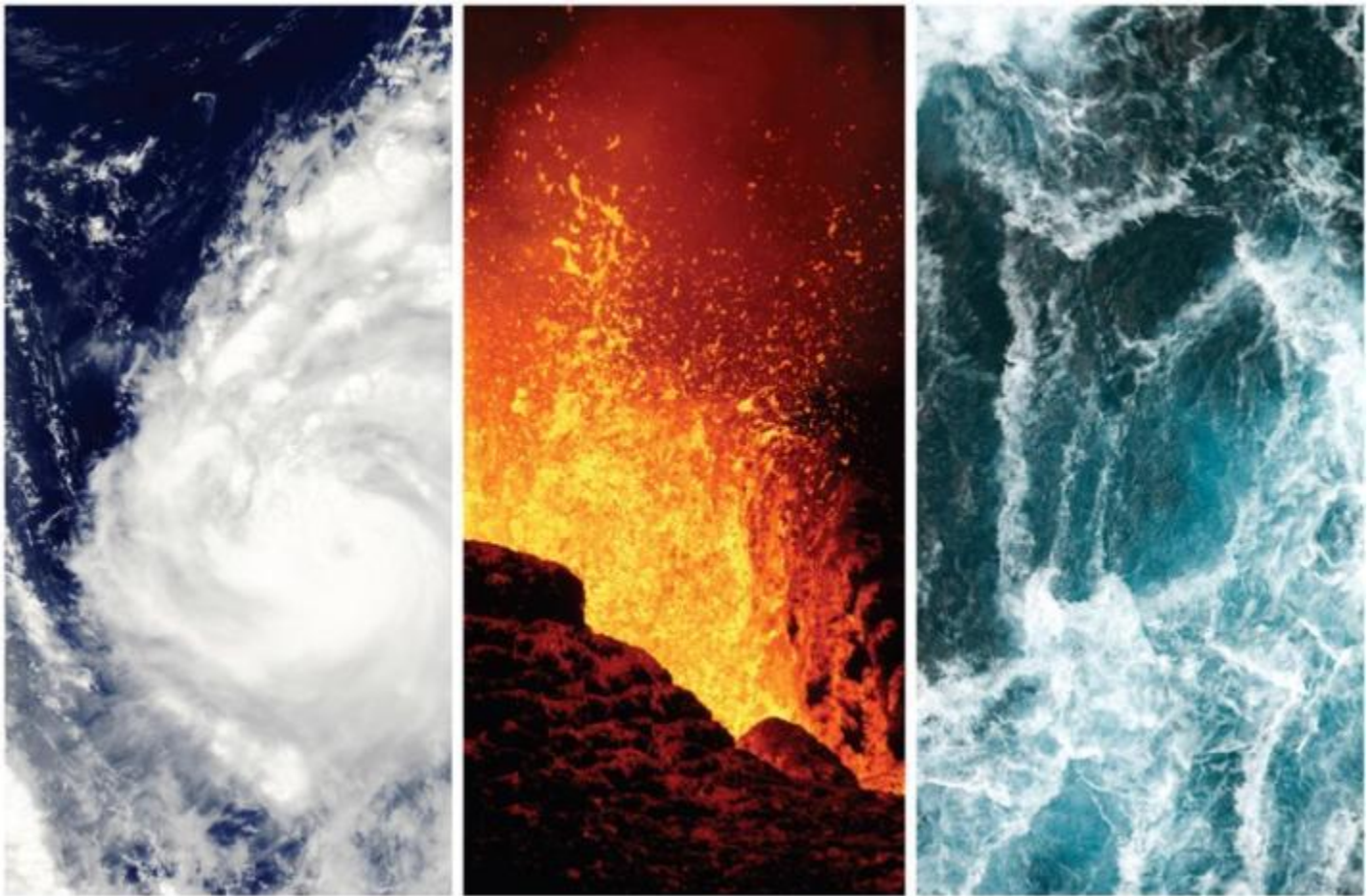


# Caribbean Risk Managers Ltd



## Ideas for a Holistic Climate Change Adaptation Framework for COP15

*Simon Young*

29 October 2009

# Caribbean Risk Managers Ltd

*Registered Office*  
20 Micoud Street  
PO Box 189  
Castries, Saint Lucia  
[www.CaribRM.com](http://www.CaribRM.com)

*Jamaica Office*  
The Towers, 10<sup>th</sup> Floor  
25 Dominica Drive  
Kingston 5, Jamaica  
Tel: +1 (876) 920-4182  
Fax: +1 (876) 906-0352

Email: [Jamaica@CaribRM.com](mailto:Jamaica@CaribRM.com)

*Barbados Office*  
Suite #6, Barbados Hardware Complex  
Haggatt Hall, St Michael  
BB11059, Barbados  
Tel: +1 (246) 426-1525  
Fax: +1 (246) 426-1704

Email: [Barbados@CaribRM.com](mailto:Barbados@CaribRM.com)

Caribbean Risk Managers Ltd (CaribRM) provides a broad range of bespoke risk management services throughout the Caribbean Basin and beyond to both public and private sectors, including governments and their agencies, international financing institutions and donor countries and NGOs, multi-national companies, the regional insurance sector and the global reinsurance markets. We are currently Facility Supervisor (risk and operational managers) of the Caribbean Catastrophe Risk Insurance Facility, the world's only multi-national and parametric catastrophe risk pool.

CaribRM works closely with regional institutions in the Caribbean Basin, and has been commissioned by the Caribbean Community Climate Change Centre (5Cs) to provide technical support to the CARICOM and AOSIS negotiating teams for COP15, particularly in the areas of insurance mechanisms and adaptation financing. 5Cs receives funding support from the UK Department for International Development for coordination of regional climate change mitigation and adaptation work.

## 1 INTRODUCTION

This document provides a summary of ideas stemming from CaribRM's work in support of the Caribbean and AOSIS's negotiation teams in preparation for the 15<sup>th</sup> UN-FCCC Conference of the Parties in Copenhagen in December 2009. Our technical input has concentrated on how regionally-pooled insurance mechanisms can play a role in the critical climate change adaptation framework to be articulated within the Agreed Outcome in Copenhagen. This short paper provides some further ideas on how insurance and other adaptation strategies should be viewed in a holistic way, recognising that it will be a broad set of tools, supported by the necessary financing, which will enable individuals, communities, countries, regions and ultimately the world itself to successfully adapt to a warmer and more variable climate.

## 2 A GRAPHICAL STARTING-POINT

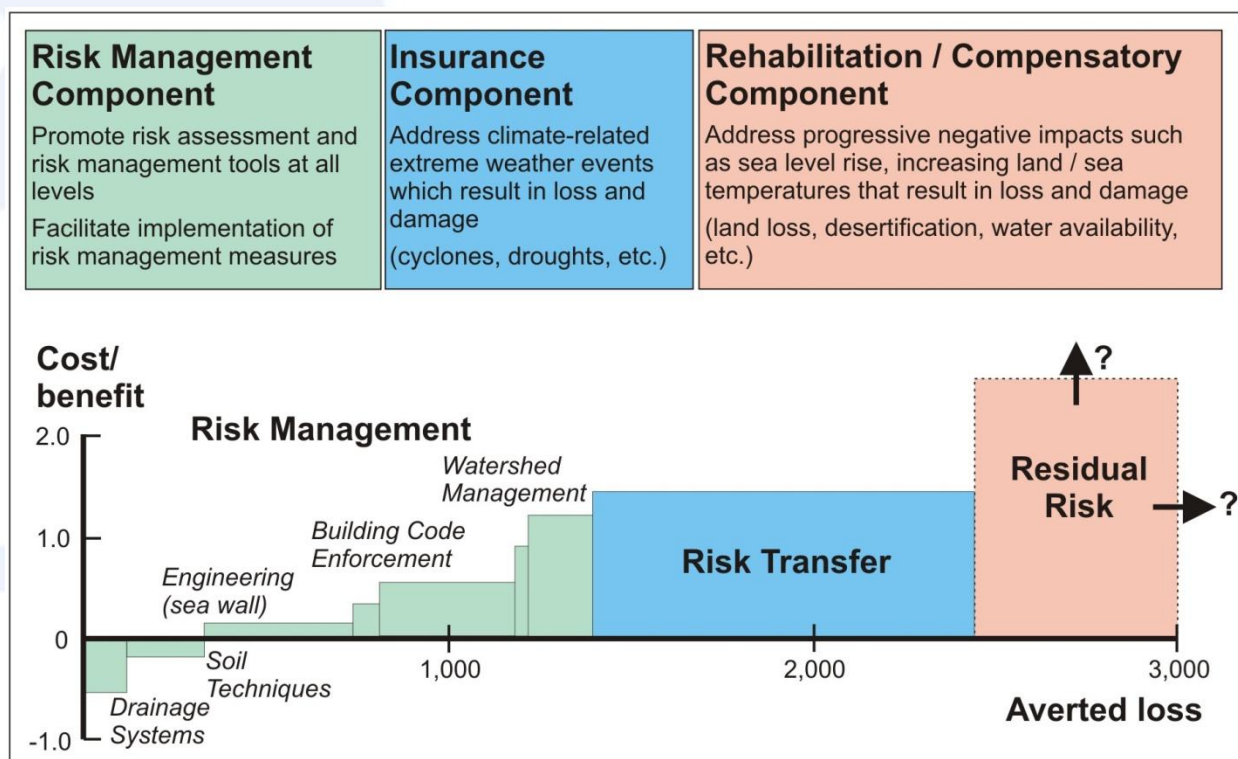
During the course of our work, we have encountered much written and spoken word, and we recognise the great challenge of visualising the broad field that is 'adaptation' in the global climate change context. However, we also recognise the importance of visualising core concepts as a foundation for negotiations and, ultimately, achieving the required commitments of funding and technical support from those who have done most to contribute to anthropogenic climate change to those who are most vulnerable to the consequences.

We have chosen to base our graphical starting point around a graph originally presented by the Economics of Climate Change Working Group, led by Swiss Re and McKinsey & Company, in their report published in September 2009 (Swiss Re, 2009.) In many ways, this graph replicates the stylistic graphic within AOSIS's adaptation working paper presented at COP14 in Poznan (AOSIS, 2008), but adds to it by providing a quantitative context for utilising different adaptation tools.

The same three principal components to the adaptation framework are identified in both graphics:

- Risk Management
- Risk Transfer
- Residual Risk/Rehabilitation

We have adjusted the AOSIS 'pillars' to coincide with the relative position of each component on the ECA 'adaptation cost curve' (Figure 1).



**Figure 1** Comparison of AOSIS adaptation pillars and ECA cost curve quantification of adaptation costs and benefits.

We believe that the ECA approach provides a sound, quantitative basis for decision-making regarding adaptation strategies. It can be applied across a continuous spectrum of scales, from locally focussed on a specific sector to nationally or regionally focussed across the full spectrum of impacted sectors. In each case, though, the cost of each adaptation tool is weighed against its benefits in terms of averted cost of impacts (direct or indirect losses) compared to what would occur under a climate change scenario if that particular adaptation tool were not utilised.

- Benefits include the loss averted and additional revenues (where applicable).
- Costs include capital and operating expenses as well as potential operating savings generated – and therefore can be negative.

A strategy can thus be developed where adaptation tools are applied progressively, starting with the most cost-beneficial. Any actions below a cost/benefit ratio of unity are cost-effective. Depending on the particular case being assessed, cost-effective measures will enable a differing portion of total losses to be averted. In our graphic, just under 50% of the expected losses can be averted through cost-effective **Risk Management** measures.

At some point, risk management tools become too costly relative to the benefits they provide. This is the point at which **Risk Transfer** becomes the most cost-effective way of adapting to the risk. Our other work (Young *et al.*, 2009; Young, 2009a) and empirical data from current catastrophe risk pools and commercial reinsurers suggests that a cost-benefit ratio of 1.5 to 2 is a reasonable estimate for risk transfer solutions. A significant part of the risk towards the right hand side of the ECA graphic, that risk which it is cost-inefficient to use risk management tools to cope with, relates to catastrophe risk. Because extreme events happen only rarely, it is often prohibitively costly to employ engineering or other adaptation strategies to mitigate the risk associated with such events. In such cases, transfer of the catastrophe risk is the most cost-effective adaptation strategy.

In our graphic, Risk Transfer takes us from just under 50% of averted loss to about 80% of averted loss. We are then left with 20% of losses as **Residual Risk**. We equate this residual risk with the ‘rehabilitation/compensatory component’ pillar of the original AOSIS COP14 proposal. This is the risk from climate change that cannot be reasonably adapted to nor transferred. It will predominantly arise from slow-onset changes to baseline environmental conditions which make human habitation socio-economically impossible. Land loss due to sea-level rise, desertification due to changes in rainfall patterns, and lack of available water due to a variety of hydro-meteorological changes may all cause residual risks.

Residual risk should also include the uncertainty element of climate change impacts; risk management and adaptation measures implemented with a view to averting, say, 80% of expected losses may only actually avert 70% or 60% of losses, due either to uncertainty in the original loss estimates for an expected emissions/climate change scenario or to actual climate change impacts being more severe than expected.

### **3 TECHNICAL AND FINANCIAL SUPPORT**

The original AOSIS proposal includes over-arching themes of technical and financial support for the implementation of the holistic adaptation framework.

Technical support is clearly identified as a key element of any mechanism to address adaptation at the global scale, and many of the technical tools required are those developed and utilised by the risk management/insurance sector. The regional risk pooling entities may thus be good focal points for technical support and will, anyway, need to develop many of the datasets required to quantify adaptation needs and support decision making under a quantitative framework such as demonstrated in the ECA work (Swiss Re, 2009).

Our other work includes an estimate of costs for implementing regional risk sharing mechanisms (Young, 2009a) which goes a long way to enabling the risk transfer tools highlighted above and to be used at a variety of scales all the way from individuals to national governments. Much other work at a variety of institutions has addressed the overall cost of adaptation (see Iyehen & Young (2009) for a summary of some relevant work), mainly through seeking to identify the total losses which need to be averted at a global scale. At the national level, the National Adaptation Programmes of Action (NAPA) process under the current adaptation funding mechanism provides information; many of the Least Developed Countries have identified and costed their most urgent adaptation needs, all focussed on risk management tools. An extension of the NAPA process, perhaps tied to a more rigorous and uniform quantification approach bringing in cost-benefit analysis tools, should enable individual countries to develop costed adaptation plans which include application of both risk management and risk transfer tools. Capacity-building support in the area of sovereign risk management (building on the OECD concept of Country Risk Officers) is a critical aspect of the adaptation process.

Funding for residual risk is perhaps the most difficult to address. It is funding that will not be required perhaps for decades. The level of funding that might be required is highly uncertain and varies greatly between different countries and regions. How successful individual countries are in implementing adaptation plans will impact significantly on the amount of residual risk, though so too will changes in emissions and the rate of climate change itself. Countries with the highest levels of residual risks are often those who will be least able to manage those risks as the impacts come to pass.

We believe that a contingency fund is required, akin to a pension plan, in which an additional levy on all risk management financing is made, to be held in trust for each non Annex I nation, once an adaptation project is successfully implemented. Access to the fund for each nation could be triggered by certain global or regional climate change metrics, chosen such that the slow-onset factors contributing to the residual risk are closely approaching or have reached the level at which those risks are of immediate and direct concern.

One option would be for the levy to be a fixed percentage of the amount of averted loss that a particular project achieves such that if all available cost-efficient programmes are implemented then the accumulated levy will fully fund the residual risk. In the example of our graphic, risk management tools avert around 50% of the risk; a 40% levy on each implemented project would provide full funding for the 20% residual risk. This levy approach encourages risk management project implementation and cost-efficient risk management. It also addresses the disparity between the amount of adaptable and residual risk between different countries, such that successful implementation of a comprehensive risk management strategy to address adaptable risks will generate sufficient funding to then cover the residual risk.