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**STRATEGIES FOR STRENGTHENING REGIONAL
RESILIENCE IN THE ANGLO-CARIBBEAN**

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2010

Submitted to:
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Introduction

The Anglo-Caribbean is highly susceptible to natural disasters. The most frequent are those associated with hydrometeorological and geological hazards. As a result, the Caribbean Community (CARICOM), the Anglophone Caribbean's major association, which provides a forum for the sharing of formal and informal decision-making to enrich mutual trust and co-operation¹, believed it necessary to form a body to coordinate approaches managing the effects of these hazards. With the formation of the Caribbean Disaster Emergency Response Agency (CDERA), that regional intergovernmental agency, in September 1991, the Anglo-Caribbean recognised that there was the need to pool resources so as to provide "immediate and coordinated response to any disastrous event affecting any Participating State."²

Since then the agency has changed its name to the Caribbean Disaster Emergency Management Agency (CDEMA) and has expanded its role to include such activities as the sharing of disaster management information and the establishment and maintenance of methods of disaster mitigation. In other words, CDEMA "seeks to reduce the risk and loss associated with natural and technological hazards and the effects of climate change to enhance regional sustainable development."³ These activities should enhance resilience, which is "the ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover

¹ Heywood, Andrew. 1999. *Political Theory-An Introduction*, pp. 110-111

² Caribbean Disaster Emergency Management Agency (CDEMA). n.d. 'History'. <http://www.cdema.org/about-us/history.html>, (4 May 2010).

³ CDEMA. n.d. 'What is CDEMA?' <http://www.cdema.org/about-us/whats-is-cdema.html>, (4 May 2010).

from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.”⁴

CCRIF

While CDEMA has proved effective in enhancing the region’s knowledge and understanding of disaster risk management and has provided the technical tools necessary to reduce risks and losses associated with natural and technological hazards, there seems to be limited focus on the “use of financial instruments that share/hedge the economic risks before losses occur.”⁵ Recognizing this limited capacity, CARICOM, in conjunction with the Caribbean Development Bank (CDB), the Governments of the United Kingdom, France, Canada, Japan, Ireland and Bermuda, and the World Bank, established a risk pooling facility called the Caribbean Catastrophe Risk Insurance Facility (CCRIF).⁶ The CCRIF is a Risk Transfer and Financing component of the Disaster Risk Management (DRM) Framework.

The CCRIF is the first of its kind.⁷ The regional disaster pooled insurance establishment “is designed to limit the financial impact of catastrophic hurricanes and earthquakes to Caribbean governments by quickly providing short term liquidity when a policy is triggered.”⁸ Thus, it is meant to supply Anglo-Caribbean states with affordable risk financing that “pool natural disaster

⁴ International Strategy for Disaster Reduction (ISDR). 2009. ‘UNISDR Terminology on Disaster Risk Reduction’. <http://www.unisdr.org/eng/library/lib-terminology-eng.htm>, (4 May 2010).

⁵ Disaster Management Center, University of Wisconsin-Madison. 2009. *Disaster Risk Reduction: DD04 – Study Guide and Course Text*. Madison, Wisconsin: Board of Regents of the University of Wisconsin System, pp. 56.

⁶ The Caribbean Catastrophe Risk Insurance Facility (CCRIF). n.d. ‘About Us’. <http://www.ccrif.org/content/about-us>, (18 June 2010).

⁷ Huliq. 2 June 2007. ‘The World Bank's Caribbean Catastrophe Risk Insurance Facility (CCRIF) becomes operational June 1’. <http://www.huliq.com/23416/the-world-banks-caribbean-catastrophe-risk-insurance-facility-ccrif-becomes-operational-june-1>, (18 June 2010).

⁸ CCRIF. n.d. ‘About Us’. <http://www.ccrif.org/content/about-us>, (18 June 2010).

risks [and] reduces the cost of insurance.”⁹ Payments are triggered by catastrophic natural disaster events and are based on complex risk models that draw their information from historical hurricane and earthquake data.¹⁰ The CCRIF could be described as *market insurance*, or more specifically, a *business interruption insurance*, which provides immediate liquidity that is geared towards the survival of the affected state during the rehabilitation and recovery period.¹¹ It is not meant to provide long-term financing and is only used to fill in “the gap between immediate response aid and long-term redevelopment.”¹² Thus, the question remains as to whether pay-outs from the CCRIF resulted in enhancing resilience. One seeks to determine whether this short term assistance laid the foundation for recovery in an efficient and timely manner, and whether it contributed to the preservation of the state’s basic functions and structures.

Since its launch on 1 June 2007, CCRIF has made pay-outs on four occasions:¹³

1. ***Dominica***: The 29 November 2007 earthquake triggered a pay-out of nearly US\$528,021.
2. ***St. Lucia***: The 29 November 2007 earthquake triggered a pay-out of nearly US\$473,497.32.
3. ***The Turks and Caicos Islands***: In 2008, Hurricane Ike triggered a pay-out of US\$6.3 Million.

⁹ Information and Communication Technology for Development. 20 July 2009. ‘Caribbean Catastrophe Risk Insurance Facility’. <http://www.caricomict4d.org/internal--caricom-secreatariat-left-side-menu-220/76-external--regional/109-caribbean-catastrophe-risk-insurance-facility.html>, (18 June 2010).

¹⁰ CCRIF. 2008. *The Caribbean Catastrophe Risk Insurance Facility: Annual Report 2007-2008*, Cayman Islands: The Caribbean Catastrophe Risk Insurance Facility, pp. 8.

¹¹ Information and Communication Technology for Development. 20 July 2009. ‘Caribbean Catastrophe Risk Insurance Facility’. <http://www.caricomict4d.org/internal--caricom-secreatariat-left-side-menu-220/76-external--regional/109-caribbean-catastrophe-risk-insurance-facility.html>, (18 June 2010); Disaster Management Center, University of Wisconsin-Madison. 2009. *Disaster Risk Reduction: DD04 – Study Guide and Course Text*. Madison, Wisconsin: Board of Regents of the University of Wisconsin System, pp. 134.

¹² CCRIF. n.d. ‘Frequently Asked Questions’, <http://www.ccrif.org/faq>, (18 June 2010).

¹³ Ibid.

4. *Haiti*: The 12 January 2010 earthquake triggered a pay-out of US\$7.75 Million.

Dominica

The 29 November 2007 earthquake, measuring 7.3 on the Richter scale, had caused some damage in southern Dominica. The CCRIF pay-out was made two weeks after the earthquake – 13 December 2007.¹⁴ There is no information on how the funds were used to build resilience.

St. Lucia

The same earthquake resulted in damage to northern St. Lucia. The CCRIF pay-out was made less than a month after the earthquake – 12 December 2007.¹⁵ Prime Minister Stephenson King maintained that the funds released to the government would be used to provide and repair infrastructure for the police and fire personnel command centres and other essential locations.¹⁶ Additionally, he mentioned that the funds would be used towards time and productivity lost as a result of the earthquake. There is limited information on how funds were used to build resilience.

Turks and Caicos Islands

Hurricane Ike, a Category 4 hurricane, hit the Turks and Caicos Islands on the 6th and 7th of September 2010, passing “immediately to the south of Grand Turk, the largest of the Turk Islands and the seat of government of the Turks and Caicos Islands.”¹⁷ This resulted in major damage to Grand Turk in addition to smaller losses to Providenciales, the seat of economic

¹⁴ CCRIF. 2008. *The Caribbean Catastrophe Risk Insurance Facility: Annual Report 2007-2008*, Cayman Islands: The Caribbean Catastrophe Risk Insurance Facility, pp. 10.

¹⁵ Ibid.

¹⁶ Miller, Rebecca. 7 December 2007. ‘St. Lucia gets CCRIF Money’, http://www.thevoiceslu.com/local_news/december/15_12_07/St_Lucia_gets_CCRIF_Money.htm, (18 June 2010).

¹⁷ CCRIF. 2009. *The Caribbean Catastrophe Risk Insurance Facility: Annual Report 2008-2009*, Cayman Islands: The Caribbean Catastrophe Risk Insurance Facility, pp. 17.

activity for this British Overseas Territory, to the northwest of the island chain.¹⁸ The CCRIF pay-out was made a little over three weeks after the hurricane – 30 September 2008.

The funds were used towards meeting the short-term financial needs of the state. According to the Turks and Caicos Weekly News, the government cashed in on its policy because of “the severity of the situation, which has left hundreds of people in Grand Turk and South Caicos homeless.”¹⁹ It was reported that “more than 80% of island buildings were damaged during the storm.”²⁰ A Government Statement read that,

“We believe this [the CCRIF pay-out] will focus the effort of the Turks and Caicos Islands and international agencies on the work urgently needed to restore lives to normality...The work of assessing needs and meeting priority requirements in such areas as water, shelter and food is already underway...The economic boost provided by a fully operational Providenciales will make a major contribution to the speedy recovery of sister islands damaged by the storm.”²¹

Information on the use of funds is limited.

Haiti

The 12 November 2010 magnitude 7.0 earthquake caused severe damage to southern Haiti, particularly around Port-au-Prince and its environs. The CCRIF pay-out was made two weeks after the earthquake – 26 January 2010. It resulted in the death of 230,000 people, injuries of another 300,000 and a total of 1 million persons homeless.²² Policy pay-out was to have been

¹⁸ CCRIF. 2009. *The Caribbean Catastrophe Risk Insurance Facility: Annual Report 2008-2009*, Cayman Islands: The Caribbean Catastrophe Risk Insurance Facility, pp. 18.

¹⁹ Turks and Caicos Weekly News. 12 September 2008. ‘\$6.3million cash injection to rebuild Islands’, <http://tweeklynews.com/clients/tweeklynews/million-cash-injection-to-rebuild-islands-p887.htm?twindow=Default&smenu=1&mad=No>, (18 June 2010).

²⁰ Bly, Laura and Jayne Clarke. 11 September 2008. ‘Caribbean islands assess damage from Hurricane Ike’, http://www.usatoday.com/travel/news/2008-09-11-hurricane-ike-damage_N.htm, (18 June 2010);

²¹ Turks and Caicos Weekly News. 12 September 2008. ‘\$6.3million cash injection to rebuild Islands’, <http://tweeklynews.com/clients/tweeklynews/million-cash-injection-to-rebuild-islands-p887.htm?twindow=Default&smenu=1&mad=No>, (18 June 2010).

²² Associate Press. 10 February 2010. ‘Haiti raises earthquake toll to 230,000’, <http://www.washingtonpost.com/wp-dyn/content/article/2010/02/09/AR2010020904447.html>, (21 February 2010); The British Broadcasting Corporation (BBC). 12 February 2010. ‘Haiti will not die, President Rene Preval insists’,

“used by the Government of Haiti to pay salaries (police, civil servants etc) as soon as their systems were running.”²³ However, the CCRIF has gone above and beyond its usual role as a short-term liquidity facility.

According to the CCRIF,

“the Caribbean Catastrophe Risk Insurance Facility (CCRIF) and the Caribbean Institute for Hydrology and Meteorology (CIMH) will extend support to Haiti in its long-term recovery and reconstruction efforts, particularly in hazard mitigation and future disaster prevention. CCRIF will support CIMH in making available tools and data to help planners and relief workers in Haiti to make better decisions about where to re-settle the citizens of Haiti and re-build infrastructure to minimise people’s exposure to flooding and landslides, especially in light of the upcoming hurricane season.”²⁴

Haiti has been the first to benefit from the collaboration between the CCRIF and the CIMH. The CIMH has been “running high-resolution weather prediction models over Haiti [and has been] developing simple surface water flow models for key drainage basins to delineate the extent of probable flooding.”²⁵ Such efforts will aid in Haiti’s future resilience because they can be used to develop early warning systems, determine the watersheds that are prone to flooding and inform long-term resettlement and reconstruction planning.

There have been other hazard events throughout the Caribbean that the CCRIF has failed to make pay-outs for, some which have caused medium to severe damage to countries’ infrastructures. These include:

<http://news.bbc.co.uk/2/hi/americas/8511997.stm>, (21 February 2010); Harris, Dan, Martha Raddatz and Michael S. James. 16 January 2010. ‘Racing the Clock to Save Haiti Quake Victims amid the Stench of Death’, <http://abcnews.go.com/WN/HaitiEarthquake/obama-enlists-presidents-haitians-grow-desperate-amid-slow/story?id=9579651>, (21 February 2010).

²³ Stichter, Steven and Simon Young. 2010. ‘CCRIF: A Innovative Natural Catastrophe Risk Insurance Mechanism for Caribbean Islands’,

http://proceedings.esri.com/library/userconf/feduc10/papers/user/esri_feduc_2010_stichter.pdf, (21 June 2010).

²⁴ CCRIF. 6 February 2010. ‘CCRIF and CIMH Provide Support for Haiti in its Reconstruction Efforts’,

<http://www.ccrif.org/news/ccrif-and-cimh-provide-support-haiti-its-reconstruction-efforts>, (21 June 2010).

²⁵ Ibid.

1. **Barbados**: The 29 November 2007 earthquake
2. **Belize**: The 28 May 2009 earthquake
3. **Haiti**: On 2 November 2007, Hurricane Noel and on 26 August 2008, Hurricane Gustav
4. **Jamaica**: On 19 August 2007, Hurricane Dean and 28 August 2008, Hurricane Gustav
5. **St. Vincent and the Grenadines**: The 29 November 2007 earthquake
6. **The Bahamas**: In October/November 2007, Hurricane Noel
7. **The Cayman Islands**: The 19 January 2010 earthquake
8. **The Turks and Caicos Islands**: On 1 September 2008, Hurricane Hanna

Barbados

The 29 November 2007 earthquake that triggered a pay-out to Dominica and St. Lucia did not do the same for Barbados. The 7.4 magnitude earthquake, which found its origin off the coast of Martinique, resulted in minor damage in Barbados. There were reports of “a section of a house in the central parish of St George [collapsing] while blocks fell from Parliament Buildings in Bridgetown and a building along the country’s main shopping street, Broad Street,”²⁶ in addition to cracks in the leachate holding ponds at the Greenland Dumpsite.²⁷

A pay-out trigger is determined by the magnitude of the earthquake and the distance between the earthquake’s origin and the CCRIF state. According to CCRIF, a non-trigger event is “[any] earthquake event with a body-wave magnitude of greater than 5.7 within a box bounded by the following - Latitude 2° and 41° N Longitude 97° and 51° W, but does not generate an index

²⁶ Caribbean News Agency (CANA). 29 November 2007. ‘Powerful earthquake jolts Caribbean.’ <http://www.cananews.net/news/131/ARTICLE/18617/2007-11-29.html>, (10 August 2010).

²⁷ Barbados Free Press. 30 November 2007. ‘Barbados Earthquake Damages Greenland Dump Site – Cracks in Leachate Liner.’ <http://barbadosfreepress.wordpress.com/2007/11/30/barbados-earthquake-damages-greenland-dump-site/>, (10 August 2010).

value of greater than zero.”²⁸ Therefore, it is clear why St. Lucia and Dominica received a payout and Barbados did not. Both states are relatively close to the earthquake epicentre, while Barbados is much further away and lies outside of the bounded box.

Belize

On 28 May 2009, a 7.3 magnitude earthquake hit off the coast of Honduras. It was strongly felt in nearby Belize and even resulted in a tsunami watch.²⁹ It destroyed 5 homes and severely damaged another 25 buildings.³⁰ In an area called Monkey River there was liquefaction and ground cracking resulting in holes up to 4 feet deep.³¹ There were also widespread power outages and bridges near the epicenter that suffered some structural damage.³² In the city of Independence a water tower toppled and water supply was temporarily cut due to the collapse of a reservoir.³³ According to CCRIF calculations, this should have been a triggering event because it generated an index value of over zero; however, this was not so because “the index value was below the policy attachment point (equivalent to the deductible on a conventional policy) and hence a payment was not triggered.”³⁴

²⁸ CCRIF. 2008. *The Caribbean Catastrophe Risk Insurance Facility: Annual Report 2007-2008*, Cayman Islands: The Caribbean Catastrophe Risk Insurance Facility, pp. 9.

²⁹ CCRIF. 2009. *The Caribbean Catastrophe Risk Insurance Facility: Annual Report 2008-2009*, Cayman Islands: The Caribbean Catastrophe Risk Insurance Facility, pp. 22.

³⁰ Cuevas, Freddy. 28 May 2009. ‘7.1 earthquake hits Honduras, Belize.’ In *The Huffington Post*, http://www.huffingtonpost.com/2009/05/28/71-earthquake-hits-hondur_n_208491.html, (10 August 2010).

³¹ CCRIF. 2009. *The Caribbean Catastrophe Risk Insurance Facility: Annual Report 2008-2009*, Cayman Islands: The Caribbean Catastrophe Risk Insurance Facility, pp. 23.

³² Cuevas, Freddy. 28 May 2009. ‘7.1 earthquake hits Honduras, Belize.’ In *The Huffington Post*, http://www.huffingtonpost.com/2009/05/28/71-earthquake-hits-hondur_n_208491.html, (10 August 2010).

³³ Cuevas, Freddy. 28 May 2009. ‘7.1 earthquake hits Honduras, Belize.’ In *The Huffington Post*, http://www.huffingtonpost.com/2009/05/28/71-earthquake-hits-hondur_n_208491.html, (10 August 2010); CCRIF. 2009. *The Caribbean Catastrophe Risk Insurance Facility: Annual Report 2008-2009*, Cayman Islands: The Caribbean Catastrophe Risk Insurance Facility, pp. 23.

³⁴ CCRIF. 2009. *The Caribbean Catastrophe Risk Insurance Facility: Annual Report 2008-2009*, Cayman Islands: The Caribbean Catastrophe Risk Insurance Facility, pp. 22.

Haiti

Hurricane Noel made landfall in Haiti as a Tropical Storm on 2 November 2007. Heavy rains caused flooding and mudslides that destroyed or damaged 5,000 homes, killed at least 73 persons, and displaced another 14,000 persons.³⁵ The CCRIF, like any insurance company, makes pay-outs based on loss estimates. The CCRIF uses “an index or model in which hazard levels...are used as a proxy for losses.”³⁶ As it relates to hurricanes, the index or model used is based on the distance of the hurricane from the territory, its intensity, and storm surge and waves.³⁷ A pay-out was not made because CCRIF policies only make payments for losses associated with the wind speed of the storm.³⁸ Tropical Storm Noel had minimal wind speeds and damage was due to heavy rainfall and flooding, factors that are not accounted for in the index/model or policies.³⁹

Hurricane Gustav made landfall in Haiti as a Category 1 hurricane on 26 August 2008.⁴⁰ It resulted in heavy rainfall and triggered landslides and flooding. In the aftermath of the hurricane, it was found that 77 persons died and another 7,200 persons were displaced.⁴¹ In addition, there

³⁵ Brown, Daniel. 29 February 2008. *Tropical Cyclone Report: Hurricane Noel (AL162007)*, 28 October-2 November 2007. http://www.nhc.noaa.gov/pdf/TCR-AL162007_Noel.pdf, (5 August 2010); Marte, German. 31 October 2007. *Caribbean deaths mount in wake of Tropical Storm Noel*, http://uk.reuters.com/article/homepageCrisis/idUKN31308688._CH_.242020071031, (5 August 2010); Pan American Health Organization (PAHO). 2 November 2007. *Special Report: Haiti*. [http://www.reliefweb.int/rw/RWFiles2007.nsf/FilesByRWDocUnidFilename/EGUA-78VNYD-full_report.pdf/\\$File/full_report.pdf](http://www.reliefweb.int/rw/RWFiles2007.nsf/FilesByRWDocUnidFilename/EGUA-78VNYD-full_report.pdf/$File/full_report.pdf), (5 August 2010).

³⁶ CCRIF. n.d. ‘About Us’. <http://www.ccrif.org/content/about-us>, (5 August 2010).

³⁷ Ibid; CCRIF. 2008. *The Caribbean Catastrophe Risk Insurance Facility: Annual Report 2007-2008*, Cayman Islands: The Caribbean Catastrophe Risk Insurance Facility, pp. 10.

³⁸ Ibid.

³⁹ Ibid.

⁴⁰ Associated Press. 28 August 2008. ‘Death Toll 59 and Rising as Gustav threatens to Slam Gulf Coast.’ <http://www.foxnews.com/story/0,2933,410462,00.html>, (10 August 2010).

⁴¹ Beven II, John and Todd B. Kimberlain. 22 January 2009. ‘Tropical Cyclone report: Hurricane Gustav (AL072008), 25 August – 4 September 2008.’ http://www.nhc.noaa.gov/pdf/TCR-AL072008_Gustav.pdf, (10

was severe property damage amounting to 2,100 homes destroyed and another 8,150 damaged.⁴² CCRIF did not make a pay-out because of Gustav's lower classification and, like Hurricane Noel, relatively low wind speeds.⁴³ Wind speed is the determining factor for the CCRIF index/model or policies.

Jamaica

Hurricane Dean, a category 4 hurricane, hit Jamaica on 19 August 2007 causing an estimated 50% reduction in the 2007 expected economic growth and a 2% increase in inflation.⁴⁴ The total economic impact was estimated to be US\$327 Million.⁴⁵ A pay-out was not made because CCRIF analysed that the hurricane travelled beyond the trigger point. A non-trigger event is a "Tropical Cyclone event which moves within 230 km of any measuring point of any CCRIF member but does not generate an index value of greater than zero."⁴⁶ Overall, the CCRIF determined that the eye of the hurricane travelled far south of the island and produced category 1 winds or lower, which did not produce the index needed for a pay-out.⁴⁷

Hurricane Gustav hit Jamaica as a Tropical Storm on 28 August 2010. It resulted in an estimated JA\$3 Billion in damages to road networks⁴⁸, 10 deaths⁴⁹, and passed over the main

August 2010); Relief Web. 28 August 2008. 'Haiti: IOM aids hurricane Gustav victims.'

<http://www.reliefweb.int/rw/rwb.nsf/db900SID/LSGZ-7J4CD6?OpenDocument&rc=2>, (10 August 2010).

⁴² Ibid.

⁴³ CCRIF. 2009. *The Caribbean Catastrophe Risk Insurance Facility: Annual Report 2008-2009*, Cayman Islands: The Caribbean Catastrophe Risk Insurance Facility, pp. 14.

⁴⁴ Caribbean Policy Research Institute. 2008. *Resilience Potential: Assessing Jamaica's "Bounce-Back" from Hurricane Dean*. <http://www.undp.org/cu/crmi/docs/capri-jamdeaneval-bp-2008-en.pdf>, (11 February 2010)

⁴⁵ CCRIF. 2008. *The Caribbean Catastrophe Risk Insurance Facility: Annual Report 2007-2008*, Cayman Islands: The Caribbean Catastrophe Risk Insurance Facility, pp. 14.

⁴⁶ Ibid, pp. 9.

⁴⁷ Ibid, pp. 9, 11.

⁴⁸ The Jamaica Gleaner. 1 September 2008. '\$3b damage - Gustav devastates road network - Full assessment pending.' <http://www.jamaica-gleaner.com/gleaner/20080901/lead/lead1.html>, (5 August 2010).

economic and population centre of Jamaica: Kingston. However, a pay-out was not made because the CCRIF reported that “the relatively low wind speeds and small size of Gustav meant that wind-related losses estimated via the parametric formulae in the CCRIF policies were below the payout threshold.”⁵⁰

St. Vincent and the Grenadines

The 29 November 2007 earthquake did not trigger a pay-out to St Vincent and the Grenadines for the same reason it did not for the Barbados. Although the magnitude of the earthquake exceeded the 5.7 magnitude minimum for a pay-out, St. Vincent and the Grenadines lie outside of the vector box used to calculate the index. Additionally, the earthquake only “slightly damaged some homes and water pipes in...St Vincent.”⁵¹ These factors therefore explain non-payment.

The Bahamas

Hurricane Noel hit the Bahamas as a Tropical Storm on 1 November 2007. It brought with it heavy rainfall and flooding in all the islands along the chain, most notably Long Island, Abaco Island and Exuma.⁵² The disaster led to one death, the displacement of approximately

⁴⁹ Dionne Rose. 3 September 2008. ‘Gustav rocks the boat - Cruise calls affected, hotel bookings not so much’, In *The Jamaica Gleaner*, <http://www.jamaica-gleaner.com/gleaner/20080903/business/business3.html>, (5 August 2010).

⁵⁰ CCRIF. 2009. *The Caribbean Catastrophe Risk Insurance Facility: Annual Report 2008-2009*, Cayman Islands: The Caribbean Catastrophe Risk Insurance Facility, pp. 14.

⁵¹ The Guardian. 30 November 2007. ‘One dead as earthquake rocks the Caribbean.’ <http://www.guardian.co.uk/world/2007/nov/30/france.naturaldisasters>, (11 August 2010).

⁵² The International Federation of Red Cross and Red Crescent Societies. 3 November 2007. ‘The Bahamas: Hurricane Noel.’ [http://www.reliefweb.int/rw/RWFiles2007.nsf/FilesByRWDocUnidFilename/RMOI-78MLUU-full_report.pdf/\\$File/full_report.pdf](http://www.reliefweb.int/rw/RWFiles2007.nsf/FilesByRWDocUnidFilename/RMOI-78MLUU-full_report.pdf/$File/full_report.pdf), pp. 2 (11 August 2010).

16,000 people and severe damage to six schools and an airport.⁵³ Even with this devastation, the CCRIF did not make a pay-out because calculations are made via tropical storm wind strength and not the amount of rainfall. It was stated that “small losses were estimated from the CCRIF index model...for the Bahamas (generated at the measuring point in Nassau), but these losses were below the policy deductible...and therefore did not cause [the] policy to pay out.”⁵⁴

The Cayman Islands

A 5.9 magnitude earthquake hit the Cayman Islands on 19 January 2010. It was widely felt but, did not result in any major damage other than a loss in telecommunication services for a short period of time.⁵⁵ While the magnitude of the earthquake is about the level to trigger payment and it was located within the bounded box, a pay-out was not made because “it produced an Index Value of zero.”⁵⁶

The Turks and Caicos Islands

On 1 September 2008, Hurricane Hanna brought with it heavy rainfall and strong winds throughout the island chain. This resulted in intense flooding in Providenciales and in Five

⁵³ CBC News. 2 November 2007. ‘Hurricane Noel loses strength as it heads for Canada.’ <http://www.cbc.ca/world/story/2007/11/02/hurricane-noel.html>, (11 August 2010); Bahamas Information Service. 4 November 2007. ‘Assessments and Relief Ongoing in the Aftermath of Tropical Storm Noel.’ <http://www.bahamas.gov.bs/bahamasweb2/home.nsf/a2adf3d1baf5cc6e06256f03005ed59c/a854ddb178453e538525738a005ffa48!OpenDocument>, (11 August 2010); Caribbean Red Cross Societies. 8 November 2007. ‘Bahamas Red Cross starts relief efforts after Noel’. In *Relief Web*, <http://www.reliefweb.int/rw/rwb.nsf/db900sid/KHII-78S2ET?OpenDocument&rc=2&cc=bhs>, (11 August 2010).

⁵⁴ CCRIF. 2008. *The Caribbean Catastrophe Risk Insurance Facility: Annual Report 2007-2008*, Cayman Islands: The Caribbean Catastrophe Risk Insurance Facility, pp. 10.

⁵⁵ The Huffington Post. 19 November 2010. ‘Cayman Islands Earthquake: 5.8 Quake hits south of Cuba.’ http://www.huffingtonpost.com/2010/01/19/cayman-islands-earthquake_n_428085.html, (11 August 2010).

⁵⁶ CCRIF. 2010. *The Caribbean Catastrophe Risk Insurance Facility: Quarterly Report 1 December 2009-28 February 2010*, Cayman Islands: The Caribbean Catastrophe Risk Insurance Facility, pp. 5.

Cays.⁵⁷ There were reports of minor roof damage in some areas, along with moderate to severe damage to roads and bridges.⁵⁸ It did not trigger a pay-out because “the relatively low wind speeds of Hanna meant that wind-related losses estimated via the parametric formulae in the CCRIF policies were below the payout threshold (representing the policy deductible) in TCI.”⁵⁹

The limited available information on the use and effectiveness of the CCRIF funds as well as non-payment of deductibles for certain hazard events leaves one to believe that Risk Transfer instruments while important can only serve as a complement to the other components of Disaster Risk Reduction (DRR). It cannot replace proper DRR planning, tools and practice. Therefore, one contends that the CCRIF is moving in the right direction by partnering with other organisations so as to better develop DRR planning, tools, and practices that may lead to increased resilience within the Anglo-Caribbean. So far the CCRIF have partnered with other regional and international organisations to do just that. There are partnerships with CDEMA, CIMH, the United Nations Economic Commission for Latin America and the Caribbean (UNECLAC), and the University of the West Indies Disaster Risk Reduction Centre.⁶⁰

CCRIF and CDEMA

According to the Memorandum of Understanding between these organisations, their partnership should amount to addressing “some shortcomings in existing financial disaster management systems and to ameliorate the effects of increasing demands on CDERA through

⁵⁷ Brown, Daniel and Todd Kimberlain. 17 December 2008. ‘Tropical Cyclone Report: Hurricane Hanna (AL082008), 28 August-7 September 2008.’ http://www.nhc.noaa.gov/pdf/TCR-AL082008_Hanna.pdf, pp. 4 (11 August 2010).

⁵⁸ Ibid.

⁵⁹ CCRIF. 2009. *The Caribbean Catastrophe Risk Insurance Facility: Annual Report 2008-2009*, Cayman Islands: The Caribbean Catastrophe Risk Insurance Facility, pp. 16.

⁶⁰ CCRIF. n.d. ‘Partnerships’. <http://www.ccrif.org/content/partnerships>, (18 June 2010).

the implementation of Comprehensive Disaster Management Framework.”⁶¹ The CDM Framework seeks to achieve Disaster Risk Reduction (DRR) through proper Disaster Risk Management (DRM) that is based on “a more programme based approach (PBA) with an emphasis on results based management.”⁶²

The objectives of the partnership is threefold: (1) to study the CCRIF model in order to better develop risk modelling and risk transfer tools in the Caribbean; (2) to enhance capacity through the introduction of new products and strategies that will aid “in better understanding and financing catastrophe risk exposures.”⁶³

CCRIF and CIMH

According to the CCRIF, this partnership should amount to the CIMH supporting “the development of an extreme weather monitoring network which will record extreme rainfall and wind events and act as the verification network for CCRIF parametric policies.”⁶⁴ The excess rainfall product, based on a specialised hazard model, “will utilise the rainfall amounts generated by the model as the parameter which triggers coverage.”⁶⁵ It was launched on 25 February

⁶¹ CCRIF and CDEMA. 19 August 2009. ‘Memorandum of Understanding: Caribbean Catastrophe Risk Insurance Facility (CCRIF) and Caribbean Disaster Emergency Response Agency (CDERA)’. http://www.ccrif.org/sites/default/files/MOU_CDEMABriefAug19.pdf, (21 July 2010).

⁶² PreventionWeb. 2006. ‘Comprehensive Disaster Management (CDM) Strategy and Programme Framework 2007-2012’. <http://www.preventionweb.net/english/professional/publications/v.php?id=9216>, (21 July 2010).

⁶³ CCRIF and CDEMA. 19 August 2009. ‘Memorandum of Understanding: Caribbean Catastrophe Risk Insurance Facility (CCRIF) and Caribbean Disaster Emergency Response Agency (CDERA)’. http://www.ccrif.org/sites/default/files/MOU_CDEMABriefAug19.pdf, (21 July 2010); CCRIF. 2009. “CCRIF and CDERA Create Partnership for Natural Disaster Management”. In *CCRIF News* Vol. 1 No. 1 (September 2009), pp.1.

⁶⁴ CCRIF. n.d. ‘Partnerships’. <http://www.ccrif.org/content/partnerships>, (11 August 2010).

⁶⁵ CCRIF. n.d. ‘Frequently Asked Questions: Will CCRIF have a new product involving excess rainfall coverage in the near future?’ <http://www.ccrif.org/node/85>, (11 August 2010).

2010⁶⁶, making it available for the 2010/2011 policy period. The basis of the product is to reduce the economic losses associated with excess rainfall.⁶⁷

This is a welcomed development because the present Value Index model for hurricanes and tropical storms rests solely on distance and wind speed. Much of the damage to CCRIF states are a result of flooding and heavy rainfall, as evidenced by the cases presented earlier. Therefore, by developing a separate excess rainfall model CCRIF states will be able to better manage and prepare for these events.

CCRIF and UNECLAC

The partnership between these organisations seeks “to facilitate capacity building and to develop strategies for mitigating the physical and socio-economic impacts of natural disasters, such as hurricanes and earthquakes, on countries in the region.”⁶⁸ More specifically, it

“will enable the countries of the region to benefit from the development and enhancement of a knowledge base for key natural hazard risks; regional studies concerning the economics of climate change and the impact of natural disasters on particular sectors such as tourism; decision-making tools which might be developed by CCRIF and/or ECLAC to assist in mitigating the economic impacts of natural catastrophes; and climate change adaptation strategies to facilitate decision making across the region.”⁶⁹

Their collaboration on loss assessment and modelling was signed on 23 February 2010. This partnership is currently working on two projects: the first is the Regional Knowledge Development Component discussed above and the second is the Economics of Climate Adaptation (ECA), which aims at applying this methodology to the Caribbean region in order to

⁶⁶ CCRIF. 24 February 2010. ‘CCRIF and CIMH to launch excess rainfall model for new insurance policy.’ <http://www.ccrif.org/news/ccrif-and-cimh-launch-excess-rainfall-model-new-insurance-policy>, (11 August 2010).

⁶⁷ Ibid.

⁶⁸ CCRIF. n.d. ‘Partnerships’. <http://www.ccrif.org/content/partnerships>, (11 August 2010).

⁶⁹ CCRIF. 2010. *The Caribbean Catastrophe Risk Insurance Facility: Quarterly Report 1 December 2009-28 February 2010*, Cayman Islands: The Caribbean Catastrophe Risk Insurance Facility, pp. 10.

cultivate comprehensive CCA strategies.⁷⁰ The CCRIF argues that such collaboration will help CCRIF states to adopt DRR policies that will mitigate and minimise the physical, environmental and socioeconomic effects of disasters that tend to overwhelm the economies of Small Island Developing States (SIDS) like those in the Caribbean.⁷¹

CCRIF and UWIDRR Centre

In 2009, the UWI Disaster Risk Reduction Centre, with the help of the CCRIF, received external funding from the World Bank to develop a Caribbean Risk Atlas. The Risk Atlas is aimed at building “capacity in natural hazard risk assessment [and will be used to] develop risk models for flooding, windstorms and earthquakes.”⁷² The CCRIF’s catastrophe modelling and data has been made available to the UWI DRR Centre, and in return, data developed for the Risk Atlas will be used in future models used by the CCRIF.⁷³

These partnerships, as a whole, effectively cover the main phases of DRM – Risk Identification, Risk Reduction, Risk Transfer and Financing, and Adverse Event Management, and Recovery. Therefore, they have provided Caribbean states with the tools necessary to bounce back quickly from a disaster, which is essentially the basis of resilience. Given the efforts taken by these organisations and national governments, these strategies will fail to strengthen regional resilience only if there is a lack of:

⁷⁰ CCRIF. 2009. *The Caribbean Catastrophe Risk Insurance Facility: Quarterly Report 1 September 2009-30 November 2009*, Cayman Islands: The Caribbean Catastrophe Risk Insurance Facility, pp. 6.

⁷¹ CCRIF. 22 February 2010. ‘CCRIF and ECLAC create partnership for disaster risk reduction.’ <http://www.ccrif.org/news/ccrif-and-eclac-create-partnership-disaster-risk-reduction>, (11 August 2010).

⁷² Lynch, Lloyd and Walter Salazar. n.d. *Earthquake Risk Reduction Initiatives in the Caribbean ppt*. http://www.globalquakemodel.org/system/files/Regional%20Initiatives%20-%20Caribbean_0.pps, slide 21 (11 August 2010).

⁷³ Ibid; CCRIF. n.d. ‘Partnerships’. <http://www.ccrif.org/content/partnerships>, (11 August 2010).

- interest and capabilities,
- understanding of vulnerabilities and risk,
- long-term planning and activities, and
- maintaining and upgrading critical infrastructure.

The Caribbean region has had experience with each of these factors but the increased frequency of natural disasters has forced it to become innovative and to no longer take limited and outdated actions. CCRIF is evidence of this.

Conclusion

There is a need to ensure that the Anglo-Caribbean bounces back quickly from disaster events. The small size and insularity of these island states mean that entire communities and economies will be devastated by disaster. Without the proper resilience measures, states will find themselves overrun by the indirect negative consequences of disasters – economic stagnation or decline, loss of infrastructure, disease, poverty, and deviant social and political behaviours. No one state can handle these consequences on its own; hence, the continued need to strengthen the regional disaster management mechanism to ensure the survival of Caribbean states and peoples. The efforts of the CCRIF and its regional partners are both welcomed and necessary if the region is to meet this goal.