

## **CCRIF Briefing Document: Climate Change and Caribbean Economies: Implications, Adaptation and Risk Management**

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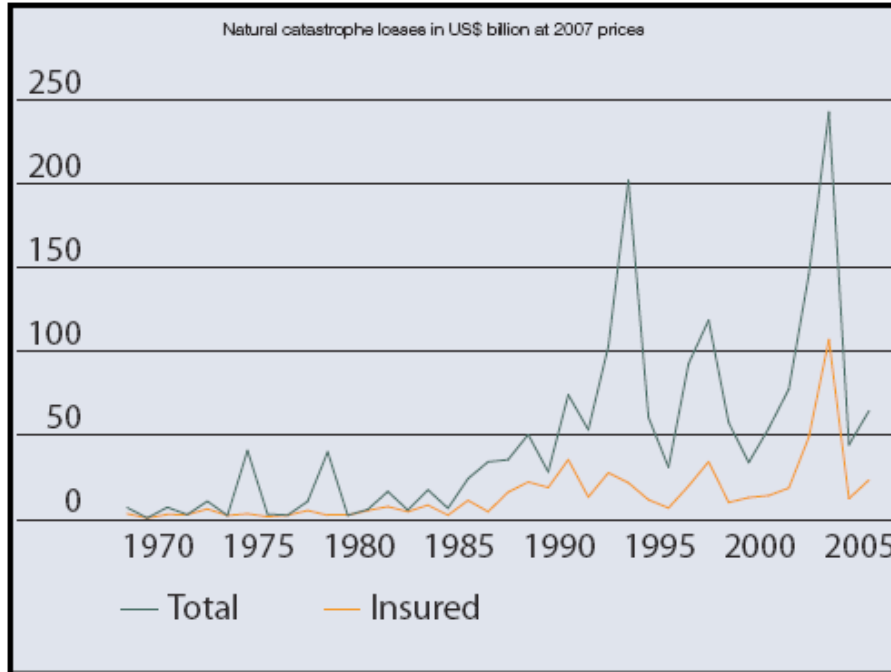
### **1 IMPLICATIONS**

Although the islands of the Caribbean are marked by nuanced differences which define the social, economic and political fabric of each individual country, there are broad similarities which make the islands, as a collective, all vulnerable to the risks and impacts of climate change.

The fact that they all share similar economic and sustainable development challenges (consisting of low availability of resources, high debt, a small but rapidly growing population, remoteness, susceptibility to natural disasters, excessive dependence on imports and vulnerability to global developments) enhances their vulnerabilities and reduces their resilience to climate change, particularly via the associated sea-level rise and enhanced climate variability and occurrence of extreme natural events.

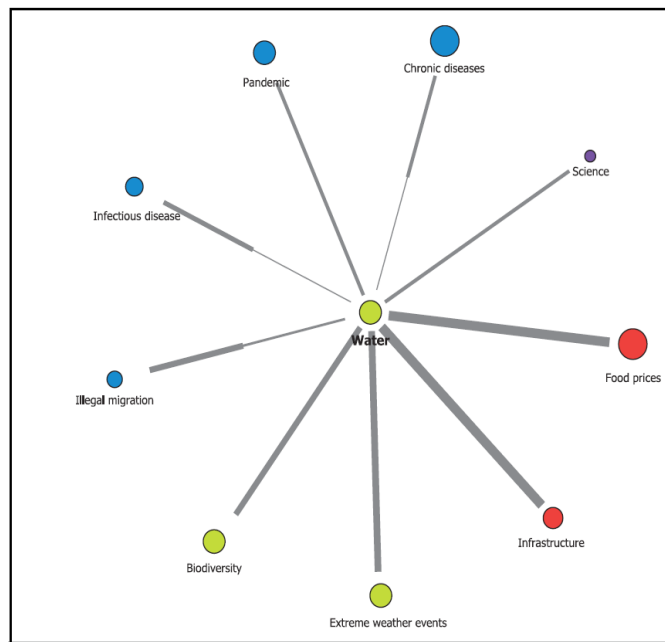
The implication and impact of climate change on these predominantly island nations is therefore not simply physical but inherently tied to their economic and social viability. The deterioration in coastal environments, for example through beach erosion and coral bleaching, will significantly affect local resources such as the fishing industry as well as directly impacting on the value of the tourism industry.

Sea-level rise will result in an increase in storm surge inundation area, flood water height and wave damage, in turn resulting in enhanced levels of erosion and specific event impacts which threaten vital infrastructure, settlements and facilities that support the livelihood of most Caribbean communities. The increasing devastation and losses caused by natural disasters in the Caribbean is similarly reflected on a global scale (Figure 1), therefore highlight the increasing risk being created by climate change.



**Figure 1** Increase in global losses from natural disasters. Data from Swiss Re.

The reduction of potable water resources within small islands is yet another example of a threat that is not simply physical but could have potentially far reaching social, economic and political implications (Figure 2.)



**Figure 2** Water as a nexus of many risks. From WEF: Global Risks 2009.

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The concern about the future of Caribbean economies within the context of these risks posed by climate change is therefore a legitimate one. It is not simply based on unfounded fears but born from experience with current patterns and consequences of climate variability, as well as from observational records and indeed also climate model projections. This is supported by the 4<sup>th</sup> Assessment Report of the IPCC (Inter Governmental Panel on Climate Change) which concludes that small islands, including those in the Caribbean, face some of the highest levels of threats and risks from climate change and hence should focus on enhancing their resilience and implementing appropriate adaptation measures as a matter of urgency (UN-IPCC 2007; Chapter. 16, page 4).

## **2 ADAPTATION**

Adaptation to climate change is not a simple task. This is inherently due to the complex nature of climate change itself and the high level of uncertainty associated with understanding its true scope, intensity and impacts.

As climate change is a complex issue, effectively addressing adaptation will require a multi-faceted approach involving both mitigation and adaptation mechanisms and public and private sector involvement and cooperation. This portfolio of mechanisms could range from technological (*e.g.* sea defences), through to behavioural (*e.g.* altered food and recreational choices), to managerial (*e.g.* altered farm practices) and to policy (*e.g.* planning regulations). In fact, there is no clear picture of the limits to adaptation, or the cost, and this is partly because effective adaptation measures are highly dependent on specific geographical and climate risk factors as well as institutional, political and financial constraints.

Each of the islands of the Caribbean are simultaneously confronted with other social, political, economic and physical stresses which make adaptation an intrinsically challenging and complex task. This is because investment in essential adaptation and mitigatory measures will involve the reallocation of already scarce resources away from economic development and poverty alleviation, and will also add to already stifling debt burdens.

Although these constraints can limit the choices of adaptation options and their implementation (such as inadequate data and technical capacity, weak human and institutional capacity and limited financial resources), it becomes especially important that the harnessing of these mechanisms and the associated adaptation investments made must themselves be properly conceived and legitimately implemented.

Mal-adaptation, caused by an underestimation, overestimation or mis-estimation of the impact of climate change, can also be regarded as an added risk with far reaching consequences for the people of the Caribbean.

Within this context the role of risk management as a component used to inform the process of adaptation to the risks associated with climate change become especially relevant, important and even critical.

### **3 RISK MANAGEMENT**

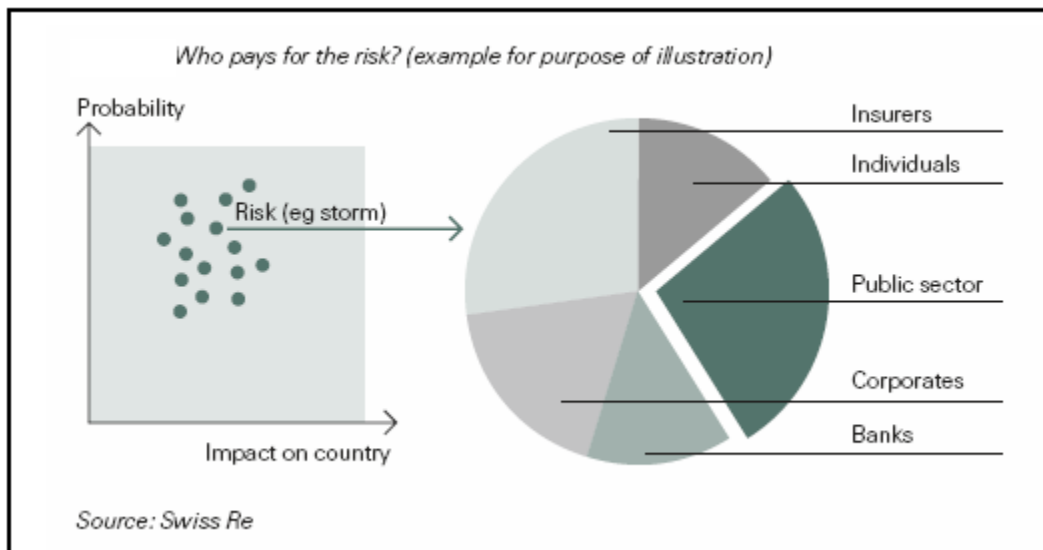
Apart from the risks created by climate change, Caribbean countries are also subject to a myriad of other risks. These risks oftentimes do not stop at individual island national borders but are part of a complex globally interconnected system. Similarly the risks associated with climate change are borderless. Adaptation to this compendium of risks places enormous pressure on regional governments who are charged with the responsibility of maintaining critical infrastructure while preserving lives and economic livelihoods under increasing budgetary constraints. Within this context prioritising risks and the actions necessary for effective adaptation becomes a point of concern.

Risk management is a process which governments can harness to determine their priorities in advance and in order where possible to minimise these risks. It involves a thorough examination of current situations as well as a constant awareness of the ever changing risk landscape and offers insight into opportunities and mechanisms which can be used to anticipate, adapt to and mitigate against present and future risks.

The knowledge gained from utilising the comprehensive identification and assessment of risk processes can provide valuable information that can then be presented to decision-makers, thereby offering them an appropriate platform upon which to make decisions about the optimal use of limited resources for adaptation.

It is important to also note that intrinsic to the risk management process is an appreciation of uncertainty. Uncertainty is a factor which is critical in a lot of the risks faced by Caribbean countries and by extension also the risks created or enhanced by climate change. The utilisation of statistical methods and models and the in-depth knowledge of insurers who have experience in quantifying and managing risk allows for these uncertainties to be limited to some extent, thereby providing a more solid base upon which to make decisions.

Through the risk management process, public and private efforts can therefore be better focused on those risks that cause either the greatest damage or occur the most frequently, with options being offered into the means or tools of implementation to prevent or mitigate these risks and how these can be spread across both the private, public and legal regulatory framework. Distribution of risk management efforts across the different sectors must be aligned with the relative impacts of each risk on that sector (e.g. Figure 3.)



**Figure 3** Example of the breakdown of economic costs for one risk; the distribution may be very different for each of the different risks a country and its people face, and will also vary with economic profile etc.

The utilisation of risk management as a tool to aid decision-making in an uncertain environment has the potential to greatly help the islands of the Caribbean to effectively adapt to the risks associated with climate change. The role of new initiatives such as CCRIF highlight some of the ways in which risk management tools have been and can be harnessed to adapt to the risks that result from climate change.

#### 4 CASE STUDY: CCRIF

The CCRIF provides a working model of an innovative risk management mechanism that provides cost effective risk transfer as part of a holistic disaster risk management framework within the Caribbean. It is a regional fund for Caribbean governments designed to limit the financial impact of catastrophic hurricanes and earthquakes by quickly providing financial liquidity when a policy is triggered. CCRIF offers parametric policies backed by both traditional and capital markets.

The intense risk assessment processes involved in the CCRIF initiative involves the collection of information relating to catastrophe risk exposure to hurricanes and earthquakes. This in turn provides valuable data that can aid national governments and regional risk management institutions in understanding the extent of exposures which they face as a country. This helps governments to determine the level of coverage to purchase as well as aiding efforts in physical disaster risk reduction and avoidance, general disaster response and recovery planning, and long-term sustainable development planning.

## 5 CONCLUSIONS

Investing in adaptation initiatives that reduce the impact of climate change is absolutely essential for the future viability and sustainability of the economies of the Caribbean. Risk management and by extension the utilisation of risk management tools and mechanisms will be critical in ensuring that effective adaptation measures against climate change are made even within the context of constrained resources and budgetary pressures.

The importance of comprehensively mapping and addressing the pronounced risk landscape within each individual Caribbean island as a result of climate change highlights the need for the mainstreaming of the risk management process within policy making, and the possibilities for the creation of a role for a 'Country Risk Officer' in the individual islands.

### *5.1 The Case for a Country Risk Officer*

The case for this role can be made on a number of grounds involving several simple questions:

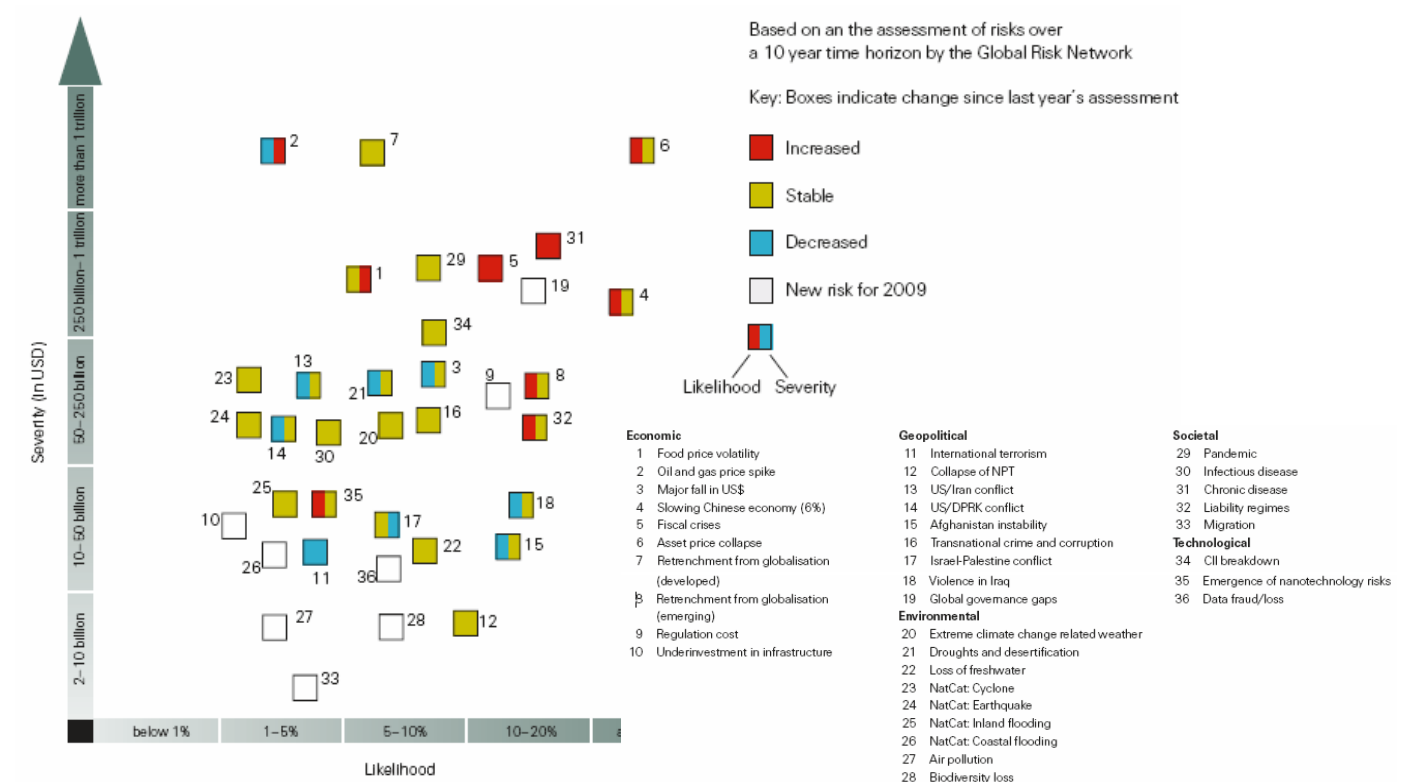
- Who evaluates the mix of prevention, preparation, response, recovery and risk transfer actions across different risks?
- Who takes responsibility for international coordination, as many catastrophes do not stop at the individual national border?

These questions underscore the importance of developing a systematic method of addressing these risks. They also underscore a need for Caribbean islands to find innovative ways of taking ownership of the risks in order to control the adverse conditions which they can create for the people of the Caribbean.

Although some work is being undertaken at the local, corporate and even national level on mitigation and building awareness about climate change, adaptation and the role of risk management in the process, it is necessary that the appropriate exchange of information, expertise, governance and management structure is coordinated, in order to effectively address the current multifaceted risk scenarios faced by the islands.

Within this context a Country Risk Officer would act as a central point of contact for the purposes of systematically managing a comprehensive multi-area risk portfolio that coordinates and builds upon the work already being carried out by governments. Essential to this role will be creating a high degree of synergy between the various levels of government and administration, private-sector operations and the insurance industry. Improving the level of collaboration across the various sectors by actively engaging in the development of new partnerships involving the transfer of risks and financing of economic losses through the coordination of global efforts would be an essential component of effectively adapting to climate change.

Figure 4 illustrates a fundamental tool of country (or regional/global) risk management; the mapping of the risks onto a severity/likelihood grid. The example provided is for the world economy, but the same principles can be applied at a country level, so identifying key priorities.



**Figure 4** The Global Risk Landscape. From WEF: Global Risks 2009.

Without ownership of these risks and a systematic method of addressing the problems they create, adaptation will remain fragmented and the challenges created by climate change will continue to further dampen prospects of sustainable growth within the Caribbean.

Although risk management is not the complete solution to the problems being created for Caribbean people and economies by climate change, it does provide an important benchmark upon which more informed decisions can be made regarding investments in adaptation and mitigatory measures.