Goal of Approach:

Caribbean Catastrophe Risk Insurance Facility (CCRIF) Economics of Climate Adaptation Study

Today, natural hazards already present a significant risk to people and economies in the Caribbean. Climate change has the potential to worsen these risks and, thus, is one of the most serious threats to the development prospects of Caribbean states. Climate adaptation is thus an urgent priority for the custodians of national and local economies, such as finance ministers and mayors. Such decision-makers ask: What is the potential climate-related loss to our economies and societies over the coming decades? How much of that loss can we avert, with what measures? What investment will be required to fund those measures – and will the benefits of that investment outweigh the costs? Recognising that decision makers need a quantitative fact base to draw up sound adaptation strategies and business cases, the Caribbean Catastrophe Risk Insurance Facility (CCRIF) launched an Economics of Climate Adaptation (ECA) study for the Caribbean region in February 2010 (see here). The study is aimed at providing decision makers with facts and a common approach to assess and address any location's total climate risk in a cost-effective manner.

Input provided by: Caribbean Risk Managers (Facility Supervisors of CCRIF)

Main elements of the implementation strategy

The CCRIF ECA study aims to provide country and regional decision-makers with a fact-based risk management approach that national and local leaders can use to understand the impact of climate change on their economies – and identify actions to minimise that impact at the lowest cost to society. The framework poses five questions, each driving a core set of analyses:

1. Where and from what are we at risk?
2. What is the magnitude of the expected loss?
3. How could we respond?
4. How do we execute?
5. What are the outcomes and lessons?

The fact base is built around two elements:

A risk baseline, providing transparency on current and future expected losses from climate risks for three climate scenarios. The assessment of the future risk baseline is based on the concept of total climate risk, i.e., the total future risk that could arise from adding the effects of climate change and economic growth to the current risk level.

An assessment of adaptation measures that could be taken, including an analysis of the expected costs and benefits of risk mitigation and transfer measures.

The methodology applied in this study is unique in its positioning across different knowledge sectors, spanning climate science, the financial industry and economic research. The analysis relies on four interconnected elements:

1. Climate change scenarios based on the most recent available scientific evidence
2. Hazard models forecasting the occurrence of hurricanes and other events with high damage potential
3. Economic damage functions linking the intensity of events to economic impact
4. Value distribution models describing each country's economic and population exposure to hazards in a precise, granular manner

The analysis focused on quantifying the potential impact of climate change on three relevant natural hazards: Hurricane-induced
wind damage Coastal flooding/storm surge Inland flooding due to both hurricanes and non-tropical systems.

The initiative is being implemented in three phases. In Phase 1, which has been completed, the study focused on eight pilot countries: Anguilla, Antigua and Barbuda, Barbados, Bermuda, the Cayman Islands, Dominica, Jamaica, and St. Lucia.

Targeted beneficiaries

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

When the results have been finalised, they may be applied in several ways. A number of Caribbean countries have already started working on their National Adaptation Programmes of Action (NAPAs). The fact base provided by this study can augment the development and review of these national adaptation strategies. For example, the study prioritises areas and sectors at risk and provides clear inputs for building an economically viable portfolio of adaptation initiatives designed to increase each country's resilience.

Additionally, the results of this study can be used by countries' governments in multi-lateral and bilateral funding discussions for adaptation initiatives. Given the economic and political climate, the availability of such funds will not necessarily be permanent. Access to adaptation funding may therefore hinge on each country's ability to support effective business cases with sound quantitative data in a timely manner.

Any significant lessons learned

Natural hazards already represent a significant risk to inhabitants and economies in the Caribbean. Annual expected losses from wind, storm surge and inland flooding amount to up to 6% of GDP in some countries. Climate change has the potential to greatly exacerbate these risks, and could increase expected loss by 1 - 3% of GDP by 2030. This economic damage is comparable in scale to the impact of a serious economic recession – but on an ongoing basis. Climate change thus poses one of the most serious threats to development prospects in the Caribbean.

Numerous adaptation measures are available to decision makers to respond to the growing threat of climate change. These can be organised by two main levers: risk mitigation and risk transfer. Depending on each country's characteristics, risk mitigation initiatives can cost-effectively avert up to 90% of the expected loss in 2030 under a high climate change scenario. Risk transfer or insurance measures also play a key role in addressing the financial consequences of low-frequency, high-severity weather events such as once-in-100-year catastrophes.

Resource requirements

This study is carried out by the CCRIF, working closely with national and regional partners including the Caribbean Community Climate Change Centre and the UN Economic Commission for Latin America and the Caribbean, and with support from Swiss Re and Caribbean Risk Managers Ltd. McKinsey & Company has provided analytical support to the study. The study leverages the findings of the Economics of Climate Adaptation Working Group, a partnership between the Global Environment Facility, McKinsey & Company, Swiss Re, the Rockefeller Foundation, ClimateWorks Foundation, the European Commission, and Standard Chartered Bank (here).

Potential for replication or scaling-up

The study provides decision makers with a systematic and common approach to assess and address any location's total climate risk and is therefore easily replicated at various scales and across countries.

Any additional information

The CCRIF is the first multi-country risk pool in the world, and is also the first insurance instrument to successfully develop parametric policies backed by both traditional and capital markets. It is a regional catastrophe fund for Caribbean governments designed to limit the financial impact of devastating hurricanes and earthquakes by quickly providing financial liquidity when a policy is triggered. For additional information and resources, please visit http://www.ccrif.org/