospects in the markets and as the global economy has shown signs of recovery, it selectively increased the account's previously low exposure to lower-rated bonds and financials. London and Capital reports to the Board quarterly in detail on portfolio developments, including performance against benchmark; asset, currency, and sector allocation; portfolio concentration; and its assessment of the outlook in global financial and capital markets. It also provides concise monthly up-dates.

CCRIF reviewed its cash management strategy in 2009–2010, taking into consideration its need for ready cash for claims payment, the speed with which it could draw on the MDTF and/or its reinsurance for such a payment, and the liquidity of its investment portfolio. Following this review, it reduced its cash holdings, which stood at $8.0 million in cash at end-May 2010 compared to $17.8 million one year previously. A claim payment simulation conducted in August 2009 confirmed CCRIF's ability to draw quickly on the MDTF for claims up to $22.025 million, CCRIF's total risk retention for 2010–2011, Indeed, the World Bank's actual disbursements to CCRIF to cover the payouts to Haiti, Anguila, Barbados, St. Lucia, and St. Vincent and the Grenadines bore out this test as CCRIF received the funds within roughly 48 hours of the Bank's receipt of CCRIF's withdrawal application. CCRIF's reserves, which are already substantially larger than the $20 million retention for 2010–2011 and likely to continue to grow, are almost all held in assets which could be redeemed within three days. Finally, the claim payment simulation demonstrated that CCRIF can also call on reinsurers for claims above $20 million up to the coverage limit sufficiently quickly to permit claim payment within the time specified in the policy.[25]

Given these conditions, it is possible that adopting a benchmark longer than the LIBOR one-month cash rate currently applied could improve CCRIF's expected returns without undue risk. One possibility is the 5-year U.S. Treasury bond yield. This could align

25 CCRIF's standard policy conditions provide that the model calculation shall be made within 14 calendar days following the time at which the hurricane passes. Assuming that the modeled loss is high enough to trigger a payout, the payout is to be made within 14 business days following the model calculation, although CCRIF has the discretion to delay payment to not more than 90 days following receipt of the Insured's claim. Business days are defined as days on which banks in the Cayman Islands are open for regular business.

the investment assets' maturity better with CCRIF's liabilities, i.e., its expected claims over the next three or so years. It could better balance CCRIF's insurance risk, where unreinsured claims could vary between nil and $22.025 million (excluding scenarios having a probability of approximately 1 in 1,000 years) and its investment risk, where under its current mandate actual investment returns are unlikely to vary by more than $3 million from expected returns.

CCRIF appointed a second investment manager, EFG Bank Cayman, Ltd., at the beginning of 2010–2011. This did not reflect dissatisfaction with London and Capital's good performance, but instead the Board's desire to diversify asset manager risk. Having two managers will, however, increase fixed costs, perhaps by 25–50bp per annum, but this is deemed acceptable for the ensuing reduction in risk. Both managers are operating to the same investment guidelines. At the first Board meeting following the second manager's appointment, it was noted that the two were not using a common reporting format tied to the asset categories and limitations in the guidelines, making compliance and performance comparisons difficult. The Board has since moved to correct this.

5.7 Pricing

CCRIF considers a range of factors in determining the pricing of its policies in order to balance the interests of the participating countries and those of CCRIF and the donors that have supported its establishment and development. While the former have an interest in a strong CCRIF, they face competing demands on their limited fiscal resources and, thus, may attach even more weight to having premiums that offer the greatest perceived value-for-money. On the other hand, CCRIF and the donors, while also seeing the importance of delivering value-for-money, have had a special interest in a premium rate in the early years that would facilitate quickly building reserves so as to ensure CCRIF's financial sustainability by the time that the MDTF would be depleted.

In simple terms, catastrophe insurance pricing is a function of the AAL of the insured peril, the cost of capital, and the expense load (e.g., administrative costs). To build reserves and lower the chance of insolvency, the long-term aggregate premium contribution from participating countries must be higher than the AAL of the aggregate CCRIF portfolio in order to cover CCRIF's operating expenses, professional fees, cost of reinsurance, and other expenses. The cost of capital enters into the equation to compensate CCRIF for securing, either through its own reserves or through reinsurance, the large amounts of capital needed to ensure that CCRIF can pay on time all valid claims.

A modification of CCRIF's pricing method might be considered to capture better the impact of the individual country's policy on the risk exposure of CCRIF's aggregate portfolio. To date, CCRIF's pricing method has relied only on the individual member's AAL. This approach has the benefit of simplicity. Reflecting best practices in the catastrophe and reinsurance industries, a further refinement of pricing method would be to base the premium rates both on the individual country's AAL and on the contribution of its probable maximum loss (PML) to the PML of CCRIF's aggregate portfolio (with a given return period). With this pricing method, a country with a higher loss volatility would contribute more to CCRIF, even if its AAL were lower.

5.8 Premium Rates and Premium Levels

To date, CCRIF has deliberately pursued a well-founded policy of charging a premium that has rapidly built reserves in order to ensure that it would be in a strong financial position when the MDTF was no longer available to cover its loss retention. Aware of the participating members' needs, however, and given that CCRIF's reserves have grown more rapidly than expected, due in part to its low claims history, the Board has reduced the premium rate three times. The premium as a multiple of AAL was 2.5 in 2007–2008, 2.25 in 2008–2009, 2.0 in 2009–2010, and 1.75 in the current 2010–2011 season.

It is unlikely that the long-term premium multiple can be cut much further, although the short-term rate might vary based on claims experience. Given CCRIF's current position, its expected annual expenditure is roughly $11 million on reinsurance and risk transfer; $6.5 million on uninsured claims; $1 million on core operational and administrative expenses; and $1 million on technical assistance and research and development. This gives total expenditure of $19.5 million. An AAL of $10.3 million means that covering total expenditure requires a premium multiple of around 1.9. Assuming investment income of around $5 million would permit a reduction of the premium multiple to around 1.4. In practice the Board may choose a multiple somewhere between 1.9 and 1.4 such that the investment return would serve to increase CCRIF's reserves as its risk exposure grows because of inflation and issuance of new policies.

There are a number of reasons why the Board might change the premium rate from year to year. For example, CCRIF might lower (or raise) premium rates when it has experienced a run of low (or high) claims in order to maintain reserves that are neither excessive nor imprudent and, as just noted, CCRIF has so far been able to lower its rate. Another reason to consider varying premium rates is that reinsurance costs change through the insurance cycle because of changes in the strength of reinsurers and the level of competition among them. Varying the premium rate, either up or down depending on circumstances, would enable CCRIF to pass on to the participating countries some of the effects of its claims history and changes in its reinsurance costs, or to absorb these effects in the level of its reserves.

Despite these considerations, CCRIF was designed explicitly to buffer or shield its members from volatility in its claims history and reinsurance costs to the extent permitted by its reserves. The objective of this design was, and remains, to facilitate CCRIF's members' fiscal management. Thus, while CCRIF has passed on to its members through rate reductions the benefits of its growing and now substantial reserves, it aims to avoid to the extent possible having to pass on to its members through higher rates the effects of a possible heavy hit on its reserves and/or an increase in its reinsurance costs.

To date, the change in premium rate has been effected primarily by increasing the level of coverage and maintaining a stable premium amount. This stability has had the advantage of simplifying the participating countries' budgeting processes. This approach has also benefited the countries by providing them with greater protection, given that, at this juncture, most CCRIF members are relatively under-insured in light of the risks they face and scant capacity to self-insure. An alternate approach to benefiting from rate reductions—maintaining the same cover and lowering the premium amount—would require careful communication to ensure understanding of the difference between a country's premium for the current year and the long-term premium it should allow for in its budget. One way to do this would be to communicate the current premium as a combination of the long-term premium and an explicit profit-share.

An issue facing CCRIF is whether to differentiate its pricing between the original participants and new member countries. By charging a higher premium multiple in the early years, CCRIF's reserves are nearly $15 million higher than they would have been if it had used a constant premium multiple of 1.75 since inception. It could be argued that, having contributed to this higher reserve, the founding members should benefit from a lower premium multiple than countries that might join now, when CCRIF is already well established. CCRIF's requirements for participation deposits may be seen as setting a precedent for treating countries differently according to when they join—while the founding members now need to maintain a participation deposit equal to only 50 percent of their annual premium, new members might be required for their first three years of participation to maintain a deposit equal to 100 percent of their premium. Alternatively the Board may take a view that CCRIF should treat each season independently and that all members should benefit from the same rate and participation deposit requirements. The unique nature of CCRIF means there is no clear precedent from other organizations.

5.9 Non-financial Risks, Transparency, and Consultations

Non-financial Risks

CCRIF is aware that it faces non-financial, as well as financial risks to its sustainability. One of the biggest of these is the risk of loss of member countries. The larger CCRIF's pool of members, the more diversified are its risks and the more able it is to offer advantageously priced insurance—currently estimated at about half what members would have to pay if they approached the reinsurance industry on their own. Conversely, the fewer the participating countries, the more costly CCRIF's insurance would need to be to ensure CCRIF's financial sustainability.

Several factors may influence a member's decision to continue participating in CCRIF. These are:

- *Fiscal Constraints:* CCRIF has, as previously indicated, attempted to mitigate risks arising from its members' fiscal constraints by progressively reducing its premium rate. In addition, it has worked with the CDB and, in Haiti's case, with bilateral donors to help members obtain financial support for their premiums. Further, for 2010–2011, it took the step of reducing the requirement for participation deposits from 100 percent to 50 percent of the annual premium. This enabled interested members to draw on their deposit to pay a portion of their premiums.
- *Perceptions of Value:* CCRIF insurance coverage as a proportion of GDP varies enormously from member to member. Some of the relatively richer countries have a maximum payment under the most extreme tropical cyclone of just 0.3% of GDP. CCRIF's TA program, sponsorships for participation in conferences and workshops, scholarships, and stepped-up public communications are all intended to enhance its value and perceptions thereof. CCRIF's payouts to Haiti following the January 12, 2010, earthquake and to Anguilla, Barbados, St. Lucia, and St. Vincent and the Grenadines during the 2010 hurricane season are also likely to reinforce perceptions and understanding of CCRIF's value.
- *Extent of Understanding:* Understanding of CCRIF's insurance, while still variable throughout the region, is increasing, due in part to CCRIF's program of workshops, the availability of more information on its website, and enhanced communications and active media outreach. The lack of payouts following Hurricane Dean in 2007–2008 and Hurricane Paloma in 2008–2009 gave rise to consternation, frustration, and distress, both within official circles and the general public. Aware of this, when Hurricane Richard struck Belize in October 2010—the second hurricane that, while damaging, had not generated an index calculation or modeled loss sufficient to trigger a payout—the Facility Supervisor requested SM to develop a communications and media outreach strategy to address concerns that might arise and also approached the authorities to offer technical support to the recovery planning effort.[26]

Transparency and Consultations

The steps outlined above have all served to mitigate CCRIF's non-financial risks and CCRIF has sought to complement them with measures to increase its transparency. CCRIF's decision to hire a specialized communications firm and the subsequent publication of its Strategic Plan 2007–2012 on its website were important advances towards increased transparency. The choice of a firm with deep roots in the Caribbean and knowledge of regional institutions and media outlets appears particularly wise. From meetings with participating countries conducted for this review, it was clear that

26 As of end-2010, however, the authorities had not been able to respond with a concrete request.

the volume of communications had increased and countries were better informed, even though the level of awareness and knowledge continues to vary from country to country.

Publication of a written statement of CCRIF's key operating principles would further enhance CCRIF's transparency. This statement could be disseminated in a variety of ways (e.g., on CCRIF's website and in brochures or fact sheets that could should be made available to a broad range of member country officials, including their disaster management officials) and feedback from interested parties could be invited. Relevant principles could include the following:

- *Variability/Stability of Premium Rates:* CCRIF could describe the factors influencing premium costs, how it allows for smoothing across insurance and economic cycles, and the reasoning behind its decision (to be made) on whether requirements for participation deposits and pricing should be different for new joiners and original participants.
- *Reserves Accumulation:* CCRIF might describe its policy regarding reserves accumulation, including the choice between the level of premiums charged and the resulting risk of insolvency and its reasons for choosing a very low risk of insolvency compared to other insurance institutions. This might also address its decision, as reserves have strengthened, to lower premium rates so as to encourage increased coverage, rather than to lower premium amounts and maintain constant coverage.
- *Technical Assistance and Outreach Expenditures:* Finally, CCRIF could elaborate on its strategy that underpins its choices regarding, for example, the amount and type of spending on outreach to other Caribbean institutions, the scope and focus of the scholarships program recently announced, and participation in a wide range of international conferences and other fora.

5.10 Recommendations

CCRIF has vigorously pursued growth of its financial strength, while remaining sensitive to members' fiscal constraints and adapting its pricing and policies to ensure that its catastrophe risk insurance is advantageously priced and affordable. Its reserves have reached and now even exceed the level originally targeted. A conservative investment policy, well-executed in the face of global economic turbulence and market volatility, has contributed to this result. CCRIF has shared the benefits of its growing risk-bearing capacity with its members by progressively lowering its premium rate and reducing the participation fee requirement. As it looks to the future, the Board should:

Reinsurance and Risk-bearing Capacity

- Continue work to use the DFA model to develop dynamic strategies that describe how premiums and reinsurance might need to vary according to different future conditions such as the level of CCRIF's reserves and reinsurance market conditions.

- Commission an independent external view of CCRIF's solvency and risk management.
- Consider the costs and benefits of catastrophe bonds as an instrument for reducing the cost, broadening the base, and dampening possible volatility of its risk transfer programme.
- Continue its work, as a priority, to resolve reinsurers' concerns about the accuracy of the second-generation loss model in estimating risk, with a view toward strengthening the market's acceptance of the model and improving the terms of its 2011–2012 reinsurance.

Investment Strategy

- Explicitly consider how CCRIF's risk budget should be split between its independent components of insurance risk and investment risk to ensure appropriate diversification and weighting between the two.
- As part of this, discuss with its asset managers whether adopting a benchmark longer than the LIBOR one-month cash rate currently applied could improve CCRIF's expected returns without undue risk.

Pricing, Premium Levels, and Rates

- Consider further refining its pricing policy to capture both the AAL and the loss volatility for each individual country.
- Consider also whether the level of its reserves would support higher risk retention and/or a further reduction of the premium multiple.

Non-financial Risks, Transparency and Consultations

- Articulate and publish for consultation its key principles regarding rate setting; expenditure control, including with respect to technical assistance, charitable and broad outreach activities; reserves accumulation; and the stability or variability of premium rates and levels, including how the premium rate may be affected by changes in CCRIF's claims history and in the insurance cycle.
- Maintain its efforts to improve participating countries' understanding of the value and nature of its operations including continued proactive outreach beyond those directly involved in the decision whether to purchase CCRIF insurance to other domestic constituencies, such as national disaster management agencies and meteorological institutes.
- Strengthen, as part of this, its efforts to help its members think through the implications and consequences—pros and cons—of different attachment and exhaustion points at a given pricing rate and premium level.
- Sponsor a workshop that would bring together on a panel finance officials and DRM practitioners from all the CCRIF members that have received payouts to

share with other members and stakeholders information about how they used the payouts and the lessons learned regarding the role that CCRIF coverage can play in overall disaster risk reduction strategies.

6. Technical Assistance, Partnerships, and Outreach

6.1 Overview

CCRIF launched an ambitious technical assistance program, continued its efforts to strengthen ties with other Caribbean institutions, and substantially increased its outreach activities in 2009–2010. A centerpiece of the knowledge sharing and TA program has been CCRIF's support to the ECA project to assist selected CCRIF members to develop cost-effective climate change adaptation strategies. CCRIF also supported a number of professional development activities for DRM practitioners and began work with the Disaster Risk Reduction Center (DRRC) at the University of the West Indies (UWI) to identify candidates for scholarships which were expected to be awarded for the 2010–2011 academic year.

Awareness and understanding of the technical assistance program varied among the members and donors' local representatives who were interviewed for the Review and some donors were critical. Many of the members interviewed indicated that they had benefited from CCRIF's sponsorship for their participation in CCRIF workshops and professional development events; however, awareness of CCRIF's scholarship program, which was still being rolled out, was not widespread. Some representatives of donors' local offices were concerned that, in entering the TA field, CCRIF was going beyond its mandate. One UN-ECLAC representative and some donor representatives had questions about the TA program's objectives, how it had been approved, and its cost. In addition, they expressed concern that CCRIF's TA program might be undermining the capacity of other regional institutions. Another UN-ECLAC representative, however, and interlocutors at CARICOM and CCCCC did not share this concern.

Some of the donors' local representatives suggested an independent review of CCRIF. Specifically, they recommended that this examine, *inter alia*, the trade-offs and relative benefits for CCRIF members between using their limited fiscal resources to purchase insurance as a financial risk transfer and mitigation instrument or to make physical investments in disaster risk reduction infrastructure.

CCRIF continued to strengthen its relations with regional organizations. It signed MOUs with CEDERA (now CDEMA) and UN-ECLAC and began MOU discussions with CCCCC. It also enhanced its collaboration with CIMH under the existing MOU. SM revamped CCRIF's website and stepped up regular direct communications with members, donors, and other key stakeholders. CCRIF continued to participate in a wide range of international conferences and symposia on disaster risk management and transfer.

6.2 Technical Assistance

The TA program has its genesis in CCRIF's vision of being "a key partner with the Caribbean region in its disaster risk management strategies to support long-term sustainable development goals."[27] The program reflects the Board's desire to complement the financial support that CCRIF provides through a policy payout in the wake of a disaster with technical support to help build members' disaster risk reduction and management capacity over the long-term. In September 2009, the Board approved a program consisting of three components: (i) scholarships and professional development programs; (ii) regional knowledge building activities, including partnerships with regional institutions; and (iii) support for natural disaster committees, NGOs, and other community-based organizations in local disaster risk management. The third component remains to be launched.

The TA program is funded by an allocation from CCRIF's net investment income. The Board decided that the annual allocation could be up to 50 percent of the previous fiscal year's net investment income. Pending further definition of the specifics of the program, which was to be based in part on input from donors and CCRIF members, the Board approved in September 2009 an initial allocation of $350,000 (13.5 percent of the net investment income in 2008–2009). It was envisioned at the time that, pending further specification of the program, up to $100,000 of this amount could be used to support local initiatives, such as existing educational scholarship funds and charity initiatives, and the balance to fund longer-term specific scholarships for five students in the fields of insurance, risk management, or natural hazards.

With further elaboration of the TA program, it has grown rapidly in scope and cost. Endorsing a TA strategy and specific proposals prepared by the Facility Supervisor and

27 CCRIF Strategic Plan 2009/10 to 2011/12, revised February 2010, page 6.

SM at the Board's request, the Board approved in December 2009 the full transfer of $1.3 million, or 50 percent of 2008–2009 net investment income, to the TA Reserve. Of this, $818,219 was used or committed for future known obligations during 2009–2010. The Board allocated an additional $700,000 to the Reserve for 2010–2011, or 20.3 percent of the 2009–2010 net investment income, bringing the total available for use to $1.18 million, an ample cushion in light of the $638,000 in budgeted TA expenditures.

CCRIF's technical capacity to contribute to disaster risk management is exemplified by its relevant and well-targeted support to Haiti and several international aid agencies to help address the damage from the January 12, 2010, earthquake. CCRIF partnered quickly with CIMH and KAC to contribute to meeting the Haitian authorities' and donor agencies' needs for practical information to use in locating and managing refugee camps and to guide the reconstruction of infrastructure so as to minimize the people's exposure to the risk of flooding and landslides. This included high resolution modeling during the approach of storms to estimate storm-related rainfall, wind speed, and coastal flooding at critical locations such as aid operation centers, refugee camps, and transportation hubs. In addition, with CCRIF's support, CIMH developed simple surface water flow models which, together with historic basin-specific rainfall data, are being used to guide decisions regarding longer-term resettlement.[28]

A major part of CCRIF's TA expenditures went to support work on climate change adaptation in the Caribbean with a view to helping members prepare for COP-16 in Cancun in November-December 2010. In December 2009, the Board approved $500,000 to fund the ECA project. This was executed by the Facility Supervisor with McKinsey & Company and Swiss Re providing analytical support. The project also involved data and methodological support from CCRIF members, CCCCC, and UN-ECLAC. The Board eventually approved an additional $123,000 for use during 2009–2010 to support completion of ECA studies for eight pilot Caribbean countries, aimed at providing the facts and tools required to develop quantitative adaptation strategies that could be incorporated in national development plans to increase resilience to climate hazards.[29] An additional $20,000 is budgeted for follow-up work in 2010–2011. A particular aim of this project was to enable participating countries to make reasoned and effective proposals at COP-16 for funding from what is hoped will be a growing pool of international donor resources to support climate change adaptation investments. The project was also expected to foster relations between the DRM and climate change adaptation communities as the studies were developed.

28 Specific identified costs for this support to Haiti's recovery totaled $55,000. Of this, $40,000 went to CIMH to develop and implement the real-time high-resolution rain forecasting and modeling; $15,000 went to KAC to provide additional RTFS feeds specifically for Haiti. The cost of the Facility Supervisor's involvement in these activities was absorbed in its core service contract with CCRIF.

29 The countries are: Anguilla, Antigua and Barbuda, Barbados, Bermuda, Cayman Islands, Dominica, Jamaica, and St. Lucia. The studies provide a risk baseline for current and future losses from climate risks in three climate change scenarios and a comparative cost/benefit assessment of a range of risk mitigation and transfer measures, including physical investments and financial risk transfers through insurance.

Support for professional development activities also accounted for a large share of CCRIF's TA expenditures. The centerpiece of these activities was CCRIF's $100,000 sponsorship contribution to the Fourth Caribbean Conference on Comprehensive Disaster Management hosted by CDEMA in Montego Bay, Jamaica, in December 2009. As in previous years, CCRIF hosted the professional development seminar, this time titled, "Hazard Risk Reduction Initiatives in the Context of a Changing Climate: Prospects for Promoting Sustainable Prosperity in the Caribbean." CCRIF's monetary contribution helped, *inter alia*, to defray the costs of participation of 15 of the more than 60 representatives of ministries of finance, national disaster management agencies, and other stakeholders from around the region. In February 2010, CCRIF sponsored, in collaboration with CIMH, the CDB, and KAC, a workshop in Barbados to launch the rainfall model. Being developed by KAC under contract to CCRIF, this model will underpin the excess rainfall insurance product that CCRIF is developing and can also be used to manage risks associated with other extreme weather events such as droughts. The workshop was attended by more than 50 professionals from around the region. Also in February in Barbados, CCRIF sponsored a workshop to launch the ECA project, and this was followed by another regional workshop in Barbados in May 2010 to share the preliminary results of the project.

CCRIF is supporting its members' use of the TAOS-RTFS, which provides information of great value in disaster management. In April and again in May 2010, CCRIF sponsored two workshops by CIMH to provide training to some 20 meteorological officers from CCRIF members and other Caribbean countries in the use of the TAOS-RTFS. In addition to this, under a licensing arrangement with KAC, CCRIF is funding 96 registered member accounts for on-going access to the system. This enables them to obtain maps and tabular estimates, updated at frequent intervals, of maximum hazard intensity for wind speed, wave and storm surge height, and cumulative rainfall, estimates of the impact of varying hazard levels on their territory, estimates of the storm's operational impact on major sea and airports, and site-specific hazard and impact maps. Registered users can select up to five specific locations for which RTFS will produce such maps and tables and this is particularly useful to members' emergency management agencies, for example in making timely decisions regarding evacuations, temporary shelter, and deployment of disaster recovery staff.[30]

CCRIF is also committed to fund scholarships to help build regional capacity in disaster risk reduction and management and in related fields such as insurance and engineering. In December 2009, the Board approved earmarking $50,000 from the TA Reserve to fund scholarships for UWI students: three for students in UWI's one-year Masters degree program in disaster management and two for undergraduates entering their second year of studies at UWI in geography/geology and civil and environmental engineering. These

30 The cost of this support is $$70,000–$60,000 to KAC for the annual RTFS license and $10,000 to CIMH for its technical support to governments and CDEMA in their use of RTFS.

scholarships were awarded at the beginning of the 2010–2011 academic year through UWI's established scholarship application and selection procedures. Two additional scholarships were granted. The first, for $5,000, was awarded in July 2010 to an employee of the Meteorology Section at the Cayman Islands Airport Authority to finance participation in a one to two year distance learning certificate program in Meteorology offered by the U.S. Department of Agriculture Graduate School. The second, awarded in August 2010, was a $10,000 matching grant to a scholarship provided by Reading University to a UWI graduate from St. Vincent and the Grenadines to pursue an MSc degree at Reading in atmospheric, oceanic, and climate science.

CCRIF has been approached for advice regarding the feasibility of agricultural insurance in the region. Specifically, CCRIF's support was recently sought for strengthening Windward Islands Crop Insurance, Ltd. (WINCROP). Privately owned by the Banana Growers Associations of Dominica, Grenada, St. Lucia, and St. Vincent and the Grenadines, WINCROP provides banana producers with wind and volcanic eruption insurance. CCRIF's support was requested to explore the feasibility of covering additional perils, developing parametric products, and restoring WINCROP's finances, including through access to international capital markets. CCRIF has made no commitment to WINCROP *per se*, but is cognizant of the important contribution that a financially viable agricultural crop insurance instrument could make to sustainable development in the Caribbean. CCRIF will assess agricultural crop insurance feasibility issues, including the feasibility of options to strengthen WINCROP, as part of a broader exercise which CCRIF will undertake, subject to the availability of full funding from the German government through the Munich Climate Insurance Initiative (MCII).

Awareness and understanding of CCRIF's TA program varied among the members interviewed for this report. Many, although not all, were aware of and had benefited from the workshops and professional development events that CCRIF had sponsored. Most, however, had not heard of the scholarship opportunities, although CCRIF had put out information in that regard on its website and in its quarterly reports and other publications which were distributed to key officials. There is a risk that members might view the award of scholarships—particularly those for Caribbean nationals to study outside the region—as an *ad hoc* process lacking in transparency and equal opportunity.

Some representatives of bilateral donors' local offices were particularly critical of CCRIF's TA program, especially its support for the ECA project. They questioned the fundamental rationale for CCRIF's having developed such a program. They expressed the view that CCRIF was going beyond the purpose for which it had been established—to provide insurance—queried who had approved the program, voiced concern about its cost and benefits to the region, and noted the risk of duplication or conflict with the DRM support that they were already providing in the region. These donor representatives also stated that rather than adding to DRM capacity in the region, CCRIF's program was actually sapping such capacity. In this regard, their primary concern was CCRIF's payments to McKinsey & Company and Swiss Re for their analytical work to support the ECA project. This money, they suggested, should have been channeled through regional organizations such as UN-ECLAC and CCCCC to build capacity there. These representatives did not seem to be aware of—or did not see great value in—CCRIF's partnership with and support to CDEMA and CIMH, its MOU with UN-ECLAC, its growing collaboration and efforts to sign a MOU with CCCCC, or its programs of workshops, scholarships, and other sponsorships for practitioners and students in the region in DRM and related fields.

Some of the local donor representatives recommended that CCRIF commission an independent evaluation of its operations. This recommendation appears to have been motivated largely by the approaches that they had received from CCRIF following the January 12 earthquake in Haiti to ascertain their interest in providing additional support—either to CCRIF or to CCRIF members directly—to help the members increase their CCRIF coverage. Their dissatisfaction with CCRIF's TA program may also have been a factor. These donor representatives indicated that they continued to see a role for financial risk transfer as part of a country's comprehensive disaster risk management and reduction program. They noted, however, the trade-off between funds allocated to financial risk transfer and those allocated to physical investments that would provide a lasting reduction in vulnerability to natural disasters. An independent evaluation of the trade-offs and assessment of the right balance would be valuable, indeed crucial in their view, if CCRIF were interested in eventually obtaining additional donor support.

Views among regional organizations regarding CCRIF's TA program were mixed, but largely favorable. One UN-ECLAC representative, coming at the matter from the perspective of macroeconomic analysis of the impact of natural disasters, was critical, expressing concern that the ECA project was conflicting with UN-ECLAC's own work, and indicating that CCRIF funding allocated to that project could have been more effectively used by UN-ECLAC instead. Another UN-ECLAC representative, however, saw considerable value in CCRIF's TA program in terms of building professional DRM capacity in the region. Representatives of CCCCC and CARICOM interviewed for this review welcomed CCRIF's TA program and the prospect for collaboration.[31]

6.3 Partnerships

CCRIF expanded its formal partnership arrangements with regional institutions in 2009–2010. Adding to its MOUs already in place with CIMH and CDEMA, the Executive Chairman of CCRIF's Board signed an MOU with the Director of UN-ECLAC in February 2010. The MOU envisions collaboration to: (i) develop and enhance the knowledge base pertaining to major natural hazard risks; (ii) study the economics of

31 CIMH and CDEMA were not interviewed for this review but during interviews for the 2008–2009 review expressed satisfaction with CCRIF's support and collaboration.

climate change and the impact of natural disasters on key economic sectors such as tourism and agriculture; (iii) develop tools for decision making with respect to mitigating the economic impacts of natural disasters; and (iv) support efforts of countries in the region to develop climate change adaptation strategies. CCRIF wishes to continue its discussions with CARICOM and UWI-DRRC regarding MOUs, but these are going slowly, likely reflecting the press of urgent issues facing the heads of those institutions. CCRIF has also initiated talks with CCCCC regarding an understanding.

CCRIF has allocated funding to partner institutions to support activities envisioned in their respective MOUs. CCRIF's $100,000 sponsorship contribution to the Fourth Caribbean Conference on Comprehensive Disaster Management hosted by CDEMA in Montego Bay, Jamaica, in December 2009, and its hosting of the professional development seminar at the Conference have already been mentioned. CCRIF also increased funding to CIMH to support its collaboration with KAC and the members to develop a regional rainfall data base and it role in training member officials in use of the RTFS. In addition, the Board also approved $50,000 to be used to fund activities envisioned under the MOU with UN-ECLAC, but the latter had not as of end-2010 come forward with any specific proposals.

6.4 Outreach

CCRIF substantially stepped up its outreach to members, donors, the media, other stakeholders and the general public. SM revamped the CCRIF website to improve the look and feel, search and other technological capabilities, and the accessibility of publications, including all quarterly reports and newsletters, special bulletins, event briefings, press releases, and special publications such as those on the RTFS, preliminary results of the ECA studies, the excess rainfall model, and basic FAQs pertaining to CCRIF. Visits to the CCRIF website have trended up, with considerable spikes in the wake of major events, such as the Haiti earthquake. CCRIF now has nearly 400 direct contacts with stakeholders in members' ministries, disaster management and meteorological agencies, donor agencies, and international organizations as well as among other disaster risk, environmental management, and climate change experts and, increasingly, students. These contacts receive e-mail alerts and/or hard copies of key publications. In addition, SM regularly communicates with a wide range of Caribbean media outlets.

Notwithstanding CCRIF's significantly enhanced stakeholder and public outreach, ensuring broad awareness and understanding of CCRIF's objectives, products, services, and contributions to disaster risk management is an on-going challenge. Surprise about the size (seen by some as small, compared to the damage) of the policy payout to Haiti following the January 2010 earthquake illustrates the continuing need to build understanding of the role—limits as well as benefits—that CCRIF insurance can play in a country's disaster risk management strategy and, also, the important influence that the country's own choices with respect to policy parameters such as the attachment and exhaustion points and the ceding percentage have in determining the outcome. The views and concerns expressed by donors' local representatives about CCRIF's TA program and the members' lack of full awareness of all of its elements and how to benefit from it also illustrate the challenge. It should, of course, be recognized that gaining space in the agendas of the members' officials and bilateral donor local representatives is difficult. Personnel are stretched thin and have many pressing concerns. With respect to the donors, it should also be recognized that the views and concerns heard were expressed by a limited number of local representatives who may have different preoccupations and perspectives than their headquarters colleagues. Nonetheless, given the sway that such representatives have through their contacts with a broad range of key players in the region, it is important to continue efforts to ensure their full understanding of CCRIF's objectives and contributions, even if full understanding does not necessarily lead to full support, and to seek their feedback and advice.

CCRIF is aware of the need to continue its communication efforts. Taking note of the substantial improvements to date in CCRIF's outreach, the Board, at its December 2010 meeting, requested that SM begin to reorient the strategy to focus less on what CCRIF is and more on the role that CCRIF insurance can play in a country's overall disaster risk management strategy. A key message to convey going forward pertains to the limits of CCRIF coverage—CCRIF coverage is meant to provide an initial injection of liquidity and cannot be expected to fund a major part of a disaster recovery effort. The Board felt that managing expectations would be particularly important in the context of the launch of the excess rainfall product.

Finally, as CCRIF has consolidated its role as a key contributor to disaster risk management and innovative source of disaster risk insurance in the Caribbean, it has been invited to an increasing number of international conferences on those themes. The Executive Chairman or Facility Supervisor has generally represented CCRIF at these events. Too numerous to detail here, they are listed in Annex C.

6.5 Recommendations

In 2009–2010, CCRIF took a number of steps to increase its value to its members through a growing program of knowledge sharing and technical assistance, including support in the area of climate change adaptation; continued to strengthen its role as a regional institution through partnerships with other Caribbean institutions; and successfully increased knowledge about it through an improved website and growing direct communications with media and a wide range of stakeholders. As CCRIF looks to the future, the Board should consider:

- Making the scholarship program more transparent and accessible through targeted communications to member Ministry of Finance and other key agency facilities and soliciting nominations at regular announced times and intervals;

- Establishing and announcing an external advisory committee to aid in choosing the beneficiaries of scholarships for study outside the region, so as to have a transparent, "equal opportunity" award process analogous to UWI's established application and selection procedures;
- Periodically receiving a specific report from the Facility Supervisor on the costs incurred, funding required to support commitments, and outputs and outcomes of each major knowledge sharing and TA activity, e.g., the ECA project, hazard assessment and mapping for Haiti, development of the regional rainfall data base, training and use of the RTFS, scholarships;
- Publishing on its website key principles underlying the TA program, including the rationale, the decision-making process, and funding mechanism;
- Consulting particularly with donor representatives about the yet-to-be launched third element of the TA program—support for community-level DRM projects—with respect to matters such:
  - » the selection process and criteria;
  - » implementation procedures, including responsibility for fiduciary controls, monitoring and evaluation, ensuring use of CCRIF grants for the intended purposes, and reporting to CCRIF on project outcomes; and
  - » arrangements for coordination among donors, CCRIF, and NGOs in order to avoid conflicts and overlapping efforts;
- Exploring members' and donors' interest in CCRIF support (including possible workshops or scholarships) for developing, implementing, and enforcing modern, disaster-resilient building codes.
- Exploring also the possibility of an *ex ante* understanding with donors regarding specific kinds of feasibility or other studies that CCRIF might support in the wake of a disaster in order to ensure complementarity of donors' and CCRIFs' efforts; and
- Convening a regular meeting between the CCRIF Board of Directors and representatives of key donors—including both headquarters and local representatives—perhaps at the time of the CDB's Annual Meeting.

7. Innovations

7.1 Overview

In 2009–2010, CCRIF placed priority on finalizing the second-generation hazard loss model. Work also continued to develop the excess rainfall product, although its launch has been delayed due to methodological and other difficulties. In addition, CCRIF continued to advise CARILEC on development of a parametric insurance facility to provide catastrophe insurance to its member for their overhead transmission lines.

7.2 Second-generation Hazard Loss Estimation Model

CCRIF launched the second-generation HLEM during 2009–2010, following substantial R&D work, with a view to initiating its use in 2010–2011. Financed by CCRIF, the model has been developed by KAC under the direction of the Facility Supervisor. It has replaced the EQECAT first-generation parametric model that had underpinned CCRIF policies during its first three seasons.

The second-generation model has allowed for a refinement to CCRIF's policies and their pricing for the 2010–2011 season as the policies are now based on modeled losses rather than a parametric index formula. This enables tailoring CCRIF's hurricane and earthquake insurance coverage more closely to its members' individual needs. The model is also believed to reduce basis risk, which occurs when an insurance payout does not exactly match the actual loss. As such, after some experience is gained with the second-generation model, it could eventually facilitate lowering the attachment point on CCRIF's hurricane policies to one in ten year events, thus enhancing CCRIF's function as a joint reserve mechanism.

Introduction of the model was not smooth, with both the reinsurance community and some participating countries expressing some concerns. Some members of the reinsurance community considered that the second-generation model understated the likelihood of claims and, thus, that both policies and reinsurance were likely to be underpriced. Some countries saw large changes in their assessed risk between the first- and second-generation models and in the cost and amount of their coverage, which they found hard to understand.

Continuing to engage with stakeholders to improve understanding of the model and potentially to adjust it to allay concerns will be important. Dialogue is already underway with the reinsurance community well in advance of renewal for 2011–2012.

7.3 Excess Rainfall Coverage

Introducing excess rainfall coverage has been CCRIF's top priority for the past two years in terms of broadening its available coverage. An excess rainfall product would be of considerable interest to some CCRIF members. During interviews conducted for this review, Belize, St. Kitts and Nevis, and St. Lucia expressed considerable interest it, indicating that the rains associated with tropical storms were more damaging than the winds. Some CARICOM members—notably Guyana and Surinam, which are not yet CCRIF members—are also keenly interested.

Completion of product development has been delayed, due in part to methodological difficulties and in part to capacity constraints, but progress is being made and the Board anticipates issuing a limited number of policies in 2011–2012. The work is being carried out in collaboration with KAC and CIMH and under the Facility Supervisor's supervision. Rainfall is perhaps the most difficult area of weather and climate modeling and there exists no scientific consensus on a methodology to underpin excess rainfall coverage. Initiating the project during 2008–2009 and continuing into the 2009–2010 policy year, KAC tested three extant methodologies, building on them to develop and begin vetting with the reinsurance community a refined methodology. The paucity of historical rainfall data series also contributed to the delays. Finally, the need for KAC to focus its capacity first on finalizing the second-generation loss model for hurricane and earthquake coverage and introducing it to CCRIF members and the reinsurance community in time for 2010–2011 also occasioned delays, as has the need more recently for KAC to refine the model to address reinsurers' concerns before 2011–2012. Progress, however, is being made: an initial model has been developed and attention has turned to verifying its robustness and to structuring and pricing policies with a view to launching the product in 2011–2012.

Managing CCRIF members' expectations with respect to the scope of coverage of the excess rainfall product will be important. Experience with the hurricane coverage has demonstrated the need for careful communications to ensure that the policy holders understand the implications of different attachment and exhaustion points and what the insurance would and would not cover. A clear and well-targeted communications strategy will be all the more important for the excess rainfall product. It has no parallel elsewhere in the insurance industry. In addition, members will need to make decisions not only regarding attachment and exhaustion points, but also regarding the specific water basins to be insured.

7.4 CARILEC

CCRIF also continued to advise CARILEC on development of a parametric product to provide catastrophe coverage for its member power companies' overhead transmission lines. It is intended that the coverage will be delivered through a separate captive insurance company that will be independent of CCRIF's operations and not have a financial or risk sharing relationship with it. However CCRIF takes a keen interest in it and expects to provide support through technical assistance. Additionally two members of CCRIF's Board are expected to sit on the CARILEC facility's Board.

7.5 Recommendations

CCRIF has continually sought to innovate, improve the methodological foundations of its products, and reduce basis risk inherent in those products in order to respond better to its members' needs and increase the value of its services to them. As CCRIF looks to the future, the Board should consider:

- Assessing specifically whether potential R&D service providers have adequate capacity to deliver new products and their underlying models within the desired timeframe and, where necessary, reaching agreement with such service providers on steps to augment their capacity;
- Determining the R&D budget in light of the revenue streams expected to result from the work; and
- Developing a well-structured communications, outreach, and sales strategy for the excess rainfall product so as to impart clear information about the scope and limits of the product and ensure realistic expectations.

Annex A: Background on CCRIF

Establishment, Key Characteristics, and Operational and Governance Structure

A.1 Establishment

The Caribbean Catastrophe Risk Insurance Facility (CCRIF) was established in 2007 to provide a financial solution to the short-term liquidity needs of Caribbean governments in the aftermath of major hurricanes and earthquakes. It was the result of two years of work, undertaken following the disastrous 2004 hurricane season at the request of the CARICOM Heads of Government for World Bank assistance in improving access to catastrophe insurance. The work entailed close collaboration among the region's governments, CARICOM, the CDB and other key donor partners, the World Bank, and external experts. This work was funded by a grant from the Government of Japan and the World Bank's own resources and enjoyed the support of the Jamaican Social Investment Fund. Grants from a number of other bilateral donors were also essential to CCRIF's start-up.

A.2 Key Characteristics

Joint Reserve Mechanism

CCRIF is a joint reserve mechanism, or mutual insurance company, through which participating governments can obtain coverage akin to business interruption insurance which gives them access to a rapid financial payout in the wake of severe hurricanes and earthquakes. The speed of CCRIF's claims settlement, which is essential to its business model, is made possible by the use of parametric and modeled-loss insurance triggers derived from the catastrophe risk models designed during CCRIF's development phase (see Box 2.2). Coverage is capped at 50 percent of total estimated direct losses above a deductible, a proportion believed to be sufficient to fulfill CCRIF's objective of meeting participants' immediate liquidity needs until other sources of funds can be mobilized for their longer-term relief and reconstruction.

Reserves and Pricing

CCRIF's liquidity is competitively priced, reflecting its nature as a mutual insurance company or joint reserve mechanism. Countries' annual contributions ("premium") are

Box A.2: Catastrophe Risk Models

CCRIF's insurance policies are based on catastrophe risk models consisting of five modules that combine to produce a picture of: (i) hazard parameters for each peril (in CCRIF's case, tropical cyclones and earthquakes) at specific locations; (ii) the value of assets at risk at those locations; (iii) the damage to those assets associated with specific perils of specific intensity; (iv) the monetary losses associated with such perils at specific locations; and (v) the losses arising from the distribution of damage.

Hazard module: The hazard module defines the frequency and severity of a peril, at a specific location. This is done by analyzing the historical event frequencies and reviewing scientific studies performed on the severity and frequencies in the region of interest. Once the hazard parameters for each peril are established, simulated stochastic event sets are generated that define the frequency and severity of millions of simulated cyclone or flooding events. This module can analyze the intensity at a location once an event in the simulated set has occurred. This module models the attenuation/degradation of the event from its location to the site under consideration and evaluates the propensity of local site conditions either to amplify or to reduce the impact.

Exposure module: The exposure values of "assets at risk" are estimated either from available secondary data sources or are derived from the distribution of population. This "proxy" approach is used when the preferred specific site-by-site data are not available. Based on these data, the module computes the value for all types of exposures as a product of multiplication of the area of total building inventory and the average replacement cost per unit of inventory.

Vulnerability module: The module quantifies the damage caused to each asset class by the intensity of a given event at a site. The development of asset classification is based on a combination of factors, which are construction material, construction type (say, wall and roof combination), building usage, number of stories, and age. Estimation of damage is measured in terms of a mean damage ratio (MDR). The MDR is defined as the ratio of the repair cost divided by replacement cost of the structure. The curve that relates the MDR to the disaster (earthquake or hurricane) intensity is called a vulnerability function. Each asset class and building type will have its own vulnerability curve for each peril.

Damage module: To calculate losses, the damage ratio derived in the vulnerability module is translated into a dollar loss by multiplying the damage ratio by the value at risk. This is done for each asset class at each location. Losses are then aggregated as required. Government assets or assets that are likely to be financed with government resources can be easily isolated and an assessment of financial needs for reconstruction calculated. Based on the likely timing for reconstruction, these costs can be ventilated between short-, medium-, and long-term financial needs.

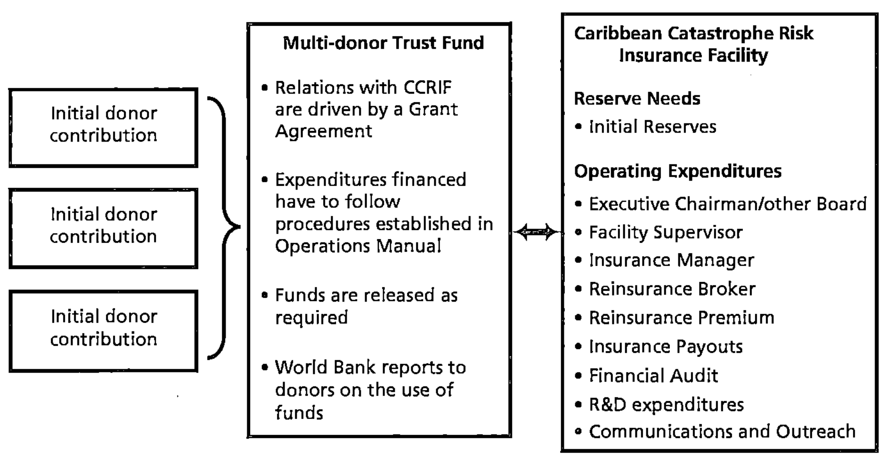
Loss module: The module estimates the losses from the damage distribution. When dealing with government losses, this module estimates relief and recovery costs and tax revenue losses.

set at a level that covers expected losses and operating costs, including reinsurance costs, and allows for net reserve growth. CCRIF's reserve assets and its role as a risk aggregator are essential to the low cost of its insurance to its members, as is its not-for-profit status and mission.

CCRIF's strong reserve base allows it to retain some of the risk transferred by participating governments. This helps to lower its costs. The stronger CCRIF's reserves, the less reinsurance it needs to purchase in traditional reinsurance markets or finance in capital markets in order to secure enough capital to assure full payment of claims after a major disaster.[32] In addition, as CCRIF's reserve base grows and it retains more risk, it is able to smooth the cost of risk transfer, which is highly variable and cyclical in the commercial reinsurance market, and provide the benefit to its members of greater premium stability.

Donor funds held by the World Bank in the MDTF have helped CCRIF to build its reserves. Bermuda, Canada, France, Ireland, the United Kingdom, the CDB, the European Union and IBRD have contributed approximately $67.4 million to the MDTF. These funds cover some of CCRIF's operating expenses, including contracts with service providers that are approved for reimbursement, the cost of reinsurance, insurance payouts, and research and development and communications costs. These reimbursements have helped CCRIF use a larger share of its members' contributions to help build its own reserves and thereby to reduce its need for expenditures on reinsurance (see Figure A.2a).

Figure A.2a: The CCRIF Multi-Donor Trust Fund: Flow of Funds Contributed by Partners



32 It is important to note, however, that, as discussed elsewhere in this report, CCRIF would face the risk of insolvency in the case of events or a series of events with an extremely low statistical probability of occurring.

Risk Pooling and Pricing

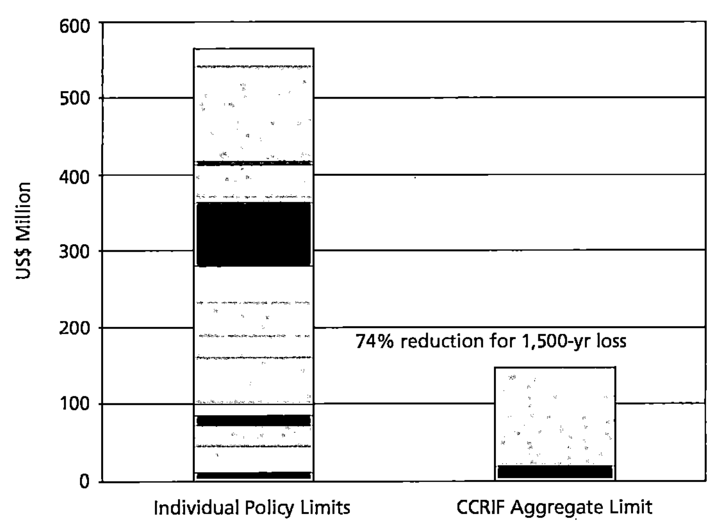
CCRIF's role as a risk aggregator is essential to the low cost of its coverage by allowing its members to pool their individual risks into one, better-diversified portfolio. The cost of catastrophe insurance depends to a significant degree on the variability of the risks that are being insured. As it is very unlikely that all Caribbean islands would be hit by major hurricanes or earthquakes in any given year, pooling country-specific risks within a regional portfolio generates risk diversification benefits that reduce the aggregate cost of coverage to less than the sum of individual costs of coverage. In the case of the CCRIF, pooling country-specific risks is estimated to reduce the cost of individual insurance premiums by almost half of the cost of coverage an individual government would have to pay if it approached the reinsurance market independently.

Figure A.2b illustrates the benefits of risk pooling. It compares the sum of the individual policy limits and the CCRIF aggregate limit under CCRIF's 2008–09 insurance portfolio. The comparison shows that the CCRIF aggregate limit, which is estimated to sustain a 1-in-1,500-year event, is 74 percent lower than the sum of individual policy limits.

Policy Terms, Conditions, and Pricing

CCRIF offers flexible terms and conditions that allow its members to tailor the coverage to their own catastrophe risk financing strategy. CCRIF members decide whether to obtain coverage for earthquakes, tropical cyclones, or both, and determine the frequency

Figure A.2b: CCRIF Value of Risk Pooling



Source: CCRIF 2008.

and severity of the perils they wish to cover. In doing so, they factor in a number of considerations, including the premium they wish to pay, their access to other domestic or external sources of finance in the event of a disaster, and the speed with which they could access this finance following the disaster.

Policies are priced individually according to the characteristics of the coverage that each participating government chooses. Once the country has decided on the kind of coverage to purchase, the CCRIF model is used to calculate the average annual loss (AAL). The premium is set as a multiple of the AAL, in order to cover the combined cost of AAL, CCRIF's operating costs, and its needs for reserve growth in line with its reinsurance strategy. Since its first season, CCRIF has reduced this premium rate by 30 percent.

Coverage and Payouts

Participating countries decide on the parameters of their coverage. These are described below, and the payout that might result from those choices is illustrated in Table A.2. The procedure is broadly similar for earthquakes and tropical cyclones. For the sake of simplicity, this example only looks at tropical cyclones (hurricanes).[33] Hurricane policies are based on a formula that takes as inputs the speed and location of a cyclone and estimates the likely damage caused to assets in the cyclone's path using the catastrophe risk methodology outlined in Box A.2. The formula is based on scientific research, using historical tropical cyclone data and available information regarding assets.

The example looks at a parametric policy of the type in force during the 2009–2010 season rather than the modeled loss policy in force during the 2010–2011 season. Claims arising from the parametric policy can be modeled using a simple spreadsheet and illustrated in the tabular form shown below. The modeled loss policy is much more complex and does not lend itself readily to this treatment.

The policyholder needs to make three decisions. These decisions are the same under the parametric and modeled-loss policies:

- The severity of the event that gives rise to a payment. This is called the "attachment point". Under the CCRIF's current policy parameters, this cannot be more frequent than a 1-in-15 year event, that is, an event of such catastrophic proportions that it is statistically unlikely to occur more frequently than one in fifteen years. For 2009–2010, CCRIF members chose attachment points between 1-in-15 and 1-in-50 years. The example below is based on an attachment point of 1-in-30 years.
- The severity of the event above and beyond which the maximum payment is triggered. This is called the "exhaustion point". For 2009–2010, CCRIF members

33 The terms "tropical cyclone" and "hurricane" are used interchangeably in this report.

chose exhaustion points between 1-in-75 and 1-in-180 years. The example below is based on an exhaustion point of 1-in-125 years.

- The dollar amount of the maximum payment. This is called the "coverage limit". This will depend on the size and assets of the country. For 2009–2010, CCRIF members chose coverage limits between ~$1m and ~$104m. The example below has a coverage limit of $26.0 million.

A payout under a parametric policy would depend on the cyclone's wind speed and path in relationship to the country's territory and on the attachment and exhaustion points and coverage limit that the country had chosen. (Under the modeled loss the payout is calculated from much more detailed modeling.) The payout increases as the wind speed increases and as the distance between the eye of the storm and the point(s) of measurement diminishes. Table A.2 illustrates the payout for a hypothetical country following a hypothetical hurricane, calculated using the formula that incorporates these variables.[34] Each cell in the table shows the payout amount for a tropical cyclone of a particular wind speed and location. The "staircase" lines divide the payments into three bands:

- If the cyclone is relatively mild and would occur more commonly than the attachment point, no payment would be made. Such events are in the blue band of the table. For example, a wind speed of 100km/h at any distance is a more common occurrence than the selected attachment point of 1-in-30 years in this example and would not give rise to a payment.
- If the severity of the cyclone falls between the selected attachment and exhaustion points, the payment would be between the premium amount and the coverage limit, depending on its severity. These events are in the light blue band. For example, a wind speed of 200 km/h at a distance of 40 km has a rarity between 1-in-30 and 1-in-125 years and would give rise to a payment of $9.1 million, i.e., less than the coverage limit.
- If the cyclone is very severe and would occur more rarely than the exhaustion point, the coverage limit would be paid. Such events are in the gray band. For example, a wind speed of 250km/h directly overhead, or a wind speed of 300 km/h that is 20km away are both rarer than the exhaustion point (1-in-125 year event) and either of these would give rise to the maximum payment of $26.0 million.

A.3 Operational Structure

CCRIF has a lean operational structure. Its governing body is the Board of Directors, which is comprised of representatives of its members and the contributing donors. The Board of

34 The calculations are for illustrative purposes only and do not replace the formal claims procedure. They are based on an actual policy for the 2009–2010 season, but make some simplifications regarding the precise locations of the measuring points and the direction and speed of the progress of the cyclone. The numbers are approximate. They assume only one measurement point and a tropical cyclone that passes from due-east to due-west at a speed of 12 knots.

Table A.2: Hypothetical Payouts (U.S. dollar millions)

	Distance (km)											
Wind speed (km/h)		0	10	20	30	40	50	60	70	80	90	100
	300	26.0	26.0	26.0	26.0	26.0	23.8	10.7	4.2	0.9	0.0	0.0
	275	26.0	26.0	26.0	26.0	26.0	16.6	6.8	2.1	0.0	0.0	0.0
	250	26.0	26.0	26.0	26.0	24.9	10.7	3.7	0.9	0.0	0.0	0.0
	225	26.0	26.0	26.0	26.0	16.0	6.1	1.4	0.0	0.0	0.0	0.0
	200	26.0	26.0	26.0	20.6	9.1	2.6	0.0	0.0	0.0	0.0	0.0
	175	14.9	14.9	14.9	11.1	4.0	0.9	0.0	0.0	0.0	0.0	0.0
	150	6.6	6.6	6.6	4.5	0.9	0.0	0.0	0.0	0.0	0.0	0.0
	125	1.3	1.3	1.3	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Directors is supported in its work by the Insurance Manager, who is responsible for advice on regulatory matters, financial reporting, and corporate secretarial functions, and by the Facility Supervisor, who is the principal technical advisor and responsible for the day to day operations of the Facility, including overseeing the work of R&D and communications service providers. The CCRIF has no fulltime staff positions *per se*; all its service providers are on a term contract basis. The duties and responsibilities of each key actor in the CCRIF and critical operations processes are delineated in the Operations Manual.

The *Board* is responsible for all strategic and critical operations decisions relating to the CCRIF. The duties of the Board members are mandated under Cayman law and additional responsibilities are set out in the CCRIF's Operations Manual. The Board is headed by an Executive Chairman who is appointed by the four other Board members. In summary, the duties of the Board include but are not limited to: (a) ensuring that the CCRIF is operating within the mandate of the business plan as approved by the

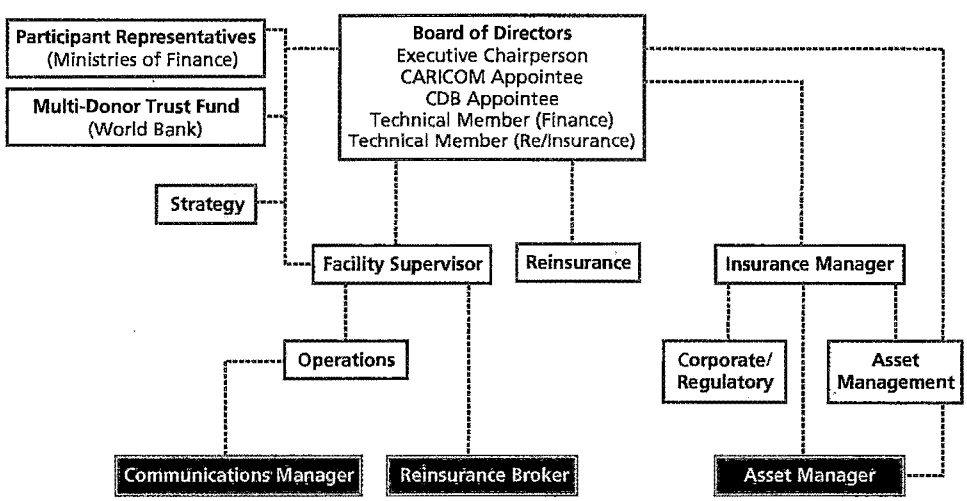
Cayman Islands Monetary Authority; (b) reviewing and approving the annual budget, any changes to the CCRIF Operations Manual, the annual risk transfer placement and financial structure, any changes to the coverage provided under the parametric insurance policy, any changes in the annual premiums charged to member countries, annual financial statements and annual audit results; (c) establishing investment guidelines; (d) selecting and overseeing the performance of the service providers; and (e) new forms of coverage for additional types of perils.

Under Cayman law, the ***Insurance Manager*** is responsible for providing insurance expertise to the CCRIF, ensuring that the CCRIF complies with its legal, accounting and regulatory obligations. The Insurance Manager's duties are mandated under Cayman law and additional duties are delineated in the Operations Manual. The Insurance Manager is the Registered Agent and his office is the principal designated office of the CCRIF. Additionally, the Insurance Manager is responsible for financial reporting and carries out corporate secretarial functions, including organizing and managing the Board's meetings and recording and following up on decisions emanating from those meetings.

Sagicor Insurance Managers Limited (Sagicor) is currently performing the role of Insurance Manager for the CCRIF. The Company was hired in March 2007. At the end of a competitive process in June 2009, Sagicor obtained a new three-year contract.

The *Facility Supervisor* is responsible for CCRIF's day to day operations. The duties of the Facility Supervisor include but are not limited to: (a) risk management, including

Figure A.3: Operational Structure of the Facility[1]



[1] CCRIF Annual Report 2008–009, page 4. Note, however, that the Trust Deed stipulates that the "technical" Directors are also appointed by CARICOM and CDB.

monitoring the risk structure of the CCRIF and advising the Board on risk transfer strategies; (b) financial planning; (c) participant interface, including participant policy/ claims administration; (d) directing and overseeing research and development to develop policies for additional types of perils; (e) overseeing the functions of the Reinsurance Broker, and the Corporate Communications Consultant; and (f) ensuring compliance with the fiduciary aspects of the MDTF administered by the World Bank. The Facility Supervisor's duties are set out in the Operations Manual.

Caribbean Risk Managers Limited (CaribRM), a highly specialized firm (a member of the CGM Gallagher Group), was selected competitively during the design phase of the CCRIF and since then has been performing the role of Facility Supervisor. CaribRM's contract was renegotiated in August 2010 and has a three-year term, subject to satisfactory performance.

The ***Reinsurance Broker*** is responsible for all aspects of risk transfer to the traditional reinsurance market and /or alternative risk transfer markets in accordance with the Risk Transfer Strategy approved by the Board, with a view to obtaining the best reinsurance terms and conditions for the CCRIF. The Reinsurance Broker's specific duties include but are not limited to: (a) reinsurance placement according to the risk transfer strategy approved by the Board; (b) reinsurance administration including reinsurance premiums collection and reinsurance claims settlement; (c) collection of market intelligence and other market monitoring; and (d) assistance to the Facility Supervisor in developing reinsurance placement and other risk transfer strategies. In the day to day execution of his duties, the Reinsurance Broker reports to the Facility Supervisor, under the overall direction of the Board.

Aon Benfield Limited performed the role of Reinsurance Broker during CCRIF's first four years of operation and was selected for this role through competitive tender in January 2007. Remuneration for the Reinsurance Broker's services during CCRIF's first three years of operation was embedded in the cost of the reinsurance rather than reimbursed under a contract, but for 2010–2011 was changed to a fixed fee. The contract for reinsurance broker services is being retendered with a view incepting the new contract on April 1, 2011.

The ***Asset Managers*** are responsible for investing CCRIF's funds in conformity with the Statement of Investment Principles and Policy and Investment Guidelines approved by the Board. The duties of the Asset Managers include but are not limited to: (a) allocating assets; (b) identifying, establishing and maintaining appropriate third party custodial arrangements for all investment assets; (c) preparing monthly statements of investment performance and detailed quarterly reports to the Board on, among other things, performance against benchmark for the period under review. In the day to day execution of their duties, the Asset Managers report to the Insurance Manager, under the overall direction of the Board.

London and Capital Asset Management Limited was competitively selected from among five shortlisted candidates in March 2008 and has served as one of CCRIF's Asset Managers since then. With the growth of CCRIF's assets, the Board decided to diversify their management and at the beginning of 2010–2011, EFG Bank Cayman, Ltd., was selected from among three short-listed candidates as CCRIF's second Asset Manager

The *Corporate Communications Consultant* is responsible for implementing CCRIF's Communications Plan with a view to assuring proactive and thorough dissemination of information to enhance understanding of CCRIF's role and further its overarching strategic objectives. The duties of the Corporate Communications Consultant include but are not limited to: (a) creating and maintaining a website to support the CCRIF; (b) collecting content throughout the year and producing the CCRIF's annual report; (c) preparing materials for and providing support in meetings, workshops and seminars involving current and potential new clients, donors and other stakeholders; and (d) coordinating the annual strategic planning session and monitoring progress towards fulfillment of strategic goals.

Sustainability Managers (SM), headquartered in Jamaica, currently performs the role of Corporate Communications Consultant and was selected through competitive tender in the first half of 2009.

CCRIF's operating procedures are set out in the Operations Manual (OM). The OM reflects current policies and procedures that are consistent with Cayman Law, the conditions set out in agreements with the Service Providers, and the requirements of the World Bank-administered Grant agreement[35] The OM also sets out policies and procedures concerning planning and reporting, regulatory framework, claims verification and administration procedures as well as a Code of Conduct applicable to all Board members and service contractors alike. This Code enumerates relevant principles in areas including: conflicts of interest, ethical conduct and reporting irregularities. The Insurance Manager has the responsibility to ensure that CCRIF's operations are consistent with the OM and, thus, the Board reviews it at least annually, approving any necessary policy and/or operational changes. Pursuant to CCRIF's Grant Agreement with the World Bank, any changes to the OM must be found satisfactory to the World Bank before being implemented.

A.4 Governance Structure

CCRIF is an exempted company incorporated under the laws of the Cayman Islands.[36] It holds a Class B insurance license under the Insurance Law (as revised).[37] The CCRIF

35 These requirements include those relating to anti-fraud and corruption, financial records, and procurement of goods and services.
36 Companies Law (2004 Revision). CCRIF's Articles of Association, pursuant to that Law, were adopted on May 11, 2007.
37 Cayman Islands Special Trusts (Alternative Regime) Law, 1997.

STAR Trust (Trust) is governed by a Trust Deed and is administered by a Trustee. The sole purpose of the CCRIF Trust is to own 100 percent of the Facility, and the main purpose of the Facility is to provide catastrophe insurance coverage to participating countries, which are the beneficiaries of the Trust. An Enforcer was appointed and oversees the Trust.[38]

CCRIF is governed by a Board of Directors, with no more than five Directors holding office at any time.[39] Directors must be acceptable to the Cayman Islands Monetary Authority (CIMA), which is CCRIF's regulator. The Trust Deed provides for the Board of Directors to be appointed by the Trustee, two on written instructions from the Secretary General of CARICOM and two on written instructions from the President of the CDB.[40] These Directors represent the participating countries and the donors, respectively. CCRIF's Operations Manual further specifies that two of the Directors, approved by both CARICOM and the CDB, should have specialized expertise, one in insurance and the other in finance. The four Directors are appointed for three-year terms and may serve no more than two consecutive terms. The Articles of Association provide that the four Directors appointed in this fashion may select an Executive Chairman to perform the functions and for the period of time that they determine.[41] The current Executive Director has been in place since CCRIF's establishment. Subject to performance, his contract extends through end-2013, which will mark the end of his second consecutive three-year term.

The Trust Deed also provides for an Enforcer. Broadly put, the Enforcer has the duty of overseeing the proper execution of the Trust and resolving, including through legal proceedings, any conflicts between CCRIF's operations and the Trust Deed. The Enforcer or the Secretary General of CARICOM may appoint an Enforcer, and the Secretary General has the power to remove the Enforcer.[42]

The Directors' duties are established under the Cayman Islands Corporate Law and further specified in the CCRIF Operations Manual. The Operations Manual also establishes a code of ethics for the Board, as well as for service providers. In fulfilling their duties, the Directors meet in person at least twice annually and more frequently, whether in person or by telephone or video conference, at their discretion. As specified in the Operations Manual, the Directors approve the:

- long-range Strategic Plan;
- annual business plan;

38 The CCRIF STAR Trust, Declaration of Trust made May 16, 2007, with Q & H Corporate Services, Ltd., as the Original Trustee, acknowledged by Mr. Richard Carpenter in his capacity as Enforcer.
39 Articles of Association, paragraph 74, page 16.
40 Trust Deed, Schedule 3(ii)(B), page 15.
41 Articles of Association, paragraph 101, page 22.
42 Trust Deed, Section 8, pages 4 and 5.

- guidelines and performance measures for each contractor, reviewing the performance of the Facility Supervisor and Insurance Manager annually;
- financial structure, risk management and reinsurance plan;
- new products and services;
- annual budget;
- investment guidelines;
- annual audited financial statements; and
- public relations guidelines and communications plan.

CCRIF's financial statements are audited annually by an independent external auditor, as required by Cayman law and the CCRIF establishment documents. Audits are prepared according to US Generally Accepted Accounting Principles (GAAP).

Annex B: A Review of CCRIF's Operations After Its Second Season

Status of Recommendations

Recommendation	Status
Chapter 4 – Operational Structure	
1. Ensure that the OM remains current and reflects consistency with other relevant documentation and the CCRIF's practice and procedures.	Done in 2009–2010. Annual review and up-date in progress for 2010–2011.
2. Continue to enhance direct communication between CCRIF and a broader range of the participating countries' agencies and officials through targeted dissemination of quarterly newsletters and other CCRIF publications and, to the extent feasible, through in-person contacts.	Direct communications have been substantially stepped up with an expanding range of stakeholders.
3. Document carefully decisions regarding contract extensions and retendering.	While minutes of Board meetings record procurement decisions, they do not always clearly indicate that the decision was based on the recommendation of a selection committee, nor encapsulate the criteria on which the recommendation was made.
4. Commission periodic independent technical and actuarial audits of existing and new products to strengthen further the Board's oversight of the relevant operational functions and enhance the market acceptability of those products.	Board may consider doing so at some point after the excess rainfall product is launched.

(*continued on next page*)

(continued)

Recommendation	Status
Chapter 5 – Financial and Risk Management; Investment Management; Budget	
Reinsurance and Pricing	
5. Assist its members to think through how best to benefit from changes in the premium rate, whether by increasing their coverage or by reducing their premium amount.	Members interviewed for the 2009–2010 review indicated a greater need for assistance in thinking through the implications of different attachment and exhaustion points within the selected premium level.
6. Consider a further refinement in its pricing policy and whether reserves are now at a level that would support higher risk retention and/or a further reduction of the premium multiple.	The Board reduced the premium level for 2009–2010, the third such consecutive reduction. For the sake of simplicity the Board opted for the time being to continue pricing solely on the individual member's AAL, rather than on a combination of AAL and PML.
Actuarial Review	
7. Commission a periodic Statement of Actuarial Opinion (SAO) on its solvency position and an annual or biannual actuarial report on its risk management strategy.	CCRIF has continued to run its own DFA.
8. Continue work to use the DFA model to develop dynamic strategies that describe how premiums and reinsurance might need to vary according to different future conditions such as the level of CCRIF's reserves and reinsurance market conditions.	CCRIF has continued to run its DFA.
Investment Management	
9. Readjust the investment policy to match asset and liability maturities better and facilitate investing in less liquid assets that could give a higher return.	CCRIF reassessed and reduced its cash holdings, but has not changed its investment guidelines as they pertain to the liquidity of assets that can be held in the portfolio, or to the benchmark return.

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Recommendation	Status
Reducing Non-financial Risk – Communications with Member Countries	
10. Articulate and publish for consultation its key principles regarding rate setting; expenditure control, including with respect to technical assistance, charitable and broad outreach activities; reserves accumulation; and the stability or variability of premium rates and levels, including how the premium rate may be affected by changes in CCRIF's claims history and in the insurance cycle.	CCRIF significantly stepped up its communications outreach efforts, but has not put out for consultation an articulation of its key operating principles.
11. Continue efforts to improve participating countries' understanding of the value and nature of its operations to mitigate the risk that members' current fiscal constraints may induce withdrawals, including efforts to reach beyond those directly involved in the decision whether to purchase CCRIF insurance so as to build understanding within other domestic constituencies, such as national disaster management agencies and meteorological institutes.	CCRIF significantly stepped up its public communications efforts and is reaching a much broader range of stakeholders, including national disaster management agencies.
12. Look for more frequent opportunities for workshops, such as is being planned to introduce the new excess rainfall coverage, to share lessons learned regarding the role that CCRIF coverage can play in overall disaster risk reduction strategies.	CCRIF sponsored workshops for technical experts on its second generation HLEM, the excess rainfall model, the TAOS-RTFS, and the ECA project.
Technical Assistance and "Broad Mandate" Budget	
13. Seek feedback from key stakeholders (including donors and participating countries) on its technical assistance and broad outreach activities to ensure that they are demand-driven.	CCRIF has had preliminary discussions with DFID and CIDA regarding collaboration on the third pillar of CCRIF's TA program, the community based DRR projects pillar. Informal feedback from participants in the workshops that CCRIF has hosted indicates that they have been well-received. CCRIF has not, however, undertaken a more formal effort to elicit input from stakeholders regarding desired TA activities going forward.

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Recommendation	Status
14. During consultations on possible technical assistance activities, explore, *inter alia*, members' interest in support for developing, implementing, and enforcing modern, disaster-resilient building codes.	CCRIF has provided support for meetings of the Caribbean chapter of the Institute of Structural Engineers. It also offered support for "build back better" workshops in Turks and Caicos Islands following Hurricane Ike in 2008, but its support was not needed due to the amount of funding available from other donors. CCRIF is currently exploring with the World Bank possibilities for collaboration on Pilot Program for Climate Resilience projects in the Caribbean.
Chapter 6 – Governance Structure	
15. Redouble efforts to complete the Board transition to a membership fully constituted as envisioned in the provisions of the Trust Deed.	The transition was completed in September 2010.
16. Consider the merits of transitioning the post of Executive Chairman to a full-time position, for example whether this could allow for a better balance of representational responsibilities between the Board and significantly step up the CCRIF's direct contacts with participating countries, CARICOM, and donors, strengthening appreciation of its value as a regional institution.	The Board discussed this option, but decided against it. The post continues to be designated part-time and, with the objective of reducing business continuity risks, the incumbent's contract has been extended through December 31, 2013, by which time he will have completed the maximum six consecutive years of service.
17. Make concerted efforts to strengthen CCRIF's relationship with CARICOM, perhaps by enlisting the direct support of COFAP (the CARICOM Council of Finance and Planning Ministers) or by involving some of the participating countries, particularly those that have received payouts.	CCRIF continued to try to engage CARICOM, but the process was difficult. CARICOM did nominate a Director whom the Trustee appointed consistent with the Trust Deed and has indicated its willingness to provide someone from its General Counsel's office to serve as Enforcer (replacing the current Enforcer), but has not yet provided a name. Efforts to sign a MOU between CCRIF and CARICOM have not progressed.
18. Consider increasing CCRIF's transparency, not only through its ramped up communications strategy and the publication of its key principles, as already recommended, but also by making the minutes of its Board of Directors meetings publicly available.	CCRIF significantly stepped up its communications outreach efforts, but the Board decided against making the minutes of its meetings publically available.

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Recommendation	Status
Chapter 7 – Interactions with Stakeholders	
19. Continue to expand CCRIF's stakeholder relationships in the participating countries by further engaging disaster risk management and meteorological specialists, as well as officials from ministries of finance and planning, to improve CCRIF's transparency and increase understanding of its vital role as an element of broader disaster risk management plans	CCRIF has expanded its stakeholder relationships, including by inviting representatives of disaster risk management agencies and hydrometeorology institutes to its workshops.
20. Creating more structured opportunities for the Directors to meet with representatives of participating governments and donors to share lessons learned from CCRIF's operations to date and to discuss and get feedback regarding changes in CCRIF's modeling tools and coverage, pricing methodology, governance structure, and strategic directions.	CCRIF hosted a number of workshops for member countries' technical experts (see #12). Other contacts with member countries officials occur primarily at the time of policy renewal, an event triggering a payout, or on the fringes of international conferences. Contacts with donor representatives based in the Caribbean are *ad hoc*.
Chapter 8 – Innovations	
21. Employ a professional technical writer on a short-term contract to work with the Facility Supervisor, the Reinsurance Broker and, as necessary, an actuary to develop materials for distribution to member country officials, partner institutions, donors, and other relevant stakeholders to articulate the differences between the first- and second-generation loss models and explain the excess rainfall product.	CCRIF's communications consultant and Facility Supervisor collaborated to produce a brochure and workshop materials explaining the second-generation HLEM and how it diverges from the first generation model.
22. Undertake a broader expert elicitation across top research institutions for the development of any further new products, while recognizing that R&D may not always lead to a new product, as there may be insufficient data to realize them.	CCRIF's focus remains on having KAC refine the second generation HLEM and complete the excess rainfall product, work on which began two years ago. CCRIF continues to support CARILEC's efforts to develop a parametric product and may increase its support R&D regarding the feasibility of agricultural crop insurance, but is not likely to offer such products under the CCRIF brand.

Annex C: CCRIF's Participation in International Conferences and Meetings

Illustrative List for 2009–2010[a]

Date	Conference	Location
2009		
June	Safe Hospitals and Other Critical Facilities Conference[b]	Barbados
	Seismic Mitigation in the Caribbean Region Assembly	Martinique
July	Swiss Re Centre for Global Dialogue "Economics of Climate Adaptation" Summit[c]	Ruschlikon, Switzerland
	CDB Symposium on "Climate Change in the Caribbean"[c]	Barbados
	Alliance of Small Island States Negotiators' Preparatory Workshop for COP-16[c]	Grenada
September	World Forum of Catastrophe Programs[d]	Taipei, Taiwan
	Regional Ministerial-level Meeting on Climate Change and Development[c f]	St. Lucia
	Expert Workshop on Role of Insurance in Climate Adaptation by the Most Vulnerable People and Countries[c]	Bonn, Germany

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Date	Conference	Location
	United Nations University panel discussion, "How risk reduction and insurance strengthen the adaptation package in a Copenhagen Agreement"[c]	New York, New York
October	Response Mechanisms to natural Disasters: Experiences in Mexico, Central America and the Caribbean[c]	Panama City, Panama
November	CIMH Board of Governors Meeting	Tortola, BVI
	PANOS Sectoral Workshop on Climate Change and Insurance[e, g]	Kingston, Jamaica
	CARILEC Board Meeting	St. Lucia
	UN-ECLAC meeting on "Macroeconomic Modeling in the Caribbean"[c]	Trinidad
December	Professional Development Session, "Hazard Risk Reduction Initiatives in the Context of a Changing Climate: prospects for Promoting Sustainable Prosperity in the Caribbean" at the 4th Caribbean Conference on Comprehensive Disaster Management, "Strengthening CDM through Youth & Community Empowerment"[c, h]	Montego Bay, Jamaica
	Caribbean Media Exchange on Sustainable Tourism and Climate Change[i]	St. Lucia
	National Insurance Commissioners Meeting[d]	San Francisco, California
	Symposium on Agricultural Risk management[j]	Georgetown, Guyana
	International Conference on Seismic Risk Mitigation[c]	Istanbul, Turkey
	2010	
February	Reinsurance Association of America Conference, "Catastrophe Modeling 2010: Probabilities and Possibilities"[c]	Orlando, Florida
	14th Meeting of the CARICOM Council for Finance and Planning (COFAP)[d]	Trinidad

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Date	Conference	Location
March	Marketplace on Innovative Financial Solutions for Development[c, k]	Paris, France
	Financial and Private Sector Development Forum: "Getting Back to Business"[c, l]	Washington, DC
	Caribbean Regional Review Meeting of the Mauritius Strategy for Further Implementation of the Barbados Programme of Action[c, m]	Grenada
	CIF Partnership Forum 2010, "Building Alliances for Climate Resilience"[c, n]	Manila, The Philippines
April	Barbados Hotel and Tourism Association Annual Disaster Management Symposium[c]	Barbados
May	11th Caribbean Conference on Sustainable Tourism Development[c]	Barbados
	"Fighting for Survival: Climate Change and the Vulnerability of America's Gulf Coast and the Caribbean"[c]	New Orleans, Louisiana
	Regional Workshop of the Caribbean Emergency Legislation Project (CELP)[c]	St. Lucia

[a] June 1, 2009, to May 31, 2010.
[b] Co-sponsored with Caribbean Division of the Institution of Structural Engineers in partnership with the Pan American Health Organization, Council of Caribbean Engineering Organizations, and the Barbados Association of Professional Engineers.
[c] CaribRM attended on behalf of and represented CCRIF.
[d] Milo Pearson represented CCRIF.
[e] Sustainability Managers attended on behalf of and represented CCRIF.
[f] Hosted by the CARICOM Secretariat, CCCCC, and Government of St. Lucia.
[g] Hosted by PANOS Caribbean and the National Environmental Education Committee.
[h] Co-sponsored with CDEMA.
[i] Isaac Anthony represented CCRIF.
[j] Co-sponsored by the Ministry of Agriculture, IICA, and the World Bank.
[k] Co-sponsored by *Agence Francaise de Developpement*, the World Bank, and the Bill and Melinda Gates Foundation
[l] Hosted by World Bank. Isaac Anthony and Simon Young attended and represented CCRIF.
[m] Hosted by the Government of Grenada and organized by UN-ECLAC and the UN Department of Economic and Social Affairs.
[n] Hosted by the Asian Development Bank.

Annex D: Persons Interviewed

CCRIF Board of Directors

- Milo Pearson, Executive Chairman
- Isaac Anthony, Director
- Ken Blakeley, Director
- Desiree Cherebin, Director
- Warren Smith, Director

CCRIF Service Providers and Reinsurers

- *Aon Benfield (CCRIF Reinsurance Broker)*: Dominic Christian, Co-CEO; John Moore, Head of Analytics, International; Andrea French, Actuarial; Paul Thorogood, Account Manager; David Glover, Head of Americas, London; and Nicola Diment, Broker
- *CaribRM (CCRIF Facility Supervisor):* Simon Young, CCRIF Facility Supervisor, Martin Goddard, Ekhosuehi Iyahen
- *Sagicor Insurance Manager, Ltd., (CCRIF Insurance Manager)*: James Rawcliffe, CCRIF Insurance Manager
- *London and Capital Asset Managers, Ltd.(CCRIF Asset Managers)*: William Dalziel, Partner; Henry Crofton, Institutional Relationship Manager; Andreas Fischer, Fund Manager; Craig Shute, Senior Portfolio Manager
- *Hiscox Reinsurance*: Michael Jedreszak, Line Underwriter

Member Country Officials

Belmopan, Belize

- Alma D. Gomez, Supervisor of Insurance
- Marion Palacio, Deputy Financial Secretary, Ministry of Finance
- Fayne Nicosia, Economist, Economic Development, Ministry of Finance
- Shelton DuFour, Deputy Director, National Emergency Management Office

Providenciales, Turks and Caicos Islands[43]

- Delton Jones, Permanent Secretary, Finance
- Kathleen Forbes, Chief Economist, Finance

Basseterre, St. Kitts and Nevis
- Calvin Edwards, Deputy Financial Secretary/Budget Director, Ministry of Finance
- Theresa Morris, Ministry of Finance

Castries, St. Lucia
- Isaac Anthony, Permanent Secretary/Director of Finance, Ministry of Finance, Economic Affairs & National Development
- Bhaiya Sondawle, Insurance Consultant, Financial Sector Supervision Unit, Ministry of Finance
- Julian Dubois, Deputy Director, National Emergency Management Office
- Crispin d'Auvergne, Chief Sustainable Development and Environment Officer and National Operational Focal Point for Climate Change, Sustainable Development and Environment Division, Ministry of Physical Development and Environment

Bridgetown, Barbados
- Verenese Brathwaite, Deputy Supervisor of Insurance, Ministry of Finance

Port of Spain, Trinidad & Tobago
- Beverly Quamina, Senior Economist (Agriculture), Economic Management Division, Ministry of Finance
- Christian Low, Managing Director, Risk Management Services, Ltd.[44]
- Linda Hollingsworth, Senior Account Executive, Risk Management Services, Ltd.
- Jovan Labban, Assistant Loss Control Officer, Risk Management Services, Ltd.

Georgetown, Guyana
- Robert M. Persaud, Minister of Agriculture
- Prema Ramanah-Roopnarine, Deputy Permanent Secretary of Agriculture

International Organizations

Caribbean Community Climate Change Centre, Belmopan, Belize
- Dr. Kenrick Leslie, Executive Director
- Dr. Ulrich Trotz, Science Advisor

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43 Interview with Mr. Jones and Ms. Forbes conducted by telephone.
44 Risk Management Services, Ltd., is a private firm that advises the Government of Trinidad & Tobago on risk management.

United Nations Economic Commission for Latin America and the Caribbean, Port of Spain, Trinidad & Tobago

- Dr. Asha Kambon, Regional Advisor, Natural Disaster Assessment
- Charmaine Gomes, Sustainable Development Officer

Caricom, Georgetown, Guyana

- Garfield B. Barnwell, Director, Sustainable Development

Inter-American Institute for Cooperation in Agriculture, Georgetown, Guyana

- Richard A. Blair, Sustainable Rural Development Specialist

Donor Representatives in Bridgetown, Barbados

High Commission of Canada

- Douglas Williams, Minister Counsellor, Development and Caribbean Director to the Caribbean Development Bank
- Cam Bowes, Counsellor (Development)
- Yuri Chakalall, Senior Development Officer (Environment)

U.K. Department for International Development, Caribbean

- Roger Bellers, Disaster Risk Reduction Advisor
- Simone Banister, Climate Change Advisor

Delegation of the European Union

- Hubert Perr, Counselor, Head of Operations
- Helena Stare, Project Officer

Annex E: Documents Reviewed

1. Minutes of Board of Directors Meeting: June 23, 2009; September 11, 2009; December 15, 2009; February 24, 2010; June 4, 2010; September 3, 2010; and December 15, 2010 (in draft).
2. Budgets: 2007–2008 (actual), 2008–2009 (actual), 2009–2010 (actual), and 2010–2011 (planned).
3. Annual Report, 2009–2010.
4. Operations Manual, December 2009.
5. Audited Financial Statement and PriceWaterhouseCoopers Management Letter, 2009–2010.
6. Strategic Plan for 2009–2012, updated February 2010.
7. Updates to Technical Assistance Plan, including documents pertaining to collaboration or potential collaboration between CCRIF and: (i) the Canada Caribbean Disaster Risk Management Fund for support to NGOs and other entities for community-level DRM projects; (ii) McKinsey and Swiss Re on the Economics of Climate Adaptation; (iii) the German Ministry of the Environment and the Munich Climate Insurance Initiative; and (iv) the Government of the Bahamas and FAO on agricultural crop insurance;
8. Pricing and Financial Security Strategy, February 2010.
9. CaribRM briefings on second generation hazard loss estimation model, April 2010.
10. CaribRM, KAC, and CIMH briefings on excess rainfall modeling and status of development of excess rainfall product.
11. Sustainability Managers Presentation of CCRIF Communications and PR Activities; September 2010.
12. Sample 2010–2011 hurricane and earthquake insurance policies and coverage summaries.
13. CCRIF 2009–2010 and 2010–2011 event briefings.
14. London and Capital Asset Managers, Ltd., Quarterly Reports for 2009–2010.
15. Memorandum of Understanding for the Implementation of a Collaborative Partnership between: The Caribbean Catastrophe Risk Insurance Facility and

the United Nations Economic Commission for Latin America and the Caribbean (UN-ECLAC), February 2010.

16. Draft Memorandum of Understanding for the Implementation of a Collaborative Partnership between the Caribbean Catastrophe Risk Insurance Facility and the Caribbean Community Climate Change Centre.
17. "CCRIF News" and "CCRIF Quarterly Reports" for 2009–2010 and 2010–2011 (through December 2010).
18. "Caribbean Catastrophe Risk Insurance Facility, a Natural Catastrophe Risk Insurance Mechanism for the Caribbean – A Collection of Papers and Articles"; CCRIF, November 2009.
19. "A Guide to Understanding the Real Time Impact Forecasting System (RTFS) – A Question and Answer Booklet"; CCRIF, June 2010.
20. "Enhancing the climate risk and adaptation fact base for the Caribbean... preliminary results of the ECA Study"; CCRIF, August 2010.
21. Contract amendments or renewals for Insurance Manager, Facility Supervisor, and Executive Chairman.

Annex F: CCRIF's 2009–2010 Audited Financial Statements

CARIBBEAN CATASTROPHE RISK INSURANCE FACILITY

CONSOLIDATED FINANCIAL STATEMENTS

FOR THE YEARS ENDED MAY 31, 2010 AND 2009

CARIBBEAN CATASTROPHE RISK INSURANCE FACILITY

CONSOLIDATED FINANCIAL STATEMENTS

FOR THE YEARS ENDED MAY 31, 2010 AND 2009

CONTENTS

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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, of changes in shareholder's equity and of 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, 2010 and 2009, 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.

PricewaterhouseCoopers

August 23, 2010

CARIBBEAN CATASTROPHE RISK INSURANCE FACILITY

CONSOLIDATED BALANCE SHEETS

(expressed in U.S. dollars)

	May 31, 2010	May 31, 2009
ASSETS		
Cash and cash equivalents (Note 4)	$ 8,044,502	$17,827,229
Investments, at fair value (Note 5) (cost $89,393,955 (2009:$50,868,966))	84,891,198	53,174,430
Unrealized gains on forward and futures contracts (Note 10)	-	159,274
Accrued interest	1,397,042	611,499
Prepaid expenses	39,935	30,418
Amounts due from Multi Donor Trust Fund (Note 6)	454,348	6,819,540
Total assets	$ 94,827,025	$78,622,390
LIABILITIES AND SHAREHOLDER'S EQUITY		
Liabilities		
Accounts payable and accrued expenses (Note 7)	524,591	262,818
Income from parametric contracts received in advance (Note 8)	4,474,780	11,587,280
Participation fee deposits (Note 9)	21,988,512	21,888,512
Unrealized losses on forward and futures contracts (Note 10)	297,310	1,463,323
Total liabilities	27,285,193	35,201,933
Shareholder's equity		
Share capital (Note 11)	1,000	1,000
Share premium (Note 11)	119,000	119,000
Technical assistance reserve (Notes 3 & 11)	480,575	-
Retained earnings	66,941,257	43,300,457
Total shareholder's equity	67,541,832	43,420,457
Total liabilities and shareholder's equity	$ 94,827,025	$78,622,390

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

Milo Pearson	August 23, 2009
Director	Date
Garry Wilkins	August 23, 2009
Director	Date

The accompanying notes are an integral part of these consolidated financial statements.

CARIBBEAN CATASTROPHE RISK INSURANCE FACILITY

CONSOLIDATED STATEMENTS OF INCOME

(expressed in U.S. dollars)

	Year ended May 31, 2010	Year ended May 31, 2009
Operating income		
Income from parametric contracts (Note 2)	$ 21,488,509	$21,838,512
Expenses on parametric reinsurance contracts (Note 2)	(8,766,913)	(9,461,164)
Net income on parametric contracts	12,721,596	12,377,348
Ceding commissions on parametric reinsurance contracts	146,445	184,058
Total operating income	12,868,041	12,561,406
Operating expenses		
Claims paid on parametric contracts (Note 12)	7,753,579	6,303,913
Brokerage and facility supervisor fees	600,304	528,310
Total operating expenses	8,353,883	6,832,223
Net operating income	4,514,158	5,729,183
Other income and expenses		
Investment income (Note 13)	3,447,804	2,597,588
Income from Multi Donor Trust Fund (Note 6)	17,838,307	16,021,033
Technical assistance expenses (Note 3)	(818,219)	-
Administrative expenses (Notes 14 and 15)	(860,675)	(877,861)
Net income for the year	$ 24,121,375	$23,469,943

The accompanying notes are an integral part of these consolidated financial statements.

CARIBBEAN CATASTROPHE RISK INSURANCE FACILITY

CONSOLIDATED STATEMENTS OF CHANGES IN SHAREHOLDER'S EQUITY

(expressed in U.S. dollars)

	Share capital	Share premium	Technical assistance reserve	Retained earnings	Total
Balance at May 31, 2008	1,000	119,000	-	19,830,514	19,950,514
Net income for the year	-	-	-	23,469,943	23,469,943
Balance at May 31, 2009	1,000	119,000	-	43,300,457	43,420,457
Transfer to technical assistance reserve	-	-	1,298,794	(1,298,794)	-
Net income for the year	-	-	-	24,121,375	24,121,375
Utilization of technical assistance reserve	-	-	(818,219)	818,219	-
Balance at May 31, 2010	$ 1,000	$ 119,000	$ 480,575	$ 66,941,257	$ 67,541,832

The accompanying notes are an integral part of these consolidated financial statements.

CARIBBEAN CATASTROPHE RISK INSURANCE FACILITY

CONSOLIDATED STATEMENTS OF CASH FLOWS

(expressed in U.S. dollars)

	Year ended May 31, 2010	2009
Operating activities		
Net income for the year	$ 24,121,375	$23,469,943
Adjustments to reconcile net income to net cash from operating activities:		
Adjustment for items not affecting cash:		
Change in fair value of investments	6,808,221	(2,392,265)
Net realized (gain)/loss on investments	(3,313,403)	1,012,599
Unrealized gains/losses on forward and futures contracts	(1,006,739)	1,285,401
Changes in assets and liabilities:		
Purchase of securities	(129,245,228)	(69,509,902)
Proceeds from sale of securities	96,920,344	29,923,727
Net movement in short term investments	(2,886,702)	18,502,056
Accrued interest	(785,543)	(570,815)
Prepaid expenses	(9,517)	-
Amounts due from Multi Donor Trust Fund	6,365,192	(4,774,255)
Accounts payable	261,773	(744,830)
Income from parametric contracts received in advance	(7,112,500)	(137,501)
Net cash used in operating activities	(9,882,727)	(3,935,842)
Financing activities		
Participation fee deposits received	100,000	2,400,000
Net cash provided by financing activities	100,000	2,400,000
Net change in cash and cash equivalents	(9,782,727)	(1,535,842)
Cash and cash equivalents at the beginning of year	17,827,229	19,363,071
Cash and cash equivalents at the end of year	$ 8,044,502	$17,827,229

The accompanying notes are an integral part of these consolidated financial statements.

1. 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 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 2009/10 policy year (which terminated on May 31, 2010), the combined aggregate coverage limits for all Participating Countries were $407.8 million (2009: $384.4 million) for tropical cyclones events and $193.4 million (2009: $177.7 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, 2010 and 2009:

- The Group retains all losses up to $20 million (2009: $12.5 million) per annum.
- The next $15 million (2009: $12.5 million) of losses are reinsured with 4 (2009: 4) reinsurers with an A.M.Best rating of at least A.
- The next $35 million (2009: $30 million) of losses are reinsured with 5 (2009: 4) reinsurers with an A.M.Best rating of at least A.
- The next $82.5 million (2009: $90 million) of losses are ceded 63.6% to 5 (2009: 66.7% to 3) commercial reinsurers with an A.M.Best rating of at least A, and 36.4% (2009: 33.3%) to the World Bank.
- The Group retains all subsequent losses above $152.5 million (2009: $145 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, 2010 and 2009, there were no unpaid losses.

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.

Management estimates and assumptions: 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.

Cash and cash equivalents: 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 retail mutual funds, corporate debt securities, sovereign debt securities and short-term investments.

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 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 its investment manager 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 its investment manager 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.

3. Significant accounting policies (continued)

Credit default swaps ("CDSs" and over-the-counter ("OTC") options: The Group permits its investment manager 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.

Other Options and Warrants: The Group permits its investment manager 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.

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 manager and custodian. 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 advisor's 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.

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"). Exchange-traded 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 do 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 are 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, 2010 and 2009, 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.

3. Significant accounting policies (continued)

Participation fee deposits: 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.

Uncertain income tax positions: The Group has adopted the authoritative US GAAP guidance on accounting for, and disclosure of, uncertainty in income tax positions, which 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. The application of this authoritative guidance has had no effect on the Group's financial statement.

Technical Assistance Reserve: Effective June 1, 2009, the Group commenced appropriating retained earnings to the Technical Assistance reserve. The amount to be credited to the reserve has been established by the Company's Board of Directors at 50% of the prior year 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 expenses are incurred.

4. Cash and cash equivalents

Cash and cash equivalents comprise:	2010	2009
Current and call accounts	8,044,502	12,144,286
Fixed term deposits	-	5,682,943
	$ 8,044,502	$17,827,229

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

5. Investments

All 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).

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

	Fair Value Measurements Determined Using:			
	Level 1 inputs	**Level 2 inputs**	**Level 3 inputs**	**Total**
Mutual funds	-	1,162	-	1,162
Corporate debt securities	-	69,302,960	-	69,302,960
Sovereign debt securities	9,543,931	-	-	9,543,931
Short term investments	6,043,145	-	-	6,043,145
	15,587,076	69,304,122	-	84,891,198

The following table summarizes the Group's investments in the Investment Fund that are measured at fair value at May 31, 2009:

	Fair Value Measurements Determined Using:			
	Level 1 inputs	**Level 2 inputs**	**Level 3 inputs**	**Total**
Mutual funds	-	7,763,862	-	7,763,862
Corporate debt securities	-	31,639,729	-	31,639,729
Sovereign debt securities	10,614,396	-	-	10,614,396
Short term investments	3,156,443	-	-	3,156,443
	$ 13,770,839	$ 39,403,591	$ -	$ 53,174,430

At May 31, 2010, approximately 29% and 25% (2009: 36% and 16%) 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 52% (2009: 92%) of the debt securities had a credit rating of A- or higher and the remaining 48% (2009: 8%) were rated BBB or higher. The debt securities portfolio had an average maturity of approximately 4 years (2009: 3 years) from May 31, 2010.

Short term investments consist of cash held with the investment manager, term deposits and margin call accounts (see Note 10). Also included in short term investments, are amounts denominated in British Pound Sterling of $1,300,416 (2009: $331,463), Euros of $1,483,893 (2009: $762,437) and Australian dollars of $32,248 (2009: nil). The margin call accounts are restricted cash balances required to be posted with respect to the futures contracts (see Note 3 and 10).

(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, 2010 and 2009, the following costs were reimbursed and/or reimbursable by the Donor Trust:

	2010	2009
Expenses on parametric reinsurance contracts	8,620,468	9,277,106
Claims paid on parametric contracts	7,753,579	6,303,913
Directors' fees and expenses	317,973	55,914
Facility management fees and expenses	797,325	384,100
Other allowable recurring expenditure	348,962	-
	$17,838,307	$ 16,021,033

At May 31, 2010 and 2009, the following cost reimbursements were due from the Donor Trust:

	2010	2009
Expenses on parametric contracts	-	6,350,625
Directors' fees and expenses	90,065	84,815
Facility management fees and expenses	257,933	384,100
Other allowable recurring expenditure	106,350	-
	$ 454,348	$6,819,540

At May 31, 2010, prior to settlement of the above outstanding reimbursements of $454,348 (2009: $6,819,540), $28,053,487 (2009: $51,829,665) 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 $7,225,918 (2009: $31,429,417) represents funds committed to the Facility via the grant agreement and the balance of $20,827,569 (2009: $20,400,248) 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.

7. Accounts payable and accrued expenses

Accounts payable comprises accruals for expenses at year end. Included within accounts payable is an amount of $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 2010/11 policy during the year ended May 31, 2010 (2009: amounts paid with respect to the 2009/10 policy during the period ended May 31, 2009).

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. 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 subsequent to May 31, 2010, some Participating Countries elected to use a proportion of their participation fees deposits to partially settle their 2010/2011 premiums.

10. Derivative instruments

Effective June 1, 2009, the Group adopted amendments to authoritative guidance on disclosures about derivative instruments and hedging activities which amends and expands the disclosure requirement related to derivative instruments, 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. This Statement 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 new standard adopted enhances the disclosure requirements for derivative instruments and related hedging activities and thus, the adoption of the standard had no impact on the balance sheets, statements of operations, statements of changes in shareholder's equity or the statements of cash flows.

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 balance sheets with changes in fair value reflected as net change in unrealized gains/ (losses) on derivatives within investment income in the statements of operations (see Note 13).

(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 statement of operations (see Note 13):

		2010
Commodity and equity contracts	$	186,250
Credit contracts		498,741
Foreign exchange contracts		4,067,325
Total	$	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.

There were no open/unsettled CDSs at May 31, 2010 and 2009. During the year ended May 31, 2010, the Group had total notional exposure of approximately $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 $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, 2010, the Group realized gains of $4,269,108 and incurred losses of $3,770,367 in CDS transactions.

Investments in other derivatives fluctuated throughout the year. The maximum exposures in any one month were as follows:

- Commodity contracts: below $100,000
- Equity contracts: $350,000
- Foreign exchange contracts: $53 million

The positions held in forward and futures contracts at May 31, 2010, are reflective of the average positions held in forward and futures contracts during the year.

(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, 2010
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	(19,952)
			$ (297,310)

As at May 31, 2009, the Group had the following outstanding forward foreign currency and futures contracts:

	Expiry date	Notional value	Fair Values at May 31, 2009
British Pound Sterling forward (bought £ sold US$)	June 2, 2009	£1,450,000 (at forward rate of US$1.5027: £1)	$ 159,274
United States Dollars forward (bought US$ sold £)	June 2, 2009	$10,580,339 (at forward rate of US$1.5106: £1)	(714,025)
United States Dollars forward (bought US$ sold €)	June 2, 2009	$12,964,228 (at forward rate of US$1.3381: €1)	(749,298)
			$(1,463,323)

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.

(Expressed in United States dollars)

11. Share capital, share premium and technical assistance reserve

	2010	2009
Authorized:		
50,000 shares of $1 each	$ 50,000	$ 50,000
Issued and fully paid:		
1,000 shares of $1 each	1,000	1,000
Share premium	119,000	119,000
	$ 120,000	$ 120,000

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, 2010 of $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, 2010 relate to an earthquake (2009: hurricane) which triggered a claim payment to a Participating Country in January 2010 (2009: September 2008).

13. Investment Income

Investment income comprises:

	2010	2009
Investment income received	2,715,588	1,349,677
Change in fair value of investments	(6,808,221)	2,392,265
Net gain/(loss) on sale of investments	3,313,403	(1,012,599)
Investment management, custody and fund administration fees	(946,730)	(549,369)
Foreign exchange gains	421,448	279,102
Net realized gains/(losses) on derivative instruments	3,745,577	1,423,913
Net unrealized gains/(losses) on derivative instruments	1,006,739	(1,285,401)
	$ 3,447,804	$2,597,588

(Expressed in United States dollars)

14. Administration expenses

Administration expenses comprise:

	2010	2009
Audit and other professional fees	42,000	44,500
Captive management fees	100,000	100,000
Consultancy fees	174,844	215,467
Directors' fees	48,000	18,000
Executive Director's fees	150,000	135,920
Directors' and Officers' insurance	25,000	31,775
Legal fees	3,507	2,898
Government fees	10,386	9,720
Meeting expenses	93,115	77,491
Publicity	174,753	95,742
Trust expenses (see Note 15)	34,750	43,000
Charitable donation to UNESCO	-	100,000
Sundry expenses and bank charges	4,320	3,348
	$ 860,675	$ 877,861

15. Related party transactions

During the year ended May 31, 2010 and 2009, the Group incurred the following expenses on behalf of the Trust:

	2010	2009
Trustee fees	24,750	33,000
Enforcer fees	10,000	10,000
	$ 34,750	$ 43,000

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.

17. Certain risks

(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 manager invests 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.

(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 may not be able to access cash and/or redeem its investments in the Investment Fund on a timely basis to settle losses. The frequency of redemption of the Investment Fund is monthly and subject to appropriate notice period. The Investment Fund is 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.

17. Financial instruments (continued)

(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 represents 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.

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.

18. Subsequent events

Management have performed a subsequent events review through August 23, 2010, being the date that the financial statements were available to be issued. Other than as disclosed in Note 9, management concluded that there were no subsequent events which required additional disclosure in these financial statements.