

Climate Change Adaptation: A Case for Preventative Action and Risk Transfer

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Question Two: How can we balance today's pressing needs with long term risks? How can public officials, especially in low income countries, address today's short- term pressing needs while preparing for tomorrow's climate-related impacts and surprises?

Global efforts to address climate change have been in disarray following the failed talks in Copenhagen. But even if all carbon emissions were stopped at once, climate trends would continue to expose local populations to the mounting challenges - and costs - of protecting greater asset values against weather-related risks. These range from more frequent and severe storms, floods, droughts and other natural disasters to sea level rise, crop failures, and water shortages. Innovative insurance solutions involving partners from the public and private sectors offer local decision-makers cost-effective ways to secure funding before a disaster strikes and make their communities more resourceful when it does.

Adapting to the unavoidable impacts of climate change

Economic losses from climate change are already substantial and on the rise. Over half of the world's population is presently threatened by natural hazards, and

insured losses from weather-related disasters have jumped from USD 5.1 billion (GBP 3.4 billion) per year in the period between 1970 and 1989 to USD 27 billion (GBP 17.7 billion) annually over the last two decades[1]. In Europe alone, losses from surge events along the North Sea coast are expected to more than quadruple from an annual average of EUR 600 million (GBP 530 billion) to EUR 2.6 billion (GBP 2.3 billion) towards the end of this century[2]. But the most vulnerable and least prepared regions are in the developing world. Climate risks could cost emerging economies up to 19 percent of their total gross domestic product by 2030, predicts the Economics of Climate Adaptation (ECA) working group in its 2009 study "Shaping Climate-Resilient Development." [3]

A case for preventive action and risk transfer

These are gloomy projections. But the ECA findings tell another, more upbeat story. The encouraging part is that case studies in eight different regions of the globe, ranging from Maharashtra in India to Florida and Northern England, showed that some two-thirds of expected losses from climate change can be averted using cost-effective adaptation measures. These include improved drainage and irrigation systems, sea defences and enhanced building codes, vegetation buffers and disaster awareness campaigns, among many others. The ready availability and proven value of such measures make a compelling case for preventive action.

The downside, especially for developing countries, is the residual risk that cannot be mitigated in a cost-effective fashion. No community can absorb the cost of damage prevention from every imaginable risk event, especially from those hazards least likely to occur, if at all.

Consider the case of a well developed country such as the Netherlands whose sea defence systems are among the most effective in the world. Parts of the Eastern Scheldt barriers, for example, which protect the country against North Sea storm surges, are constructed to withstand a 1-in-10,000-year event. The high level of protection is the product not only of economic considerations but also - and more importantly - of political decisions made on a local level and based on a specific risk-taking appetite. A developing country would not have the financial muscle to invest to the same extent in prevention measures. Consequently new methods need to be developed to address this issue.

In such instances, off-loading risk to the private insurance and capital markets usually proves to be the most economical adaptation measure. This can be done

through a variety of risk transfer methods, such as traditional indemnity-based insurance or innovative index based solutions, catastrophe bonds or other similar financial instruments. These financial tools cap losses and smooth the cost to individuals, businesses and public institutions, thereby protecting local economies from the impact of catastrophic events.

Designing a well-balanced adaptation strategy

Risk prevention and risk transfer are mutually reinforcing. While insurance is a useful component in a given adaptation portfolio, keeping insurance prices in check by minimizing residual risks through prevention measures is equally important. Improving defenses against storm-surge waves, for example, has the dual benefit of reducing exposure to storm perils and at the same time ensuring that risk transfer options continue to be affordable for less frequent, more severe storm events. In turn, properly set insurance premiums provide a strong incentive to invest in those types of prevention activities that promise to yield net economic rewards.

For decision-makers, the real challenge then is to adopt a risk management approach that strikes the appropriate balance between loss prevention and risk transfer measures. In practical terms, the task of collecting and analyzing the data needed to make an informed decision demands a high degree of coordination among relevant public and private entities. This is why the appointment of a country risk officer or minister to head up such efforts would be beneficial.

Although politically problematic, it may be necessary to resist action based on immediately perceived risks that could worsen future adaptive capacity. Instead, to ensure efficient allocation of resources for adaptation, it is important to take a long-term view and assess a location's total climate risk. Such an approach must consider not only the threat posed to society from today's climate, but also the impact of potential climatic scenarios in the future and the expected future value of economic development. By combining all these factors and using a cost-benefit analysis to create a list of location-specific adaptation measures, it is possible to evaluate current and potential costs of climate change to a community and determine how to prevent them in the most economical way.

Example India: Maharashtra - Focus on drought risk to agriculture

One of the locations assessed in this manner by the ECA working group includes the state of Maharashtra, a large rural state in central India. Like many other parts of the Indian sub-continent, the state is confronted by the risk of drought from unpredictable rainfall patterns. Long arid periods have historically caused severe disruption to agriculture and triggered disproportionate harm to the millions of poorer people engaged in small-scale farming.[4]

Currently, estimates of the annual loss from drought stand at almost USD 240 million, equivalent to some 2.5 percent of the region's agricultural output. Assuming a high climate change scenario, anticipated annual losses could surge to USD 570 million by 2030, an increase of 139 percent, impacting over 4 percent of agriculture production. While much of this is attributable to plunging rainfall levels and the increasing frequency of heat waves, a shift towards higher value horticultural crops and sugar cane is also responsible for putting greater agricultural asset values at risk.

A cost-benefit analysis of viable adaptation measures demonstrated that Maharashtra can avoid almost half the projected drought loss to 2030 through measures whose economic benefits exceed their costs. These include expanded drip and sprinkler irrigation, drainage construction, watershed management, improved soil techniques, integrated pest management and crop engineering.

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[5] Risk transfer is a necessary complement to prevention measures in the case of severe drought. Together, insurance and risk prevention form a cost-effective adaptation portfolio that addresses up to 80 percent of total expected losses. Yet, some residual loss (around 20 percent) remains that cannot be averted through known measures.

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Risk transfer has a great deal more to offer with respect to strengthening the climate resilience of local economies. The role of insurance is of particular relevance in the most vulnerable regions of the developing world, where resources are scarce and the potential impact of climate change fierce. With its financial clout and geographically diversified reach, the global insurance and reinsurance industry is a key ally for national and local decision-makers who have to contend

with a large degree of uncertainty when making policy and investment choices about climate adaptation.

But as risks become increasingly complex and connected through climate change, they also become more costly and difficult to insure. Strong public-private partnerships are therefore vital to provide adequate coverage to local populations threatened by large natural disasters. Such collaboration has already produced a number of innovative transactions. Among them are weather index solutions in Africa and India, catastrophe bonds in Mexico, and parametric earthquake and hurricane covers for 16 Caribbean nations participating in a joint risk pooling fund.

Launched in 2007 by the Caribbean Community, the so-called Caribbean Catastrophe Risk Insurance Facility (CCRIF) became the world's first multi-country insurance fund, and it continues to be the only such facility to offer parametric insurance policies. Backed by a combination of traditional insurance and capital market instruments, the CCRIF provides member governments with immediate relief in the form of short-term liquidity in the event of hurricanes and earthquakes. By focusing on putting contingent funding in place before catastrophes occur, this program has represented a real shift in the way that Caribbean governments treat risks and the economic costs associated with them.

Many of these innovative solutions can be replicated elsewhere and adjusted to the specific risk exposure of other parts of the world. But since one approach clearly does not fit all circumstances, protecting communities against the unpredictable consequences of climate change will require constant innovation. The specific resources and expertise that public and private institutions bring to the table have much to contribute toward these efforts.

Financing adaptation

For a long time now, the debate surrounding the funding of measures against climate change has focused on mitigation - emission reduction measures, cap & trade, clean development mechanism etc. - rather than adaptation to the inevitable consequences of a shifting climate.

That said, adaptation action has gained more attention recently, for example by the rise in funding available from UN level funds. In the past, less than 20% of overall climate change finance has been earmarked for adaptation. This proportion could alter substantially as contributing countries increasingly focus on adaptation[6].

The Copenhagen Accord called for fast-start funding of USD 30 billion between 2010 and 2012, to be divided appropriately between adaptation and mitigation.

The Commonwealth countries, for example, recently agreed to allocate 50% of their fast-start funding (USD 2.7 billion) to adaptation activities. Germany intends to apportion around 30% of its fast-start funding (USD 5.4 billion) to adaptation, compared to 20% previously. Global institutions that play a significant role at a regional level, such as AOSIS (Alliance of Small Island States), have also added their voices to the call for both mitigation and adaptation in the international arena.

Realising that decisionmakers need a quantitative fact base to draw up sound adaptation strategies and business cases against this backdrop, the Economics of Climate Adaptation (ECA) methodology may provide the facts and tools required to develop quantitative adaptation strategies and business cases that can be folded into national development plans and claims for adaptation assistance. With this mind, the latest in a series of ECA studies was commissioned by the CCRIF to assess the growing risks that climate change poses to Caribbean economies and identify cost-effective ways to manage them. The findings of the study reinforced the importance of building a balanced portfolio of risk prevention and risk transfer measures to address the effects of climate change.^[7]

Conclusion

The impact of climate change is with us now and is likely to intensify, putting more people and assets at risk. However, because it is difficult to accurately predict the consequences of climate change on local economies, decision-makers inevitably face many uncertainties when making policy and investment choices about climate adaptation. This is why a systematic, fact-based risk management approach - which factors in long-term climate trends and varying future scenarios - is crucial to protecting communities against the unpredictable outcome of climate change.

In a changing climate, adaptation is essential to make societies more resilient and secure future development paths. It should therefore be part and parcel of a country's broader development strategy. This is critically important because the insurability of natural catastrophes and climate-related risk depends as much on social and environmental policies, urban and geographic planning, as it does on physical defences and disaster planning. For decision-makers, then, a major challenge is to adopt an all-embracing risk management approach that not only

strikes the right balance between loss prevention and risk transfer, but one that is also squarely anchored in a broader strategy of economic growth and development.

Practical steps towards effective adaptation are available and largely affordable, with insurance playing an important role. The right tools and location-specific information can assist decision-makers in better assessing local climate risk and assigning public and private sector funding to the most cost-effective measures. The challenges of climate adaptation are particularly pressing in the emerging markets of the developing world. In these countries, partnerships between the global insurance industry, public sector institutions and civil society are vital to unlock innovation and generate new investment opportunities. Such public-private collaboration would help make available more funding for adaptation at a time when it is more urgently needed than ever.

[1] Sigma - Natural catastrophes and man-made disasters in 2009, Swiss Re 2010

[2] The effects of climate change: An increase in coastal flood damage in Northern Europe, Swiss Re 2010

[3] Economics of Climate Adaptation: Shaping Climate-resilient Development, Swiss Re 2009

[4] Economics of Climate Adaptation: Shaping Climate-resilient Development, Swiss Re 2009

[5] Economics of Climate Adaptation: Shaping Climate-resilient Development, Swiss Re 2009.

[6] Project Catalyst estimate. For more details, see <https://www.project-catalyst.info/>

[7] Enhancing the climate risk and adaptation fact base for the Caribbean, CCRIF 2010.

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