



Caribbean Catastrophe Risk Insurance Facility:

A solution to the short-term liquidity needs of small island states in the aftermath of natural disasters

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The aftermath of Hurricane Ivan.

Among the challenges facing the governments of small island states in the aftermath of disasters is the need for short-term liquidity to start recovery efforts while maintaining essential government services. This challenge is particularly acute for Caribbean governments whose economic resilience is limited by the combination of soaring vulnerability and high levels of indebtedness. The Caribbean Catastrophe Risk Insurance Facility was recently established to provide the Caribbean Community (CARICOM) government with an insurance instrument to address this need. This instrument, akin to business interruption insurance, will provide them with short-term liquidity if hit by a hurricane or earthquake.

High exposure to adverse natural events

Based on historical financial data gathered since 1970, adverse natural events are responsible on average for losses equivalent to more than two per cent of the Caribbean region's annual gross domestic product (GDP). While this is a long-term average, individual adverse natural events, such as hurricanes, can result in major losses overnight. In 2004, four hurricanes – Charley, Frances, Ivan, and Jeanne – wreaked havoc on a number of small Caribbean islands, causing combined losses

in excess of US \$4 billion (see Box 1 overleaf). Other types of adverse natural events are less frequent but can be just as destructive, as demonstrated by the near total destruction of the island of Montserrat by a volcanic eruption in 1995.

Limited economic resilience

For a number of reasons, small island states suffer from a constrained capacity to absorb the financial impacts of natural disasters. Their limited budgetary capacity prevents them from establishing sufficient financial reserves and, due to the concentrated nature of their economy, cross-regional subsidisation of recovery efforts is generally impossible. At the same time, the high debt level of most small island states limits their ability to access credit in the aftermath of a disaster. Finally, their access to catastrophe insurance is limited due to the high transaction costs resulting from the relatively small amount of business they bring to these markets.

As result of the aforementioned factors, the governments of small island states often face serious liquidity constraints after a disaster (see Box 2 over leaf). In many cases, the liquidity constraint greatly reduces their capacity to effectively respond to disasters, resulting in slower recovery – poor post-disaster response leads to secondary socioeconomic consequences that often have a disproportional impact on the poor.

Box 1. Storms in the Caribbean Basin

Of particular concern to the small island states of the Caribbean Basin are the recurrent losses due to hurricanes. The Caribbean Basin lies directly in the track of storms originating in the Atlantic Ocean, many of which ultimately make landfall in North America. The economic impact of hurricanes is highly variable. During a 27-year period (1979 – 2005), 13 years are classified as 'loss free', meaning no significant economic damage was incurred by any Caribbean country; eight years saw a single storm causing losses to a small island state in the region; and finally six years during which significant damage was caused by multiple storms. In rare occurrences, storms can also cause damage to multiple countries. Hurricane Ivan, a Category 3 hurricane, had a measurable impact in eight different countries.

The aggregate economic losses incurred by the small island states of the Caribbean Basin as a result of storms during the period 1979 – 2005 is estimated at US \$16.6 billion (in current value), or US \$613 million annually. Apart from storm frequency, the intensity of the storm is a determining factor influencing economic losses. The record shows that storm losses to private property, state infrastructure and other state property can be considerable. When Hurricane Ivan struck Grenada in 2004, the loss was calculated at US \$800 million, about two times the country's GDP – of which government losses accounted for about 30 per cent.

The Caribbean Catastrophe Risk Insurance Facility

As a result of their experiences during the 2004 hurricane season, the CARICOM Heads of Government requested World Bank assistance in improving access to catastrophe insurance. The Caribbean Catastrophe Risk Insurance Facility (CCRIF) is the result of two years of collaborative work between the region's governments, key donor partners, and a team of experts from the World Bank. The CCRIF will allow Caribbean governments to purchase coverage akin to a business interruption insurance that will provide them with immediate liquidity in case of a major hurricane or earthquake. Because of the financial structure of the insurance instrument used, the CCRIF will provide participating governments with coverage tailored to their needs at a significantly lower cost than if they were to purchase it individually in the financial markets.

The CCRIF functions as a mutual insurance company controlled by the participating governments. It was initially capitalised by the participating countries themselves, with support from donor partners. To understand the CCRIF one could consider a system through which several countries would agree to combine their emergency reserve funds into a common pool. If each individual country were to build-up its own reserves to sustain a catastrophic event, the sum of these country-specific reserves would be much larger than the actual needs of the pooled countries in a given year.

Box 2. Grenada island hit by Hurricane Ivan

Hurricane Ivan struck Grenada on September 7, 2004. Classified as a Category 3 hurricane, with sustained winds of 120 mph and gusts of up to 135 mph, Ivan left tremendous devastation in its wake. A damage assessment jointly conducted by the Organization of Eastern Caribbean States (OECS) and the United Nations Economic Commission of Latin America and the Caribbean (ECLAC) estimated damage over US \$800 million – or twice Grenada's Gross Domestic Product (GDP).

Just as it required additional resources to finance relief, cleanup and emergency rehabilitations, Grenada experienced a dramatic decline in revenues. The revenue shortfall was an estimated five per cent of GDP between September and December 2004. The government, which had only limited reserves, faced serious problem financing the public service bill, including salaries and the continuation of key services. It also became evident that the country would not be able to meet its debt obligations as they fell due.

In an effort to secure the necessary resources to continue functioning, the government sought donor assistance in the reconstruction of the island and in helping it meet its expense liabilities (imports and civil servant salaries). Despite over US \$150 million in pledges, only US \$12 million was available to address immediate liquidity needs. The remainder of the funds pledged was earmarked for reconstruction projects that were implemented over the following two years. In addition to the requested donor assistance, the government also sought the cooperation of its creditors by developing a proposal to restructure over 85 per cent of its commercial debt. The final effort of the government to address its revenue shortfall was to pass revenue-enhancing measures yielding over 2 per cent of GDP. These included an increase of about 45 per cent in the retail price of fuel; an increase in excise taxes on alcohol and tobacco; a special levy on incomes over US \$375 per month for a five-year period; and improved tax administration.

Despite all these efforts, Grenada's fiscal situation remained challenging and the country still faced a financing gap of 4.5 per cent of GDP for 2005 with total debt projected to increase to 150 per cent of GDP. Furthermore, instead of focusing on recovery and reconstruction, the government was distracted by the need to finance the emerging resource gap. This led to delays in the recovery and reconstruction periods.

Considering that on average, a hurricane or an earthquake only affects one to three Caribbean countries in any given year, a pool holding only the reserves for three potential payouts should be sufficient for the entire group of countries participating in the pool. Each year as the pool is depleted, participating countries would replenish it in proportion to their probable use of the funds in the pool.

The CCRIF works in a similar manner by combining the benefits of pooled reserves from participating countries with the financial capacity of the international financial markets. It retains some of the risks transferred by the participating countries though its own reserves and

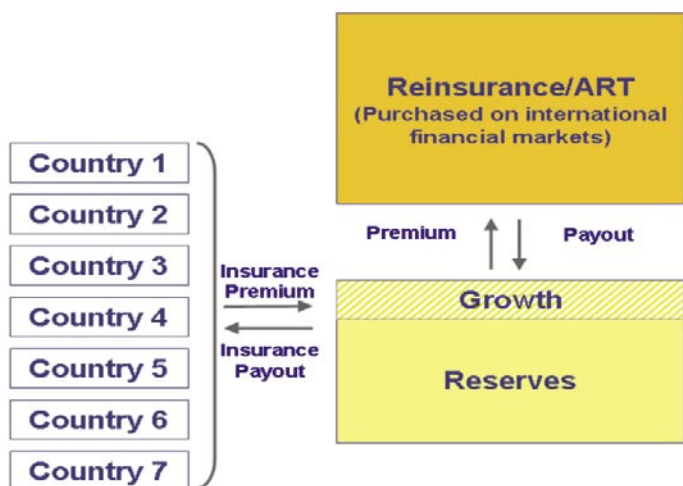


Figure 1. Structure of the CCRIF.

transfers some of the risks to reinsurance markets where this is cost-effective (see Figure 1). This structure results in a particularly efficient risk-financing instrument that provides participating countries with insurance policies at approximately half the price they would obtain if they approached the reinsurance industry on their own.

Parametric insurance

A key feature of the CCRIF is the speed at which it is designed to provide short-term liquidity to a government affected by an earthquake or hurricane. This is made possible by the use of parametric insurance instruments. Contrary to traditional indemnity insurance that makes claims payments based upon confirmation of a loss, parametric insurance disburses monies based on the occurrence of an event – without having to wait for an on-site loss assessment. In the case of the CCRIF, disbursement of an insurance payout is contingent on pre-established trigger events measured in terms of wind speed or ground shaking thresholds. This payout is proportional to the estimated loss derived from sophisticated hazard impact models designed during the development phase of the CCRIF. These models are designed to be constantly updated based on emerging information. To avoid a situation in which a country would receive a payout superior to the losses experienced on the ground, participating governments are only allowed to purchase coverage up to 20 per cent of their estimated losses, a proportion which is believed to be sufficient enough to cover their immediate liquidity needs until other sources of funds can be mobilised.

Going forward

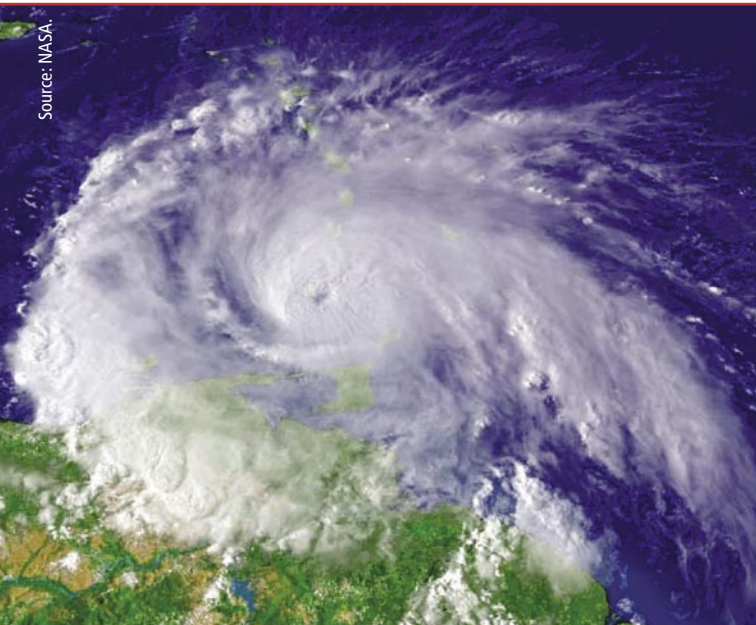
A donor pledging conference hosted by the World Bank in February 2007 brought together ministerial representatives of 18 governments from the Caribbean region, representatives of international and regional organisations and donors. Bermuda, Canada, France, the United Kingdom, the Caribbean Development Bank and the World Bank pledged a total of US \$47 million to the CCRIF reserve fund.

Box 3. Main features of the CCRIF

- *The Caribbean Catastrophe Risk Insurance Facility (CCRIF) will allow CARICOM governments to purchase insurance coverage to finance immediate post-disaster recovery needs.*
- *The facility will act as a risk aggregator. The CCRIF will allow participating countries to pool their country-specific risks into one, better-diversified portfolio. This diversification should result in a substantial reduction in premium cost of 45 – 50 per cent.*
- *Claims payments will depend on parametric triggers. Index-based (or parametric) insurance instruments pay claims based on the occurrence of a pre-defined event rather than an assessment of actual losses on the ground. This measurement, made remotely by an independent agency, allows for transparent, low settlement costs and quick-disbursing contracts.*
- *The facility will be created with initial funding from donors. Initial funding is needed to allow the facility to cover start-up costs, retain some of the risk and access the reinsurance markets where it is most efficient.*
- *The facility will transfer the risks it cannot retain to the international financial markets. This will be done through reinsurance or through other financial coverage instruments (for example, catastrophe bonds). The accumulation of reserves over time should lessen the facility's dependence on outside risk transfer and smooth the catastrophe reinsurance pricing cycle.*
- *The facility is expected to maintain financial protection to survive 1-in-1,000 year events. Should the total insured losses exceed its claims-paying capacity, payouts will be pro-rated based on the total amount of expected claims compared to the remaining available funds.*
- *The CCRIF will be established as an independent legal entity. It will be created as an Insurance Captive managed by a specialised firm under the supervision of a Board of Directors composed of representatives from the donors and participating countries. This board will be supported by the technical advice of a Facility Supervisor.*
- *Insured countries will pay an annual premium commensurate with their own specific risk exposure. Parametric insurance products are priced for each country based on their individual risk profile. Annual premiums typically vary from US \$200,000 to US \$4 million, for coverage ranging from US \$10 million to US \$50 million.*

The CCRIF offers an efficient solution to the short-term liquidity gap faced by CARICOM governments in the aftermath of a major hurricane or earthquake. Further work is already being planned for a possible expansion of the CCRIF to small island states in other regions. Work is also being contemplated to expand the scope of the coverage provided to other hazards such as floods and tsunamis.

While financial instruments can prove to be a useful risk management tool available to limit the impact of adverse natural events, they should not be considered as a panacea.



Hurricane Ivan above the Island of Grenada on September 7, 2004.



Close to 90 per cent of houses on the Island of Grenada were affected by Hurricane Ivan.

Much work is also needed to prevent disaster in the first place. This can be done by strengthening emergency preparedness and improving infrastructure to better withstand the effects of adverse natural events, including *inter alia* the enforcement of better building codes and the introduction of territorial planning systems. A clear benefit of the parametric instrument provided by the CCRIF is that it avoids the usual moral hazard problem associated with insurance. Investments in risk mitigation do not affect the level of a payout, but will eventually reduce the cost of the annual insurance premium paid by a participating government. This keeps the incentives aligned to limiting the impact of adverse natural events and to reduce the number and amplitude of disasters.

About the authors



The Hazard Risk Management team takes action by providing technical support to World Bank operations, promoting capacity building and establishing partnerships with the international and scientific community working on disaster issues. They do this through education, training, support and partnerships.

About the organisation

The World Bank is a vital source of financial and technical assistance to developing countries around the world. The World Bank isn't a bank in the common sense, but is made up of two unique development institutions owned by 185 member countries – the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA). Together the institutions provide low-interest loans, interest-free credit and grants to developing countries for education, health, infrastructure, communications and many other purposes.

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