Policy Brief

Solutions for Vulnerable Countries and People

Designing and Implementing Disaster Risk Reduction & Insurance for Adaptation

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MCII

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foreword

Insurance approaches have been mentioned in the United Nations Framework Convention on Climate Change (UNFCCC) climate negotiations since the Convention was framed in the early 1990s. More recently, the issue has received renewed attention in the Kyoto Protocol, the Bali Action Plan, and in the draft negotiating text coming out of the 15th Conference of the Parties (COP 15) discussions held in Copenhagen in 2009.

The advanced adaptation negotiating text recognizes the importance of risk reduction and insurance, particularly in paragraphs 4 and 8. Now, delegates have shifted focus towards the design and implementation of risk reduction and insurance approaches. Questions inquire about how to link Disaster Risk Reduction (DRR) and insurance for adaptation, costs and benefits, institutional arrangements, data availability, and the roles of the public and private sector.

These questions indicate that thinking is now broadening from the negotiating room to on-the-ground solutions for vulnerable countries and people. In the first MCII Policy Brief ("Vulnerable Countries and People"), readers were introduced to real people who, in their own words, explained what they need in terms of DRR, and how insurance might help reduce the damage extreme events cause in their lives. This second MCII Policy Brief moves a step forward and addresses key practical questions posed by climate negotiators about how to move from words to action. This Policy Brief provides responses to these questions, illustrated by current, and in some cases well-known, examples in vulnerable countries.

The examples in this Policy Brief show us that insurance – with coordinated public private action and some international support – has potential to provide security to vulnerable people and vulnerable countries. The current period is one for action, and for transforming the political commitments from the Copenhagen Accord into tangible progress in managing risk associated with climate change. To do this, many of the promising risk reduction and insurance activities need support from the international community in scaling up. We hope that this Policy Brief is useful to climate negotiators and other stakeholders in the discussions on adaptation leading up to and following COP 16 in Cancun, Mexico.

Sincerely,

Dr Koko Warner

MCII Executive Board Member, Munich Climate Insurance Initiative
Hosted at the United Nations University
Institute for Environment and Human Security (UNU-EHS)
in Bonn, Germany

About MCII

The Munich Climate Insurance Initiative (MCII) was launched in April 2005 in response to the growing realization that insurance-related solutions can play a role in adaptation to climate change, as advocated in the Framework Convention and the Kyoto Protocol. This initiative brings together insurers, experts on climate change and adaptation, NGOs, and policy researchers intend on finding solutions to the risks posed by climate change. MCII provides a forum and gathering point for insurance-related expertise on climate change impact issues. MCII is hosted at the United Nations University Institute for Environment and Human Security (UNU-EHS) in Bonn, Germany.

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Introduction

Need to move from knowledge to action.
The need is greater than ever to reduce and transfer risk in ways conducive to climate change adaptation and sustainable development. Thus, two key issues demand attention: first, to incentivize risk reduction and loss prevention and second, to bridge the financial gap when losses occur, delivering climate insurance solutions that really work. Climate negotiators have posed a series of questions about how risk reduction and insurance could be put into action, in the context of a post-2012 UNFCCC adaptation strategy. This Policy Prief presents answers to many of the central questions and points to practical examples from current experience.

"Climate variability causes changing weather patterns which will most likely result in more extreme weather events – including a higher frequency and magnitude of weather-related hazardous events. Although it is nearly impossible to forecast specific events, there is a high likelihood that floods, droughts and tropical cyclones will become more severe. The changes in the regional climate and environmental conditions as well as continuous societal changes, such as demographic changes and the global increase of urban settlements in coastal areas, make it likely that the exposure and vulnerability to extreme events will increase.

Consequently, comprehensive and holistic risk and vulnerability reduction strategies should be a core part of adaptation to weather-related extreme events. Such strategies should help to link the expertise in the disaster risk reduction community with the knowledge of the climate change adaptation community in order to promote resilience and to reduce the risk that lives and livelihoods are lost or harmed due to the adverse effects of climate change."

Dr Joern Birkmann, Head of Section Vulnerability Assessment, Risk Management & Adaptive Planning (UNU-EHS)

Throughout the climate negotiations following the Bali Action Plan (UNFCCC 2007), risk management and insurance were featured prominently in discussions of the Ad Hoc Working Group on Long Term Cooperative Action (AWG-LCA) (UNFCCC 2008). This was particularly the case in the 2009 run-up to the Conference of the Parties (COP 15) held in Copenhagen, Denmark. At COP 15, the adaptation building block came close to agreement between parties, a subsequent draft negotiating text included several key references to risk reduction and insurance. Two options presented in paragraph 8 of this text underscore the need for the international community to address the loss and damages from weather-related extremes, and to explore risk management and insurance approaches at appropriate levels (UNFCCC 2010).

"Agrees on the need to strengthen international cooperation and expertise to address [social, economic and environmental] loss and damage associated with climate change impacts in developing countries that are particularly vulnerable to the adverse effects of climate change [and/or to the impact of the implementation of response measures], including impacts related to extreme weather events and slow onset events, including through risk management and insurance, as appropriate; it furthermore requests 'Parties to explore whether risk management mechanisms may need to be established or enhanced at sub-national, national, regional and international levels, as appropriate'".

(FCC/AWGLCA/2010/6)

As the AWG-LCA strives to fulfil its mandate, which was extended at COP 15, delegates are posing questions about how DRR and insurance can be designed and implemented in ways that make sense for adaptation. The timing for these questions is important: COP 15 produced the Copenhagen Accord, which pledges to counter the impacts from climate change by funding "fast-track activities" in the order of US$ 30 billion until 2012, rising to US$ 100 billion by 2020. As fast-track adaptation resources start to become available, Parties to the UNFCCC seek ideas about prudent ways to invest this money in ways that create leverage for adaptation. Most importantly, they seek ideas which can be implemented with country and regional buy-in, and which help achieve adaptation in the "real world".

Top-3 things to get started/implemented: DRR and insurance for adaptation

1. *Regional buy-in, consultations and political will*
2. *Concerted donor support to help promising approaches get to scale*
3. *Risk management, including DRR and insurance approaches, in a post- 2012 UNFCCC adaptation framework*

Associated COP decisions to move from negotiating text towards implementation (decision, resources, operating entity)

Question 1: How can DRR and insurance be linked to foster adaptation?

Preventing or minimizing losses is the bedrock of effective risk management (UNISDR 2005). DRR holds the promise of helping vulnerable countries and people by avoiding or reducing losses. It may lower demands for adaptation funding, or enhance the ability to devote resources to other high-return adaptation activities. The literature suggests that DRR can complement sustainable development, and dampen the negative cycle of hazards and poverty (Barnett et al. 2008; Dercon 2005).

Insurance activities must be viewed as part of a climate risk management strategy that includes, first and foremost, activities that prevent human and economic losses from climate variability and extremes. The **Bali Action Plan** calls for "consideration of risk sharing and transfer mechanisms, such as insurance" to address loss and damage in countries particularly vulnerable to climate change (UNFCCC 2007). To be effective and to harmonize climate insurance with adaptation, it is essential to align adaptation incentives with prevention and risk reduction.

There is a case for creating frameworks or institutions that more closely link risk reduction and complementary measures like insurance. Some countries already have established institutions dealing with risk reduction and risk transfer, while others do not. In most developed countries, DRR is dealt with by institutions and arrangements that are separate from those in place for risk transfer mechanisms. In many developing countries there are no established risk transfer mechanisms and so there are no institutions, which are responsible for them. In the context of climate change with a heightened need to manage, reduce risk and prevent losses, it will be increasingly useful to have coordinated mechanisms that incentivize risk reduction and loss prevention, and ensure that risk transfer approaches complement and accelerate adaptation. One important benefit of such a risk management approach could be that institutions dealing with risk reduction and risk transfer could also have the responsibility for gathering data about climate-related risks, measure and map risks and raise awareness of them – activities that catalyse and improve overall adaptation efforts and improve the effectiveness and efficiency of limited adaptation funding.

The UNFCCC climate negotiations have tabled proposals to link risk reduction efforts and carefully designed, appropriate insurance instruments to promote adaptation (AOSIS 2008; MCII 2008). The next two major steps outline a path for moving from country-led ideas and priorities to implementation.

Countries set their own risk reduction priorities, and realize those goals with international support. Following the principle of "common but differentiated responsibilities", a first step is for affected countries to identify and make plans for reducing weather-related risks. The principles of DRR laid out in the Hyogo Framework of Action serve as a guideline (UNISDR 2005). Risk reduction activities might include:

- Map and avoid high-risk zones
- Build hazard-resistant structures and houses
- Protect and develop hazard buffers (forests, reefs, etc.)
- Develop culture of prevention and resilience
- Improve early warning and response systems
- Build institutions, and development policies and plans

One of the common challenges for countries in implementing DRR is, that it competes for funding with development projects, or other national priorities (Kunreuther 2006). The international community can ease this dilemma by providing support to vulnerable countries to set these DRR plans into motion.

As progress in DRR is demonstrated, enhanced access and support for additional risk management tools including insurance will become available. DRR can serve as a "doorway" through which countries pass in order to realize the additional adaptation benefits of risk transfer tools like insurance. For climate-related risks which cannot be further reduced in an efficient way, such as the risk of natural hazards, measures can be used to share or transfer risk, including the use of reserve funds, social safety nets, contingent credit arrangements and a variety of risk transfer tools like insurance. Ongoing participation/renewal of insurance coverage with international support could be dependent upon some evidence that participating vulnerable countries are making tangible progress in implementing their DRR plans.

Location:
In 2009: Adi Ha, (Tigray, Ethiopia)
In 2010: Hadus Adi, Awet Bikalsi, Geneta, Hade Alga (Tigray, Ethiopia)

Risk Exposure:
Drought

Activity:
Protect smallholders against losses of teff-yields due to lack of rainfall through weather-index insurance

Partners:
Oxfam America, Swiss Re, Relief Society of Tigray (REST), Ethiopian government agencies, International Research Institute for Climate and Society (IRI), Nyala Insurance, Rockefeller Foundation, Dedebit Credit & Saving Institution, and others

Horn of Africa Risk Transfer for Adaptation (HARITA)

HARITA aims at facilitating adaptation to climate change in a way that ensures robustness to multiple climate scenarios by putting local communities at the centre of these adaptation efforts.

How HARITA combines DRR and insurance to protect poor farmers
HARITA integrates insurance with both risk reduction and credit [1]. By allowing very **vulnerable farmers to pay their premiums through risk reducing labour, farmers benefit even when there is no payout** *because these risk reduction activities will help minimize vulnerability to drought and improve yields.*

DRR activities for smallholders participating in HARITA in 2009:
- *Learning to make and use compost, which is critical for rebuilding soil nutrients and improving soil moisture retention*
- *Constructing small scale water harvesting structures on farm land*
- *Planting nitrogen-fixing trees and grasses to promote soil regeneration and water conservation*
- *Learning how to clean teff-seeds before sowing them in order to boost productivity*

Through HARITA, farmers enrolled in the PSNP [2] have the option to work extra days beyond those required for their normal government payments, but instead of earning cash or food for this additional labour, they earn an insurance certificate protecting them against deficit rainfall.

Courtesy of Oxfam America

[1] The insurance-for-work model also allows insurance and credit to stand as independent components. In most index insurance pilots, farmers have been required to take insurance and credit as a package. Under HARITA, however, farmers may choose to bundle the two. The independence of credit and risk transfer means that farmers do not lose access to insurance once they have repaid their loans, and that farmers who do not want a loan can still obtain insurance.

[2] PSNP ('Productive Safety Net Program') is the Ethiopian government's conditional cash transfer program that that serves around 8 million chronically food insecure households

- **Time is of the essence:**
  The need is greater than ever to reduce and transfer risk in ways conducive to climate change adaptation and sustainable development.

- **DRR can help contain the costs and impacts** *of some of the catastrophic consequences of climate change.*

- **Common but differentiated responsibilities:**
  Every country, and even many vulnerable communities, can contribute to managing the risks and collective challenges of climate change through wise use of DRR, combined with enhanced access to risk transfer tools like insurance. Support from the international community is needed to catalyse such activities in vulnerable countries.

Critical steps*:*

- *Decision makers must clearly define their risk reduction priorities in the context of climate change adaptation, and undertake measures to turn these priorities into action. Then they must specifically design measures including insurance to catalyse adaptation and incentivize risk reduction.*

Question 2: What are the benefits and costs of creating a risk management component in a post-2012 UNFCCC adaptation framework?

General benefits of ex-ante risk management. Governments, communities and households benefit when they anticipate and manage weather-related risks before they cause loss and damage.

Government. Without insurance mechanisms, countries face the dilemma of not having funds when they need them (Linnerooth-Bayer et al. 2005). Resources earmarked for public health, infrastructure, education and other development priorities must be diverted into costly disaster response activities. These hidden costs to development place a drag on economic and social growth. Investment in risk transfer solutions that are linked to a broader risk management and adaptation framework make sense in these cases (Hoff et al. 2003).

One benefit especially appreciated by government planners is that ex-ante risk management can **reduce volatility of losses**. Lower volatility makes it easier to plan for development investments and ensure that those investments are not diverted for unexpected disaster relief efforts. Planning ahead and using tools like insurance can provide for liquidity after hazards strike (Gurenko 2006).

This promises a significant improvement over the current situation: often governments must raise post-disaster capital by diverting funds from other budgeted programmes, borrowing money domestically, or taking loans from international financial institutions (Ghesquiere et al. 2006). In the aftermath of heavy devastation in their countries, low-income developing countries may face exhausted tax bases, little reserves and declining credit ratings making external borrowing difficult. Figure 1 illustrates how risk management including insurance benefits society: by decreasing variability of losses (cost) over time, providing incentives to reduce risk through a premium price signal and protecting livelihoods from widespread hazard-related damage.

In the recent earthquake calamity in Haiti, the Caribbean Catastrophe Risk Insurance Facility (CCRIF) (designed to address hurricane and earthquake risk in the Caribbean) paid out almost eight million within two weeks of the disaster. Experts estimate, though, that the amount could have been up to US$100 million, or a 40 to 1 ratio, had the government chosen that particular premium to payout equation. In this instance, the insurance provided a rapid and helpful payout to the government in a crisis situation when liquidity was greatly needed.

Carribean Community (CARICOM) Secretary-General Edwin Carrington noted, "CCRIF´s prompt pay-out to Haiti turned out to be one of the significant sources of financing in Haiti´s hour of need."

The main functions of risk transfer

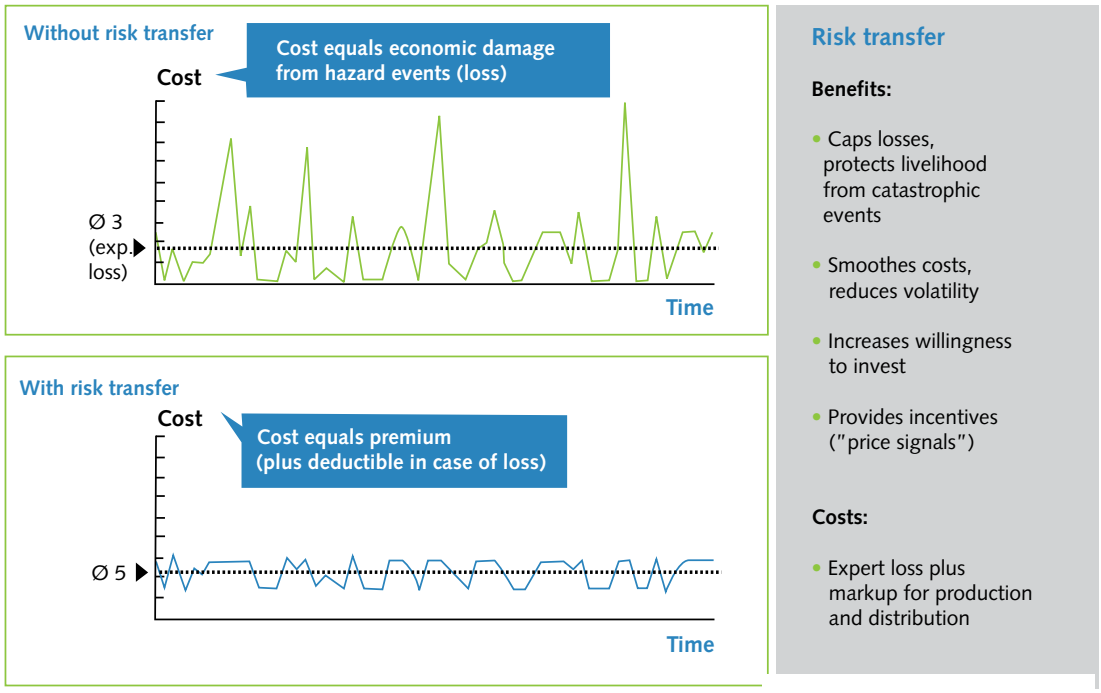


Figure 1: The main functions of risk transfer (ECA 2009).

This is an important feature of CCRIF which was originally envisaged as a mechanism to assist governments by providing short-term liquidity during the "funding gap", the hiatus between the immediate flow of response goods and services after a major disaster and the launch of long-term rebuilding programmes (CCRIF 2010).

Vulnerable communities. Vulnerable households and communities also benefit from risk reduction and insurance. Instead of keeping relatively large amounts of assets in reserve ("for a rainy day"), households can have the assurance that a back-up mechanism like insurance will help them in case of a disaster (Warner et al. 2007). Productive assets are freed for development-savvy choices and investments – in education of children, in farm implements and seeds, and in entrepreneurial activities which can improve living standards (Skees et al. 2005).

General costs of ex-ante risk management. Adaptation requires a range of investments, some of which are related to managing the risks from extreme weather events. Parties to the UNFCCC have agreed that fast-track funding should become available soon – US$ 30 billion per year up to 2012 (an estimated half of which might go towards adaptation) and subsequent US$ 100 billion per year from 2020 onwards. These resources will face numerous demands. It has been estimated that a full package of DRR, provisions for locally appropriate risk transfer including microinsurance, and a global pooling mechanism for high level climate change related extreme events could cost a minimum of US$ 10 billion per year (Hoeppe 2008). In comparison, annual losses from extreme weather events average US$ 100 billion – all the adaptation funding available by 2020 would be needed just to cover losses, let alone pay for other urgent adaptation investments. Investment in risk reduction and transfer could ease the situation for vulnerable countries.

A cost benefit analysis of adaptation funding options could help determine what kinds of investments could offer the greatest societal benefits. The graph below illustrates a continuum of activities where adaptation funding may be needed in the future, spanning "no regret" measures which pay off even without any averted losses at the left, to investments in measures to address residual risks at the right. The costs of investing in measures like soil and water management, and appropriate building code enforcement makes sense even if no losses are incurred, and create benefits in themselves (see Figure 2: those activities below 1 on the y axis).

Research suggests that effective development and risk management is the most cost-effective long-term approach for a variety of risks (Cummins and Mahul 2008). For risk management investments, it may be most cost effective to undertake preventive and risk reduction activities for weather-related risks which happen often (high frequency) but which are not very serious (low severity). Here the value of averted losses exceeds the cost for the measure over a certain time period (such as the lifetime of the investment).

Other kinds of investments such as risk transfer (insurance) are made when risks cannot be reduced further at an efficient rate. Extreme events which happen infrequently but with large negative consequences (low frequency/high severity) may be financially transferred in combination with prevention and reduction measures. Depending on the

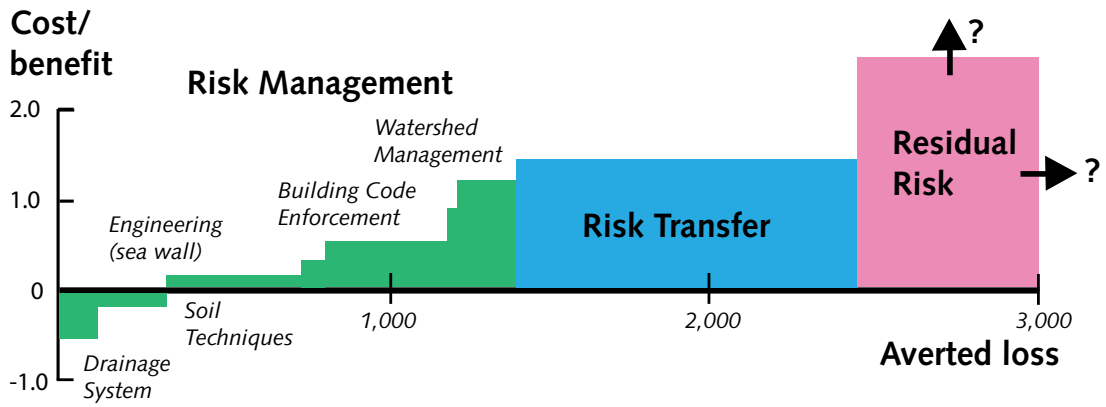


Figure 2: Costs and benefits of investments in risk management (Young 2009, adapted from ECA 2009)

magnitude and timescale of potential risks and liabilities, state solutions would need to be included in risk transfer solutions with very high severity potential (Arrow and Lind 1970). Such investments involve paying premiums and/or setting aside resources for contingency spending, but make sense when they help reduce uncertainty about the variability of extreme weather events (Hoeppe and Gurenko 2007). Premiums must be paid and cash held in reserve, but the guarantee that a vulnerable country will have funds it needs to address losses when they occur carries a benefit that can exceed these costs.

Even with a flawlessly executed adaptation strategy, climate change brings with it some risks that risk reduction and risk transfer cannot address. The losses from long-term foreseeable risks (residual risks) such as sea level rise, widespread desertification and the loss of geological water sources such as glaciers will be needed in the future. These residual risks will require the accumulation of resources and are likely best dealt with using non-insurance financial tools. 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 those least able to manage those risks in the future (Young 2009).

Specific costs and benefits depend on design.
The design of risk reduction and insurance coverage affect the specific costs of these tools. This section outlines the estimated costs of the proposed MCII risk management module to illustrate how costs can vary depending on the design and needs of participating countries. The proposal of MCII currently consists of a risk reduction pillar and an insurance pillar with two tiers (MCII 2008). The Alliance of Small Island States (AOSIS) Proposal also has these elements, in addition to a pillar to address long-term foreseeable risks. All costs assessed below depend on a) the degree to which risk reduction should be applied, and b) how much of the loss and damage caused by weather-related extremes in developing countries should be indemnified. An important variable in determining the costs of insurance for climate-related extreme events is the definition of the threshold for the eligibility of countries for the module. The threshold could be defined by a country's per capita GDP or by its per capita CO_2 emissions. Shifting these thresholds would affect the total costs of insurance significantly.

Attribution and principle of common but differentiated responsibilities.
Those (industrialized) countries paying for adaptation would only be willing to support the risk management module if it primarily covers additional costs which can be attributed to anthropogenic climate change. The general problem in quantifying these costs is that there are few scientific studies on which such quantification could be based. What complicates the issue is that climate change as a potential loss driver has different characteristics in different regions. Some major studies on this are under way, but uncertainty about the quantitative attribution of global warming to regional losses will remain for some years to come (Bouwer et al. 2007).

The criticism of Intergovernmental Panel on Climate Change (IPCC) (early 2010) also relates the attribution of natural catastrophe losses to global warming. The critics doubt that there is sufficient evidence for attribution of losses to climate change in the peer-reviewed literature. This discussion may raise doubts for some decision makers whether support for developing countries to manage weather-related risks should be addressed at all within the climate negotiation process. Some may question why industrialized countries should pay for risk management measures if global warming has no detectable influence on disaster losses. In the near future it is plausible that science will show anthropogenic climate change to be a relevant loss driver. From the pragmatic perspective of protecting development investments, an element of risk management including insurance makes sense in a wider adaptation framework (Linnerooth-Bayer et al. 2009). This is consistent with the principle of common but differentiated responsibilities.

Possible costs of pooled insurance approaches for high-level weather-related risks.
Climate insurance pools for global coverage allow a reasonable assessment of costs. There are figures for the annual costs of extreme weather events both on a global and on a developing country level. The climate insurance pool would cover a predefined (negotiated), quantifiable part of the losses in developing countries. The problem, however, is to define the corresponding ratio. As long as there are no reliable figures on attributable loss ratios, the Parties will have to decide on an agreed upon figure in the negotiation process. The following cost assessment for the climate insurance pool is based on the assumption that currently about 30 per cent of the losses caused by weather-related natural catastrophes is climate change driven.

The requisite funding for a Climate Insurance Pool covering the top 30 per cent of losses arising from the most extreme climate events in developing countries can be assessed as:

- The level of current annual total economic losses caused by weather-related natural catastrophes is US$ 100 bn (0,2% of global GDP of US$ 48 trillion)
- Ratio of losses in developing countries: 7 per cent of global losses
- Indemnification of the top 30 per cent of the total direct economic losses (public and private) would range between US$ 2.7 bn -US$ 3.6 bn, with the maximum insured losses to be capped between US$ 10 - 50 billion (depending on premium income for the pool
- The gross annual costs of the suggested insurance scheme including capital and administration costs of reinsurance would range between US$ 3.2 bn and US$ 5.1 bn for the range of the above assumed limits
- With current CO_2 emissions of about 30 bn tons, this cost translates to about 15 ct per ton CO_2 in terms of the funding needed for a climate insurance pool.

There are many different ways to define the payout from a climate insurance pool. It could be a proportional payout to all weather-related losses or the payout of 100 per cent of the losses of the 30 percentile of the most extreme losses. In the latter case a regional analyse on the return periods of losses has to be made and the payout be calibrated regionally (IIASA 2009).

Young (2009b) estimates costs in a similar magnitude, but for regionally-organized risk pooling solutions. Young puts initial capitalization costs of US$5-10 billion over five years and ongoing premium support costs of US$ 2-5 billion per year for multiple regional risk sharing facilities covering extreme hydro-meteorological risk at both national and local levels. Additional funds would be required to provide technical support alongside other adaptation initiatives and for capitalization of a global risk fund of last resort to cover the most extreme events (perhaps an additional US$ 10 billion). Investment return on the latter could cover technical support in the long term (Young 2009b). A global extreme risk fund, possibly like that proposed by MCII, could cost US$ 10 billion in initial capitalization, and would be maintained at that level (annual losses from fund may be tens to a few hundred million)[3]. Technical support could cost between US$ 0.5 and 1 billion per year over the first five years, supplemented then fully replaced by investment income from the extreme risk pool.

Costs of insurance at lower levels of weather-related risks

There is also a need to provide funds to support regional micro insurance systems. These funds are needed to cover part of the start up costs for such systems like the installation of weather stations or building up the regulatory and administrative frameworks. The necessary resources depend on the number of participating countries and schemes, the extent of coverage, the good will of donors and the amount of adaptation or other sources of funding to support such approaches.

International support for DRR should allow preventive and risk reduction measures in developing countries. These investments pay off over time by avoiding additional losses. Decision makers would need to decide on the upper threshold for sensible investments in risk reduction, in part because investments may depend on the commitment of donors, and in part because marginal costs of decreasing risk become quite high if all risk is to be eradicated (Gurenko 2004).

Because of the many variables involved, there is no sensible way to estimate the costs of the microinsurance and risk reduction elements with objective figures. There is some sense, however, in the assumption that the level of funding of these two components of the risk management module should be similar to the costs of the proposed climate insurance facility. Societies will always live with some degree of risk from weather-related extremes. But planning for and managing these risks can help lower costs significantly.

"The lack of insurance holds back chances for equitable development! A shortage of appropriate insurance products for people in rural areas discourages incentives for investing in microfinance institutions and small and medium sized businesses (SMEs). If we say over 60 percent of our people are engaged in agriculture, and until now there is no insurance product available for this critical sector of our economy, then I can say that there is a big gap in our product design that must engage the attention of the insurance sector. Secondly, when bankers shy away from microfinance and SMEs face serious challenges, it's because of the absence of microinsurance – the two should work hand-in-hand."

Cf. Kwabena Duffuor, Ghana's Finance Minister, 2010 (http://micro-risk.com)

[3] *The extreme risk fund, accessible as a fund of last resort to regional risk pools and member countries, is a capital commitment that is not likely to be accessed frequently. Even though the total exposure of this fund could be huge, the global diversification effects mean that the annual drawdown will be many orders of magnitude less than the aggregate exposure, and the 100-year loss would also be only a fraction of the aggregate exposure. Young suggests that a fund of US$10 billion, maintained at that level, could act both as the fund of last resort and, through investment returns, could help to fund the technical component (and potentially wholly fund it after the initial intensive activity period).*

Location:
Chitedze, Kasungu, Nkhotakota, and Lilongwe North (Malawi)

Risk Exposure:
Drought, production shortfalls

Activity:
To protect farmers against productivity shortfalls due to drought through an index-based microinsurance scheme. The Index relates to the amount of rainfall during the growing phases of the crop – if the overall amount is considered insufficient for optimal yield, a payout is triggered.

Partners:
World Bank, MicroEnsure, International Research Institute for Climate and Society (IRI), Opportunity International Bank Malawi (OIBM)

Agricultural Microinsurance in Malawi

How the index-based microinsurance provides benefits that enhance development:

Farmers in Malawi are facing severe droughts every 8-10 years. If banks offer loans to the farmers, people will probably not be able to pay it back, if an extreme drought occurs. This especially puts smallholders in a locked-in position, because **they are not able to become more market-oriented by expanding the diversity of their crops, as well as engaging in more advanced and sustainable agricultural practices** *(improved seeds, fertilizers and irrigation).*

Agriculture represents about 36% of Malawi's GDP, accounts for more than 80% of the labour force and nearly 90% of the population engages in subsistence farming. The Annual Gross National Income per capita (GNI per capita) is US$ 290 (in 2008 values).

The marketability of groundnuts was used to secure insurance and loans for maize, which is the main food crop in Malawi. Maize suffers from significant price volatility and fragmented marketing. Therefore, farmer loans are generally not available for maize inputs alone. By combining a loan (and weather insurance) for maize with a loan for a cash crop covered by insurance, lenders felt comfortable that the profits from the cash crop could be used to repay the loan for maize if necessary (Hess and Syroka 2005).

Research carried out by MicroEnsure has shown that **50,000 smallholder farmers in Malawi alone could move away from poverty and the threat of hunger over the next five years** *by taking out weather-indexed crop insurance and gaining access to agricultural loans. Taking into account the farmers' dependent families, the lives of perhaps half a million people would be positively impacted by increasing standards of living.*

Elements of the microinsurance scheme:

- *For each 1mm deficit or excess rain, the farmer gets about US$ 3*
- *Uptake of microinsurance enables farmers to access bank loans*
- *The premium is about 5% of the total sum insured*
  - *In case of a severe drought, the claim amount is limited to 61% of the sum insured – so farmers and their financiers are retaining about 39%*
  - *In case of damage due to excess rainfall, 100% recovery is guaranteed by the scheme.*

Courtesy of MicroEnsure

Index-based Livestock Insurance Project (IBLIP), Mongolia

Main Objectives:

- *To provide insurance coverage against catastrophic livestock mortality events while maintaining incentives for herders to continue to save their own animals*
- *To build capacity with the domestic insurance market via a public-private partner ship designed to allow insurance companies to effectively pay for losses from 6 to 30 per cent while the government pays for losses in excess of 30 per cent*
- *To develop a sustainable ex-ante financing programme involving government and global reinsurers.*

Costs & Benefits for Herders:

The key aspect of IBLIP is that **herders will get a large payout when they have serious problems** *in the area. IBLIP is a form of contingent insurance that pays using an index that helps compensate herders for consequential losses and extra costs they endure when there is a dzud. Consequential losses and extra costs include: dead adult animals (the index), dead young animals, still births, lower rates of twins, extra cost for feeding, extra hardships in moving animals to areas with more pasture, and extra hardships in simply trying to keep animals alive. During the worst conditions herders will be paid based on the sum insured that they select times the difference between the estimated mortality rate minus six per cent. Over time, herders are expected to pay more in premiums than they receive in payouts. These payments are partially offset by discounts in interest rates in loans that are offered to herders.*

During the early stages, herders have been relatively conservative in their purchases of IBLIP. Many herders are insuring only a fraction of the value of their animals. Premiums paid by herders vary greatly. For example, in one aimag (administrative subdivision of Mongolia), the average premium paid in 2009 was US$ 17; in another the average premium paid was US$ 68. If the estimated livestock mortality rate in 2010 is 30 per cent, the payouts would be US$ 200 (aimag 1) and US$ 525 (aimag 2) (also see Hellmuth et al. 2009, p. 90 – 94).

Courtesy of Project Implementing Unit (Mongolia) and GlobalAgRisk Inc.

Location:
Mongolian Aimags (provinces): Sukhbaatar, Bayankhongor, Khentii, Uvs, Zavkhan, Govi-Altai, Darkhan-Uul, Selenge, Bulgan (to be expanded nationwide by 2012)

Risk Exposure:
Consequential losses and extra costs associated with severe winter storms (dzud)

Activity:
To protect herders against livestock mortality and other associated problems with an index-based livestock insurance scheme (based on estimated livestock mortality rates by species and by soum – a Mongolian county).

Partners:
Government of Mongolia (GoM), Mongolian private insurance companies, Mongolian Banks loaning to herders, World Bank, International Organizations (FIRST Initiative, Government of Japan, GlobalAgRisk)

"Major catastrophes not only cost many lives and a significant share of gross domestic product, they can also set back development by decades.

Adaptation, including better risk management, will help countries prevent and cope better with such catastrophes. Working in parallel to those measures, insurance solutions can help the people and economies affected get back on their feet more quickly.

Such a positive outcome requires additional financing for adaptation, which should be part of an international agreement on climate change."

Lord Nicholas Stern, 2010

Question 3: Is the necessary data available?

The data problem. Climate and risk data are a fundamental element of risk management and adaptation. Many developing countries, especially the poorest, lack reliable data about weather and sources of weather measurements (weather stations). This presents at least two challenges: first, it is not easy to monitor the current state (temperature, precipitation, wind) in a specific area. This is an obstacle to weather and climate insurance in developing countries, especially for innovative index insurance, which would not be feasible without appropriate data. Second, long time series of relevant weather data are often not available. Where they exist, they are often not time-consistent, or consistent in sampling methodology. In many cases, only short time series are available. The second problem poses a challenge to the affordability of insurance in developing countries. Traditionally, insurance premiums are calculated using the frequency of past events to calculate future risks. The shorter the time series, the more uncertain is the analysis. Private insurers deal with this uncertainty by "loading" a charge onto the premium. Short time series can therefore make insurance too expensive for local users.

Tackling the data problem. There are two key measures to make insurance in developing countries feasible and affordable: making data available (weather, exposure and vulnerability data), and decreasing uncertainty about data which can reduce uncertainty charges on premiums. Both measures are interrelated.

For improving data availability, national meteorological services should be strengthened. Participatory data generation, with local communities monitoring their environment or local peers contributing reference slots, should also be employed. Using different approaches simultaneously would allow for crosschecking and further improving the reliability of data. For many regions, data is starting to become available with the use of earth observation technologies such as satellite imagery and measurements. Satellite data has been one of the significant technological advances in the past years also applicable to developing countries. Observational data from the ground can be used to make satellite data more reliable and, subsequently, drive down uncertainty charges on insurance products. Building on on-site-monitoring is also essential for reducing basis risk. Indexes provide a useful way to manage claims analysis in developing areas, but should be based as much as possible on actual observed damages – either to a representative proportion of monitored farms or fields or, as the Kenyan livestock insurance example shows, by using aerial imagery that can detect the condition of crops or land. The case study on Kenya livestock insurance provides an example of how satellite technology has made affordable insurance available to low-income households.

Another approach for decreasing uncertainty for the insurance industry and other users is regional downscaling of climate and weather models. This is a dynamically evolving field of research. The World Meteorological Organization (WMO) has ramped up its efforts to create a Global Framework for Climate Services, which aims to provide climate and weather data to users worldwide. Models to understand weather processes (e.g., seasonal forecasting models) help incorporate high resolution processes (e.g., clouds, local topography, etc.) that are needed for risk management. New forms of risk pricing might be used in developing countries. Even in developed countries premiums are not calculated based on historic frequencies, alone. Instead, risk judgment by experts and local users can be used to increase the accuracy of risk pricing, especially in changing risk landscapes.

In terms of risk management and insurance, although data remains a challenge, the bigger issues are not technical in nature. Often, it is political will to invest in the data generation and accessibility that is lacking. International donors and developing country governments alike should bear in mind that investing into data availability can make a decisive difference in the ability of vulnerable countries to efficiently and appropriately adapt to climate change. This includes managing risks of extreme weather events.

Index-based Livestock Insurance (IBLI), Kenya

What data does IBLI use to provide the insurance coverage:
Rainfall data was considered, however, but since there is only one weather tation in the vast Marsabit district (only partially functional) which is quite vast. Hence, there was no rainfall data for use in developing the model. Having an active meteorological service is useful not only for collecting data that can be used in index products, but for undertaking research to map hazards and provide monitoring information for early warning of climate-related disasters like floods and droughts. This would improve adaptation planning overall.

In Marsabit District, livestock mortality data was collected by the Arid Lands Resource Management Project (ALRMP) from the year 2000, which was readily available.

Forage availability data is collected via satellites owned by the National Oceanic and Atmospheric Administration (NOAA) and is produced at a very high resolution (8km x 8km every dekadal). This data was preferred because of the fact that it cannot be manipulated by either the insurer or the insured.

Satellite data is highly reliable and readily available to the public for free thus reducing product development costs which in turn makes the insurance premiums affordable to herders.

Normalised Difference Vegetation Index (NDVI)[4]:
NDVI is an indicator of the level of photosynthetic activity in the vegetation observed in a given location. As livestock in pastoral production systems depend almost entirely on available forage for nutrition, NDVI serves as a strong indicator of the vegetation available for livestock to consume.

Livestock mortality data is combined with NDVI data to statistically estimate the relationship between NDVI measures and observed livestock mortality. This relationship, which allows for the prediction of livestock mortality on the basis of NDVI, provides the foundation upon which index-insurance can be created.

Trigger
The index-based insurance will pay out to policy holders as soon as the predicted livestock mortality exceeds 15per cent.The index is given at the division level – this means that each division in a district could all have a different index level. Because insurance payments are made according to the index level, the insurance may make different payments across all the divisions. Every insurance policy holder within the same division however, will receive the same rate of insurance payment.

Location:
Marsabit district, Eastern province (Kenya)

Risk Exposure:
Drought

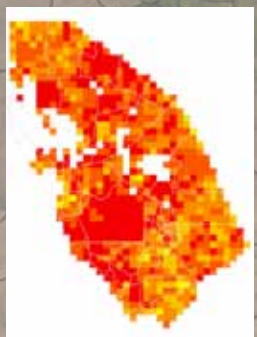
Activity:
To insure pastoralists (and agro-pastoralists) against drought-related livestock mortality

Data Required:
Forage availability, livestock mortality

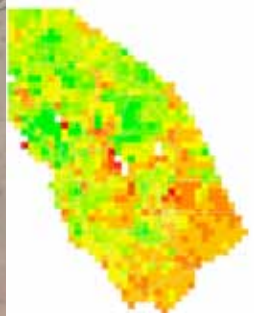
Project Partners:

Technical Partners
International Livestock Research Institute (IRLI), Cornell University, Index Insurance Innovation Initiative (I4), Syracuse University (Maxwell School), University of Wisconsin (BASIS Research Program), Financial Sector Deepening-Trust

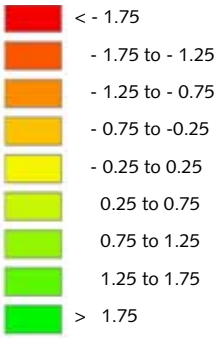
Commercial Partners
UAP Insurance Company Limited, Equity Insurance Agency



ZNDVI in Marsabit in a drought period (Sep 2009)



ZNDVI in Marsabit in a non-drought period (Feb 2010)



Description:
Negative figures mean poor forage.

[4]*NDVI is derived from data collected by National Oceanic and Atmospheric Administration (NOAA) satellites, and processed by the Global Inventory Monitoring and Modeling Studies group (GIMMS) at the National Aeronautical and Space Administration (NASA).*

Courtesy of the International Livestock Research Institute (IRLI)

"In most emerging market economies, there are well established scientific institutions who have been monitoring natural perils for decades and who have successfully developed local hazard maps and conducted structural vulnerability assessments of local buildings. In addition to national sources, there are also comprehensive international catalogues of geo-hazards and weather related perils. However, these national data sources have rarely been put to use by either domestic or global insurance/reinsurance industry due to the lack of useable catastrophe risk models specific to these markets. Lately, over the last 15–20 years, the traditional scientific data bases of natural hazards have been supplemented by extensive catalogues of satellite imagery, which can be also used for weather risk pricing.

To me, the issue is not so much the lack of data per se but the lack of useable data that can be easily processed by reinsurer's risk pricing models. To produce market "compatible" datasets, over the last decade the World Bank has been working together with international modeling companies who can transform raw hazard data into risk pricing data with the help of elaborate catastrophe risk models thus making such original local data usable for the global reinsurance and weather risk markets. While essential for the launch of new insurance products and increasing the affordability of disaster risk coverage, development of new catastrophe risk models and "usable" catastrophe risk data sets for the emerging markets is not cheap. Considerable investments are typically required to develop such tools in the nascent risk markets. Paying a price for making the local and international risk data usable for risk underwriting purposes however should not be equated with the impossibility of acquiring the data. Over the last decade, we have never encountered a single project impasse due to the lack of risk data in the Bank client countries."

Dr Eugene Gurenko, Senior Insurance Officer at the World Bank/IFC Insurance and Contractual Savings Unit, 2010

Question 4: What are institutional options to jumpstart risk reduction and insurance solutions?

UNFCCC delegates have asked what institutional options exist to move from plan to action (Bals et al. 2007). They have inquired how to make a comprehensive policy which incorporates DRR and appropriate risk transfer tools "institutionally light", and compatible with existing institutions and efforts. This section briefly explores institutional options, based on observations from current practice.

Linking DRR and insurance through national platforms.
The Hyogo Framework for Action calls on all countries to establish a national platform for DRR. National platforms could play a coordinating role for DRR planning and monitoring, with implementation at the national and sub-national level for many adaptation activities. These and other entities already exist in some developing countries for DRR; they could be linked to insurance schemes at the national, regional or international level to become part of a post-2012 UNFCCC adaptation framework. DRR efforts for weather-related events may also be organized regionally, such regional centres can enhance weather monitoring, risk mapping, establishment of standards for land use and building codes.

National entities aggregate risk, and work with regional centres to manage and transfer risk.
Innovative institutional designs have explicitly linked risk reduction and insurance (Hellmuth et al. 2009). National risk management platforms and regional centres could provide an institutional framework for aggregating the risks of micro- and meso-level, providing technical support, and other services that could enhance the ability of micro- and meso-level insurance approaches to serve vulnerable communities. A Climate Insurance Assistance Facility might help national entities aggregate risk from microinsurance schemes, and serve as part of regional centres which provide weather-related data and technical assistance. Improved data and technical support would improve the ability of microinsurance systems to provide affordable coverage to low-income areas. Additionally, with international support, regional centres may provide targeted support and minimally distorting subsidies for safety net programmes linked to DRR. Regional centres could also invest in capacity-building around financial literacy for vulnerable groups, technical expertise to manage risk reduction and transfer programmes, and about enabling regulatory framework needed for risk reduction and risk transfer activities like microinsurance to function.

Light governance structures for risk pools.
For macro-level insurance approaches, examples such as the CCRIF show that institutionally light and flexible models can serve regional risk management needs. The structure of CCRIF is illustrated as a case study in the following pages.

Such facilities are able to contribute to regional risk management efforts as well as make rapid payouts in the case of extreme events. Such institutional models can be designed to have transparent governance structures, allow private sector engagement, and can serve as conduits for international adaptation funding. As with lower-level risks pooled at a national level and then transferred at a regional level, insurance pools at the regional level would need a fund of last resort to provide a reinsurance function for very rare catastrophic events. A fund of last resort, or global climate risk insurance pool, would be important because this is a level at which large private sector entities may not engage due to the capital requirements to cover the risks (at this level most of the money paid in premiums for the highest level of risks relate to the costs of keeping capital liquid). International support, such as in a global climate risk pool, could ensure the needed cover for regions and countries following an event.

Steps to establish a risk pooling mechanism, and time needed (Young 2010)

Step 1: *Political will and develop governance structure. Time needed (variable): 12 – 18 months.*

Step 2: *Development phase, part 1: technical support and risk modeling. Time needed: 18-36 months (to some extent synchronous with step 3).*

Step 3: *Development phase, part 2: financial strategy, pricing policies, capitalization of pool to maintain long-term stability. Capitalization needs to come near the end of step 3. Time needed: 12-18 months (about 6 months of which can overlap with step 2).*

Step 4: *Implementation. Time needed (3-6 months). Timely implementation needed to maintain momentum and political buy-in. Once governance, technical aspects, and capital are in place, implementation needs to be short and intense.*

Location:
Caribbean Region

Risk Exposure:
Tropical Cyclones, Earthquakes

Activity:
CCRIF was designed to provide CARICOM governments with urgently needed liquidity in the immediate aftermath of a devastating hurricane or earthquake to enable a rapid recovery process. The facility uses a parametric mechanism to determine the potential future risk and trigger a payout whenever a pre-defined modelled loss level is exceeded.

Partners:
CARICOM governments, World Bank, multi-lateral donor group

Courtesy of CaribRM Ltd.

Caribbean Catastrophe Risk Insurance Facility (CCRIF)

How is the institutional set-up of the CCRIF:

- *CCRIF is a* **not-for-profit insurance vehicle**, *owned by a Trust benefiting the CARICOM governments participating in the pooling scheme*
- *A Board of Directors is entrusted with the* **governance and strategic decisions** *regarding the performance of the catastrophe pool*
- *The* **operational and risk management functions** *of the pool are carried out by a private risk management company. Main tasks :*
  - *Risk and financial modelling*
  - *Calculation of the parametric loss in case of an event, and settlement and adjudication in case of a payout*
  - *Policy sales and premium collection*
  - *Management of Research and Development, technical assistance programme, out reach activities and institutional relationships*
  - *General advisory to the board*
- *A registered Insurance Manager performs "back-office" functions of the facility*
- *Reinsurance and ART (Alternative Risk Transfer) is placed in international markets through a Placement Broker*
- *Assets are managed by a specialist Investment Manager.*

Characteristics of the CCRIF:

- *To trigger an insurance payout, CCRIF uses a catastrophe model to estimate the loss for any actual events, with the same model, calibrated against real historical events and losses, used to evaluate the risk and price the insurance contract*
- *By pooling the risks of its members, CCRIF serves as a risk aggregator and can thus provide insurance coverage at a comparatively low premium*
- *CCRIF member countries can decide on the level of coverage for each peril insured*

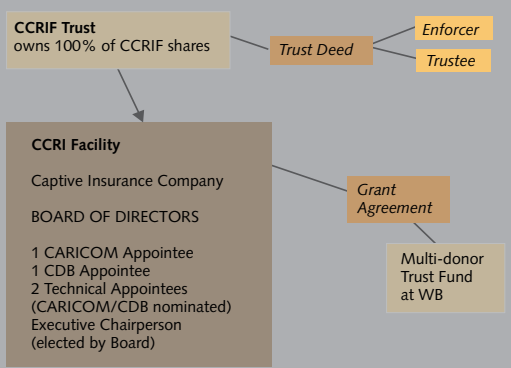


Figure 3: Governance Structure of the CCRIF (Young 2010, modified from www.ccrif.info)

Question 5: What are possible roles of the public and private sector?

The role of international support and donors worldwide. There are many promising, innovative activities including DRR and insurance to address weather-related risks. Many of these exist in the realm of microinsurance, reflecting a particular concern for helping vulnerable people adapt to these risks. Most of these activities are pilot projects that face upscaling challenges. Virtually all systems offering comprehensive coverage to low-income clients do so with outside donor assistance (Mechler et al. 2006).

Three major obstacles exist which challenge the scaling up of risk reduction and insurance solutions for weather-related risks: lack of a) back-up mechanisms including access to risk transfer and insurance options for medium-level risks, b) sufficient and appropriate weather information, and c) sufficient expertise/capacity development for risk management. The international community, public sector, and private sector each have a role to play in addressing these challenges.

The international community can, for example, help provide a systematic framing of risk reduction and risk transfer in a larger UNFCCC adaptation approach. It can provide support for vulnerable countries and communities to design and implement risk reduction plans, after which they may gain enhanced access to risk transfer tools like insurance. The international community can help create common frameworks for data gathering and guidelines for assessment of risks and vulnerabilities which are part of adaptation. Bilateral and multilateral actors can form partnerships which help manage risks. A few examples, some in this Policy Brief, include:

- The World Bank has enabled the Turkish Catastrophe Insurance Pool (TCIP), a national system providing cover for earthquake risks, by absorbing a layer of risk and illustrates learning from experiences outside of weather-related risks (example on page 22, Gurenko et al. 2006).
- In Mongolia a syndicate pooling arrangement, the Mongolian IBLIP, protects the under-developed insurance industry against extreme losses and insolvency. The government supports this syndicate by absorbing the losses from very infrequent extreme events (over 30 % animal mortality), and it can call upon a World Bank contingent debt arrangement to back this commitment (example on page 14, Skees et. al. 2008).
- As a final example, Swiss Re, in partnership with an NGO and an academic research institute, has insured about 150,000 smallholder farmers in Kenya, Mali and Ethiopia against drought through an index-based product. The insurance is purchased by the NGO with international backing, and other partners are being solicited to provide further financial support.

Governments and donor organizations can reap gains by moving away from providing post-disaster humanitarian aid towards enabling public-private insurance systems (Linnerooth-Bayer et al. 2005). By sharing responsibility with individuals and the state, donors leverage their limited budgets and substitute a calculable annual commitment for the unpredictable granting of post-disaster aid. With donor-supported risk-transfer programmes, developing country governments will rely less on debt financing and international donations, while assurances of the timely repair of critical infrastructure will attract foreign investment. Most importantly, the certainty of post-disaster assistance provided by a publicly or internationally backed insurance contract can relieve the psychological stress of ad hoc aid, as well as reduce the marginalization of very low-income victims. This is expressed by the founders of the Afat Vimo disaster microinsurance scheme in Gujarat following the devastating earthquake in 2001 (also see example on page 23).

The potential benefits of extended partnerships for providing disaster safety nets are impressive, but there are also challenges in providing affordable disaster insurance to low-income clients on a large scale. Governments can facilitate extended partnerships by providing a stable institutional setting and good governance. Governments can improve the legitimacy and credibility of institutions and procedures responsible for the development, implementation and regulation of insurance systems. Governments can support data collection, and lay the groundwork for greater private sector participation and assure that insurance is closely coupled with incentives for risk reduction. Finally, some may worry about the market replacing social solidarity in providing security. It is important to stress the importance of continuing solidarity or support for those unable to fully provide for their own security. This support, however, might fruitfully be reoriented to more secure and shared forms of responsibility through risk reduction and appropriate insurance instruments.

The private sector can help provide capacity-building and technical support. In partnership with governments these activities might also include collecting and disseminating weather data, financing risk assessments or weather stations, or supporting delivery systems, all of which render these systems more accessible and affordable to poor communities and governments. In addition, the public sector can provide support by offering or brokering pooling and reinsurance arrangements, or even, if appropriate, providing support for premiums.

Location:
Turkey

Risk Exposure:
Earthquakes

Activity:
To insure homeowners against losses from earthquakes

Cf. Gurenko et al. 2006

Turkish Catastrophe Insurance Pool (TCIP) – Roles of the Public and Private Sector

Roles of the private sector:

Domestic insurance companies
- *Sell earthquake policies on behalf of TCIP*
- *Collect and pay premiums (net of commission) to the TCIP*
- *Collect and pass on certain information from insured homeowners to the TCIP*

International reinsurance market
- *Commit sufficient reinsurance capacity on fair terms*

World Bank
- *Set up the TCIP's business and information systems*
- *Carry out essential risk management studies*
- *Draft operational, rating and risk management guidelines*
- *Conduct training for the senior staff of the pool manager and the Turkish government in operating a national catastrophe insurance programme*

Roles of the public sector (here: The General Directorate of Insurance of the Turkish government):

- *Develop and approve TCIP's regulatory framework*
  - *Prepare policy terms and conditions, develop risk management and operational guidelines, govern the programme*
- *Provide major inputs in the programme's institutional design*
- *Instrumental in conducting an active public information campaign*
  - *Encourage homeowners' risk management and risk mitigation*
  - *Maximize sales penetration with affordable and easily comprehensible pricing*
  - *Promote the TCIP's operational efficiency*
  - *Ensure that at least minimal enforcement mechanisms are established*
  - *Maintain the TCIP's long-term financial viability*
  - *Increase the size of TCIP's surplus to reduce its reliance on foreign reinsurance over time*
- *Spearhead design and introduction of a state-of-the-art information system*
- *Engage the pool managers*
- *Audit function and overall regulatory oversight functions*

Location:
India

Risk Exposure:
Drought, production shortfalls

Activity:
To insure farmers against production shortfalls through weather-index insurance

Cf. Hellmuth et al. 2009

India – Roles of the Public and Private Sector

Roles of the private sector:

- *To support the set-up of enhanced data collection networks (i.e. weather stations, etc.) to improve the soundness of index-insurance provision on a larger scale (previously: only limited number of measuring points / after private sector support: Additional 500 stations were installed)*
- *To partner with other private sector companies in order to*
  - *raise awareness on a broader scale by involving agro-business companies into the "education process"*
  - *increase insurance uptake by collaborating with i.e. fertilizer distributors, internet kiosks, etc.*
  - *improve efficiency of claims settlement and handling of payouts*
  - *improve soundness of microinsurance programmes through reinsurance*
- *To improve product design for a better correlation between indices and losses*
- *To provide public insurance schemes with weather data from privately owned weather stations*
- **Future endeavours:** *to engage in the design of innovative approaches to help cover even the most vulnerable*

Roles of the public sector:

- *To offer crop insurance to farmers with subsidized premiums so the amount to be paid by the farmer is not more than 2% – 3.5% of the total sum insured*
- *To raise awareness about the insurance schemes by pamphlets, radio advertisements, posters, etc.*
- *To provide weather data through meteorological departments*
- *To develope further index insurance products to help incorporate additional crops and expand coverage on a wider geographical scale*
- *To partner with private insurance in order to reach more clients vulnerable to drawbacks in agricultural production*
- *To engage with international reinsurance sector to backup the insurance schemes*
- **In the future:** *to help farmers to understand and trust the available insurance products by benchmarking with appraisal mechanisms as well as established standards*
- **In the future:** *to subsidize premiums (40 – 50%) offered by private insurance companies in order to reduce the financial burden of the farmers by the private sector*
- **In the future:** *to increase investment in the network of weather stations (especially in rural areas)*

"Bangladesh, as a disaster-prone country, is already observing a higher frequency in floods and cyclones. In the past, severe floods happened every 8–10 years, now we face these kinds of events every 2–3 years. Therefore, DRR needs to be a focus of adaptation efforts in a comprehensive disaster risk management framework. Risk identification in this regard is key to understanding the risks faced by our country which will then help us better reduce the impacts by investing in ex-ante risk management measures such as DRR and insurance.

The greatest challenge is the scarce financial resources – there are competing claims over these limited resources and therefore people refuse to invest before a disaster strikes, preferring to deal with the consequences after the impact. So, for effective adaptation, here is the question of changing the paradigm of international disaster response from ex-post to ex-ante disaster management.

Microfinance institutions are a part of Bangladesh's social infrastructure since the late 1970s and the NGO penetration is higher than in any country in the world. Based on social entrepreneurship, this social capital could be a good basis for the private sector to engage, but without combined efforts from the public sector, we cannot create incentives for sound partnerships. In order to aim for a more significant insurance penetration in the overall population, the public and private sectors have to work together to incentivize the development of a culture of insurance in Bangladesh."

Prof. Dr Mizan R. Khan,
Department of Environmental Science & Management –
North South University, Dhaka, Bangladesh and a Member of the Bangladesh Delegation to the Climate Change Negotiations, 2010

Conclusions

As the frequency and intensity of extreme weather events mount, the urgency of building on successful risk reduction initiative is increasing as well. There is a pressing need and logical justification for including DRR and insurance as a component of a comprehensive UNFCCC post-2012 adaptation framework.

A risk management module within this adaptation framework has the potential to help vulnerable countries and people better manage climate-related risks. Risk management including risk reduction and transfer can complement efforts to reach the Millennium Development Goals, and back-stop and safeguard measures to help the poor. The costs of investing in risk reduction, risk transfer and other appropriate risk management measures can pay off many times in avoided loss and damage, and in tangible improvements in the welfare of vulnerable people worldwide. The ultimate aim of such efforts is to catalyse resilience among vulnerable countries and people.

Risk management as proposed here allows vulnerable countries to take the necessary steps to identify the risks they face, within the Hyogo Framework for Action. Countries can then prioritize risk reduction and management needs. With the help of the international community, they can implement these risk reduction activities within a broader adaptation framework. Risk reduction priorities can be included in National Adaptation Programmes of Action (NAPA) and other planning processes to ensure complementarities with other adaptation activities. Many risk management activities, such as risk identification and mapping, risk pricing, and vulnerability assessment, are useful for a variety of adaptation measures. In this way, investing in risk reduction promises multiple dividends: lower losses, safeguarding development goals, lessened volatility for government planning and budgets, benefits for other adaptation measures.

Risk reduction activities will open the door for vulnerable countries to access enhanced benefits of adaptation and other appropriate risk transfer, with support from the international community. Programmes must be designed with the key aim to encourage risk reduction, as well as providing security for those insured. These programmes can dovetail with private and public sector insurance programmes at the micro, meso and macro levels. Many of the examples in this Policy Brief have shown examples of micro and meso-level insurance for vulnerable people and communities.

Growing experience worldwide suggests that insurance for low, medium, and high-level weather-related risks is feasible. Some of the manageable challenges include imperfect data, designing institutions that can deliver on adaptation, and shaping the respective roles of industrialized and developing countries, as well as the public and private sector in implementing risk reduction and risk transfer approaches. But these challenges are manageable. Satellite imagery and improved catastrophe models are helping shoring-up the data needed to address weather-related extremes. More development is needed. Examples of workable institutional structures can be observed worldwide and can help guide design and implementation.

The necessary tools are in place to start. Now, political will within the UNFCCC process and in affected regions will play a decisive role in moving forward. At COP 16 in Cancun, Mexico, policy-makers have the chance to deliver a set of decisions related to adaptation. Fast-track actions have been mentioned in the Copenhagen Accord, and must be approached swiftly but strategically. Investment in risk reduction and risk transfer measures can provide immediate benefits and longer-term adaptation assistance. Importantly, creating these mechanisms to help vulnerable countries and people will help build trust in the overarching process beyond COP 16.

A set of coherent, implementable adaptation measures including concrete measures for DRR and insurance at the micro-, meso-, and macro-level should be part of that package. The package must also be backed by adaptation funding, and the commitment to subsequently move from negotiating text to design and implementation. Such an outcome in COP 16, as a minimum, will help build trust for the future and start providing timely adaptation support for vulnerable countries and people.

Main messages:

1. There is a strong justification and need for DRR and insurance as components of a comprehensive UNFCCC post-2012 adaptation framework.

2. Countries must prioritize and implement risk reduction. These actions will open the doors to access additional benefits of risk transfer with support from the international community.

3. Strategic investments in risk reduction and risk transfer can facilitate adaptation in vulnerable countries. These investments can also lower the total long-term costs of adaptation.

4. Insurance for low, medium and high-level weather-related risks is feasible in the context of climate change. Some of the manageable challenges include:

   - Data is not perfect, but improvements in satellite imagery, catastrophe models and other innovations offer tangible ways to lay the basis for better adaptation planning, risk reduction and loss prevention, and risk transfer services.

   - Examples of flexible, light institutional arrangements can be observed worldwide. These practical examples can help guide design and implementation of linked risk reduction and risk transfer approaches in a UNFCCC adaptation framework.

   - Experience involving both the public and private sector in the design and implementation of risk transfer programmes can inform how decision makers shape the roles and responsibilities in risk reduction and risk transfer approaches in a UNFCCC adaptation framework.

5. The necessary tools are in place to start. Now, political will within the UNFCCC process, and particularly at the regional level, is essential for moving forward with risk reduction and insurance. These measures hold the potential to substantially reduce the longer-term costs of adaptation, and help vulnerable countries and people manage some of the impacts of climate change today and in the future.

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Institute for Environment and Human Security

Established by the U.N. General Assembly in 1973, the United Nations University (UNU) is an international community of scholars engaged in research, advanced training, and dissemination of knowledge related to pressing global problems. The United Nations University created the Institute for Environment and Human Security (UNU-EHS) to address risks and vulnerabilities that are the consequence of complex - both acute and latent - environmental hazards. It aims to improve the in-depth understanding of the cause-effect relationships to find possible ways to reduce risks and vulnerabilities. The institute is conceived to support policy and decision makers with authoritative research and information. UNU-EHS is supported by the German Federal Ministry of Education and Research and the Ministry of Innovation, Science, Research and Technology, State of North Rhine-Westphalia, both dedicated to promoting sustainable development and advancing human security. UNU-EHS aims for academic excellence in principal priorities of its programme:

- Vulnerability assessment, resilience analysis, risk management and adaptation strategies within linked human-environment systems; and

- Internal displacement and trans-boundary migration due to environmental push-factors;

whereby the major drivers such as land degradation, desertification, natural hazard events, gradual human-induced and natural environmental and climatic change and variability, including water depletion and quality deterioration are considered. Preparedness, adaptation, and response are the main dimensions along which human security can be strengthened. A special work focus of UNU-EHS is to conduct research on water related hazards along big rivers and on deltas. In addition, on behalf of the United Nations University, UNU-EHS is actively engaged in the activities of the International Flood Initiative (IFI) which focuses on research, information networking, education and training, empowering communities, and providing technical assistance and guidance

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