SUBMISSION

Insurance solutions in the context of climate change-related loss and damage: Needs, gaps, and roles of the Convention in addressing loss and damage[1]

Munich Climate Insurance Initiative (MCII)

Submitted to the

SBI Work Program on Loss and Damage

October 2012

PLEASE COMMENT: This submission has benefited from the feedback and ideas of many different experts and delegations. We welcome your comments (send to warner@ehs.unu.edu).

Past MCII work on insurance and adaptation.

The current document outlines important options about how insurance may be used in the context of climate change-related loss and damage. In the past, **MCII has also contributed to thinking about use of insurance-related tools for adaptation to climate change**. Between 2008 and 2011 MCII contributed several submissions to the UNFCCC on potential roles of insurance for weather-related risks in the context of adaptation. This work is available at www.climate-insurance.org. The focus of MCII´s messages were to accentuate adaptation efforts by:

- providing tools to inform decision making for investments in adaptation (utilizing insurance capacity to assess and price risk),
- incentivizing prevention and risk reduction to strengthen adaptive capacity of low-income communities, and
- providing a risk-layered approach (local focus on prevention and DRR combined with local micro-insurance), and a regional or national climate risk insurance pool.

[1] This submission from the Munich Climate Insurance Initiative (MCII) is part of its mission to develop insurance-related solutions to help manage the impacts of climate change. We are particularly indebted to MCII executive board members Christoph Bals (with input from Soenke Kreft and Sven Harmeling), Armin Haas, Peter Hoeppe, Eugene Gurenko, Joanne Linnerooth-Bayer, Thomas Loster, and Silvio Tschudi, and Koko Warner as well as MCII members including Andrew Dlugolecki, Paul Kovac, Simon Young, and others for their design of this concept. We also thank the numerous delegates and experts who have talked with us about their needs for and questions about climate risk insurance in the context of loss and damage. MCII was founded in response to the growing realization that insurance solutions can play a role in addressing some of the negative impacts of climatic stressors**,** as suggested in the Framework Convention and the Kyoto Protocol. With membership on the part of insurers, climate change and adaptation experts, NGOs and policy researchers, MCII provides a forum for insurance-related expertise applied to climate change issues.

Contents

Executive Summary

Challenges of addressing loss and damage from extreme weather events

The burden of loss and damage – the actual and/or potential manifestation of climate change impacts that negatively affect human and natural systems –- is not evenly distributed across the world because of differing exposures, vulnerabilities and coping capabilities. Because the risks often fall more heavily on those least able to reduce or recover from them, there is a need for assistance for the most vulnerable people and countries. All countries will require pathways that lead to a more climate resilient development in the face of potentially growing weather extremes and incremental, profound shifts in natural systems, like sea level rise and desertification driven by climate change.

The challenge of addressing both the impacts of weather extremes and incremental change is daunting, yet there is a great need to manage loss and damage, today and in the future, by avoiding, reducing and sharing the risks imposed by climate change.

Proactive planning and management of climate-related stressors must become a central part of decision making now and in the future because patterns of loss and damage related to climate change threaten to derail climate resilient development in many parts of the world. Delays in action will worsen the plight of developing countries.

Strategies for managing weather extremes

Strategies are needed to manage unexpected shocks from weather extremes that complement and facilitate the design of strategies to address longer-term incremental loss and damage associated with climate change. Risk assessment as required by insurance approaches can help identify climate stressors and thresholds. Insurance can help manage loss and damage from weather extremes in ways that bolster rather than diminish efforts to achieve climate resilient development.

Insurance-related approaches are designed for managing losses and damages caused by events which cannot be foreseen where and when they occur. Prudently employing a combination of insurance-like approaches/solutions with risk reduction measures, such as early warning, education, infrastructure strengthening and maintenance and livelihood strengthening, creates a space of reduced societal disruption when extreme weather events happen. Approaches that manage unexpected extremes can create a buffer for developing countries (i.e. by providing financial liquidity through fast payouts immediately after a loss event), and help the international community better plan issues like financial needs (for adaptation and managing loss and damage). The convention could establish a global climate risk insurance facility coordinated internationally but operationalized through a series of regional risk management platforms which could receive funding from sources such as the Green Climate Fund. The climate risk insurance facility could incentivize loss reduction and resilience-building, create more certainty in investing and other decision making, and facilitate the provision of timely finance to prepare for and recover from extreme weather events that would be carried out in the regional risk management platforms.

Insurance-related approaches, in combination with a wide range of other approaches at the local, national, regional and international levels, can contribute to creating a space of certainty within which it is safe to make investments in climate resilient development and thus must be part of a comprehensive strategy to manage climate-related stressors now and in the future.

In the recent past, a wide variety of insurance and other risk transfer mechanisms have been introduced at different scales in emerging markets. Combining private or public-privately supported insurance with other forms of social protection at the local level can help low-income people to better absorb shocks. Including risk transfer mechanisms in national budgets can contribute to

climate resilient development. At the regional and international level, countries can create insurance pools that build on solidarity concepts to share and transfer loss and damage from extreme weather events.

As the hazard situation for the most vulnerable people in developing countries is in many instances increasing due to processes they have not caused themselves, in the interest of fairness, countries, which have contributed to a larger share of human induced climate change, should consider supporting risk management activities of the most vulnerable.

A unique role for the Convention

The Convention has a unique role to play in facilitating short and long term strategies to address loss and damage. At COP18, the Convention should include **a global climate risk insurance facility** in its decision on loss and damage. The climate risk insurance facility (operationalized through regional risk management platforms) could fulfill **three functions** to address loss and damage, and to also complement adaptation and mitigation efforts:

- **Assess loss and damage**. The climate risk insurance facility can provide guidelines for assessing loss and damage. **Technical assistance** may involve pooling technical expertise and collaborative networks worldwide, coordinating data repositories and encouraging coherence across information frameworks (such as adequate standards for data gathering, open source remote sensing, and other i**nformation needed to** assess risk exposures) that is sensitive to vulnerable groups and people.

- **Facilitate regional and international dialogue to advance policy coherence and regulations** on insurance-related measures that address loss and damage at the local, national and regional levels. Such dialogue should improve conditions for regulators and decision makers in developing countries to develop appropriate local, national and regional financial risk management approaches including insurance. Policy coherence should enhance consumer protection, links to resilience building and risk reduction, and links to adaptation and national development planning processes.

- **Operationalize a global risk insurance facility through regional risk management to address loss and damage, including regional risk insurance pools** which on the longer term could become part of a future global system for managing weather extremes. This operationalization would include appropriate financial and other support. These regional platforms can p**rovide technical assistance to facilitate appropriate combinations of insurance measures with other tools to address the impacts of extreme weather events. Enable systematic capacity development for risk management tools and expertise within governments and civil society, particularly through the use of country or sectoral risk officers. Capacity development** could include participatory design processes so that approaches to address loss and damage including insurance complement and strengthen social safety networks and other resilience-building measures.

The Convention should foster long-term commitment to risk transfer in order to enable sustainable solutions and partnerships. A global approach to risk transfer, embedded in a coherent strategy to manage the negative impacts of climate change, is such a sustainable solution to parts of the loss and damage spectrum. An international climate risk insurance facility is needed to better diversify risks of loss and damage from extreme weather events, lower the costs of managing these risks, and ensuring more timely and targeted delivery of support when catastrophes strike. This could be part of a wider coordination function of a loss and damage mechanism, and it could be operationalized through a series of regional risk management platforms (including risk insurance pools) which collaborate and coordinate on the management of loss and damage.

1. Introduction

The Cancun Adaptation Framework recognized "the need to strengthen international cooperation and expertise to understand and reduce loss and damage associated with the adverse effects of climate change, including impacts related to extreme weather events and slow onset events." Paragraph 28(a) of the Cancun Adaptation Framework invites views and information on possible approaches to address loss and damage, including a climate risk insurance facility (para 28(a)):

- "Options for risk management and reduction; risk sharing and transfer mechanisms such as insurance, including options for micro-insurance; and resilience building, including through economic diversification" (para 28(b))

- "Approaches for addressing rehabilitation measures associated with slow onset events" (para 28(c)).

The Cancun Adaptation Framework asked the Subsidiary Body for Implementation (SBI) to make recommendations on loss and damage to the Conference of the Parties for its consideration at COP18 (para 29), as well as to strengthen international cooperation and expertise to understand and reduce loss and damage associated with the adverse effects of climate change, including impacts related to extreme weather events and slow onset events (para 25).

MCII writes this submission in response to Decision 1/CP.16 paragraph 28(d) which invites the engagement of stakeholders with relevant specialized expertise to contribute views on exploration of approaches to address loss and damage. In particular, MCII´s submission response to paragraph 28(a) which invites exploration of "Possible development of a climate risk insurance facility to address impacts associated with severe weather events". The submission further addresses "Options for risk management and reduction; risk sharing and transfer mechanisms such as insurance, including options for microinsurance; and resilience building, including through economic diversification" (para 28(b)).

This MCII submission addresses issues related to managing loss and damage associated with extreme weather events, it explores the potential roles of a range of insurance-related approaches which transfer risk in the context of loss and damage (including social safety nets, solidarity and catastrophe funds, insurance pools, catastrophe funds, microinsurance, catastrophe bonds, and insurance linked to sectoral or community risk management programs). Although beyond the scope of this submission, it is clear that a wider spectrum of approaches must be employed across the full scope of loss and damage, particularly for slow incremental changes that also on the long term cause significant loss and damage.

The MCII submission in the context of UNFCCC discussions on loss and damage related to insurance.

MCII`s submission responds to the invitation to give a submission on possible elements to be included in the recommendations on loss and damage to COP18, from Decision 7/CP.17[2] (paras 1-9) under the SBI work Program on Loss and Damage. This submission addresses some of the questions related to the use of insurance in the context of loss and damage (para 2 and annex 2):

- Cost effectiveness of various approaches, and what level various tools are employed at (from local to national, regional and global).
- Resources required for successful implementation of various tools, including budget, technical capacity for implementation, data, infrastructure, etc.
- Lessons learned from existing efforts within both the public and private sectors, considering

[2] For the exact decision, please see:
http://unfccc.int/files/meetings/durban_nov_2011/decisions/application/pdf/cop17_loss_damage.pdf

elements of design, limitations, challenges and best practices?

- Links and synergies between risk reduction and other instruments such as risk transfer, and how comprehensive risk management portfolios or toolkits can be designed
- Tailoring risk management approaches to national contexts, and ways to evaluate which tools might be most appropriate for the particular risks and circumstances of a country

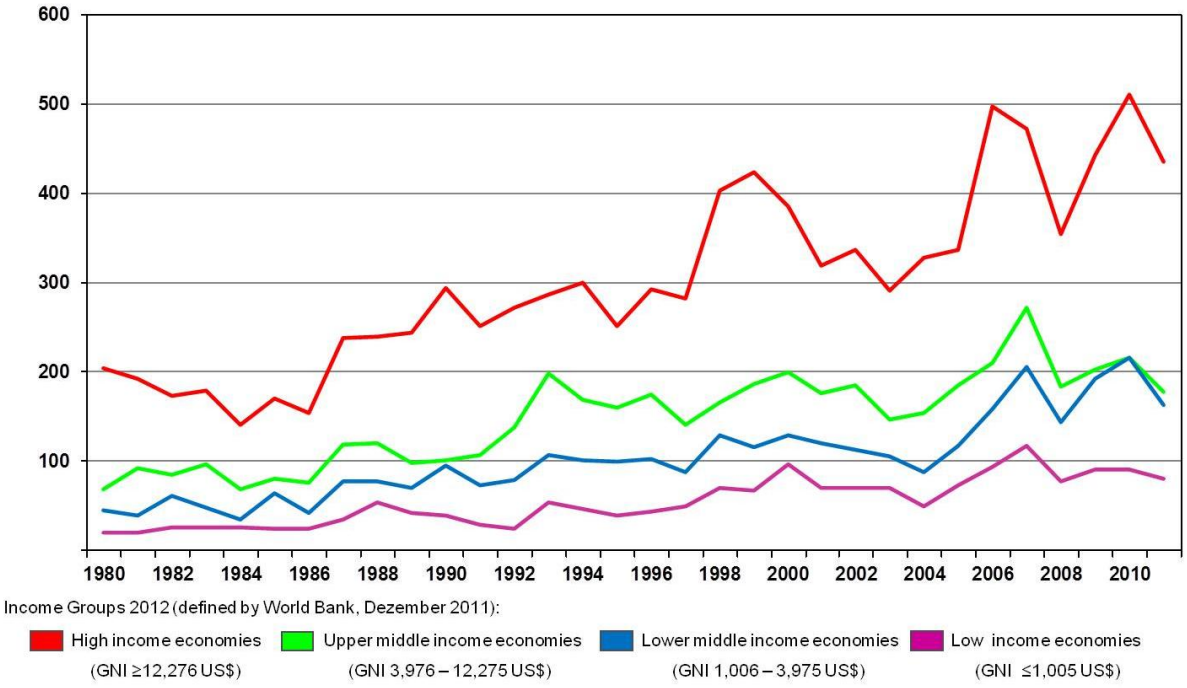
This submission further provides insights into design principles that could guide a range of approaches including an international mechanism (para 5).

1.1 The burden of loss & damage today

In the last three decades, a general upward trend has been recorded for frequencies of weather related loss events. This trend is detectable in rich countries as well as in poor countries. The average annual weather related disaster losses in the last five years (2007 to 2011) in the groups of economies with" low" and "lower middle" economies have reached US$ 1.3 bn and US$ 6.8 bn respectively. Data from 1980 onwards reveal that far more than 80% of people killed lived in developing countries.

In figures 1 and 2 the annual numbers of weather related loss events and their relative changes (starting point in 1980 = 100%) are shown for countries broken down into the 4 income groups defined by World Bank.

Figure 1: *Annual numbers of loss relevant weather events globally 1980 – 2011 in countries belonging to different income groups.*

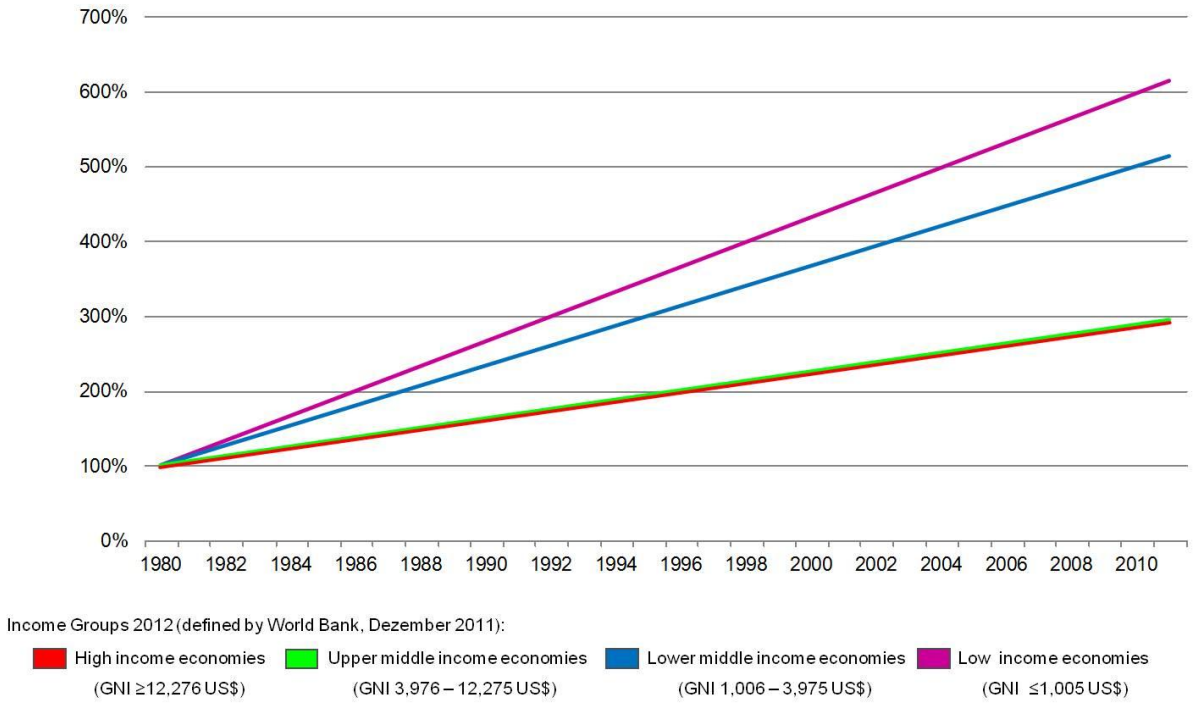


Source: Munich Re, Geo Risks Research, NatCatSERVICE, 2012

The countries with the lowest income still show the lowest numbers of events, but the largest increases in the last three decades, illustrated in the next figure. The relative number of loss events has increased by a factor of 6 in the countries of the lowest income economies while in the richest countries the factor has also increased, but just by a factor of 3, i.e. half as high. It is an open

question to what extent this difference is due to increasing wealth in developing nations, and more frequent extreme weather events, respectively. As a measure of managing future risks, we suggest to take the possibility seriously that changing weather patterns might impact developing countries severely in decades to come.

Figure 2: *Relative trends of annual numbers of loss relevant weather events globally 1980 – 2011 in countries belonging to different income groups.*



Source: Munich Re, Geo Risks Research, NatCatSERVICE, 2012

1.2 Loss & damage tomorrow: Avoiding the worst case scenario

Managing loss and damage involves *avoiding the potential for loss and damage in the future* through appropriate mitigation and adaptation, and *preparing for- and addressing actual loss and damage when it occurs* (today and in the future).

Choices about mitigation will be the main factor determining the degree of climate change and thus have an influence on the magnitude of loss and damage, particularly from around 2030 onwards. Until 2030, as until then global warming is already predetermined, adaptation measures to the unavoidable changes have to be taken. Decisions that affect the level, scale and efficacy of adaptation will affect societal ability to adjust to manifestations of changes in climatic variability (e.g. shifts in seasonality of rainfall, heat waves, magnitude and frequency of extreme weather events). The preeminent approach to loss and damage in the medium and longer-term—in terms of avoiding future loss and damage and minimizing impacts in the short and medium-terms—lies in our choices about mitigation and adaptation.

Text box: What does a 4°C-world mean in the context of Loss & Damage?

At COP-16 (Cancun, December 2011), Parties agreed "to hold the increase in global average temperature below 2°C above pre-industrial levels". In 2010, UNEP's "Emissions Gap Report"[3] expected a gap in 2020 between expected emissions and the global emissions consistent with the 2°C target, even if pledges were implemented fully. One year later, a follow-up report concluded that even with the full implementation of the current Cancun pledges "the planet is heading to a temperature rise of at least 3.5° C, but that could be even more if the 2020 pledges are not met."[4]

But even this might be an optimistic scenario. According to the global carbon budget in 2010, growth rates of global emissions are not decreasing but increasing. In a worst-case scenario, where no action is taken to dampen the rise in greenhouse gas emissions, "temperatures would most likely rise by more than 5°C by the end of the century"[5]

For all climate insurance concepts this has at least two consequences:

- The question of insurability has to be discussed for each of these different risk levels. For a 5 degrees world, the risk of regional or continental scale might become unmanageable or very different to manage in different parts of the world.
- Moral hazard has a second face in the climate related insurance debate. The traditional understanding is that a badly designed insurance scheme can give an incentive for mal-adaptation: "I'm insured, I don't have to prepare for a possible disaster." Now, also a second wrong incentive signal by insurance has to be taken into account. If polluters don't contribute to the premium the insurance scheme could send the signal "I don't have to reduce emissions, others pay for the damage."

The consequences for the design and context of climate insurance instruments are:

- Risk reduction, green house gas reduction, disaster preparedness, loss prevention, all of which can be incentivised with insurance and cannot stand alone as solutions to the climate change challenge.
- In the interest of equity, countries with large per capita emissions could contribute to insurance premiums. To avoid the disincentives this might create for loss prevention (by lowering the price of the risk), financial support could target the administrative and capital costs ("load") of the premium

An implicit decision not to take ambitious mitigation action at a global scale, and/or decisions not to invest in and actively drive adaptation, could lead to loss and damage which exceeds the ability of human society to manage (at all scales)[6].

2. What role can insurance play in the context of loss and damage?

This section outlines key functions that insurance can play – at the individual, community, country, regional (international) and global levels—in the context of loss and damage. Section 4 revisits this discussion by asking what the Convention can do to harness these functions, possibly in the form of a climate risk insurance facility, which is operationalized through regional risk management platforms that address climate change-related loss and damage.

It must be emphasized, however, that insurance is not a universal remedy for all types of loss and damage resulting from climate change. As Figure 3, shows, insurance options can support adaptation

[3] See UNEP 2010

[4] Climate Action Tracker 2012. http://climateactiontracker.org/countries.html

[5] Pope 2008

[6] See for example: Stern Report 2007.

and risk resilience for extreme weather, but is not appropriate for many, usually slower-onset, climate-induced impacts.

As we see in Figure 3 (below), insurance is not appropriate or generally feasible for slowly developing and foreseeable events or processes that happen with high certainty under different climate change scenarios. The losses from long-term foreseeable risks, such as sea level rise, desertification and the loss of glaciers and other cryospheric water sources, are estimated to be substantial in the future.[7] Even for weather-related events, insurance would be an ill-advised solution for disastrous events that occur with very high frequency, such as recurrent flooding. Resilience building and prevention of loss and damage in such instances may be cost effective ways to address these risks.

Insurance is a feasible adaptation measure to address extreme weather events, including insurance for households (e.g. micro-insurance), farms (e.g., index based crop insurance) and also governments with sovereign insurance. As we will be discussing in this document, insurance arrangements at these scales might be usefully supported with regional and global risk management facilities.

2.1 Insurance as adaptation

By spreading losses among people and across time, insurance reduces the catastrophic impact of disasters, and enables a timely recovery. By reducing the *burden* of loss and damage (if not the average loss) insurance is thus an adaptation measure.

In addition to providing timely capital after a disaster, as illustrated in Figure 3, insurance can and should be linked with risk reducing, preventive activities. Prudently employing a combination of insurance measures with risk reduction, including, among other measures, early warning, education, infrastructure strengthening, and land-use regulations, can greatly reduce the immediate losses and long-term development setbacks from disasters. In addition, by creating a secure investment environment, insurance instruments can enable productive risk taking on the part of individuals and governments, and in this way mitigate disaster-induced poverty traps.

Insurance, however, is not affordable to many in the most vulnerable countries, nor is it always advisable. In Box 1, we discuss principles that guide MCII's proposals for assisting vulnerable governments and communities pool and reduce their losses from extreme weather.

Box 1: MCII principles for weather-related insurance targeted at the most vulnerable

Insurance solutions as proposed by MCII should serve the interests of the most vulnerable people, communities and countries. The following principles suggest how insurance cancan be guided in order to fulfil this mission.

Intelligent mix: Prevention and insurance should be closely linked with an ex-ante climate risk management strategy that places priority on preventing human and economic losses. Action can be guided by a risk layering approach: Cost-effective risk reduction is the first priority to limit loss and damage. The costs of preventing low-impact frequent events area typically many fold lower than the losses that would occur otherwise. Alternatively, prevention measures for high-impact, low-

7 IPCC (2012) Managing the risks of extreme events and disasters to advance climate change adaptation, page 9: http://ipcc-wg2.gov/SREX/im ages/uploads/SREX-All_FINAL.pdf; and also see Parry, M.L., O.F. Canziani, J.P. Palutikof and Co-authors 2007: Technical Summary. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 23-78.

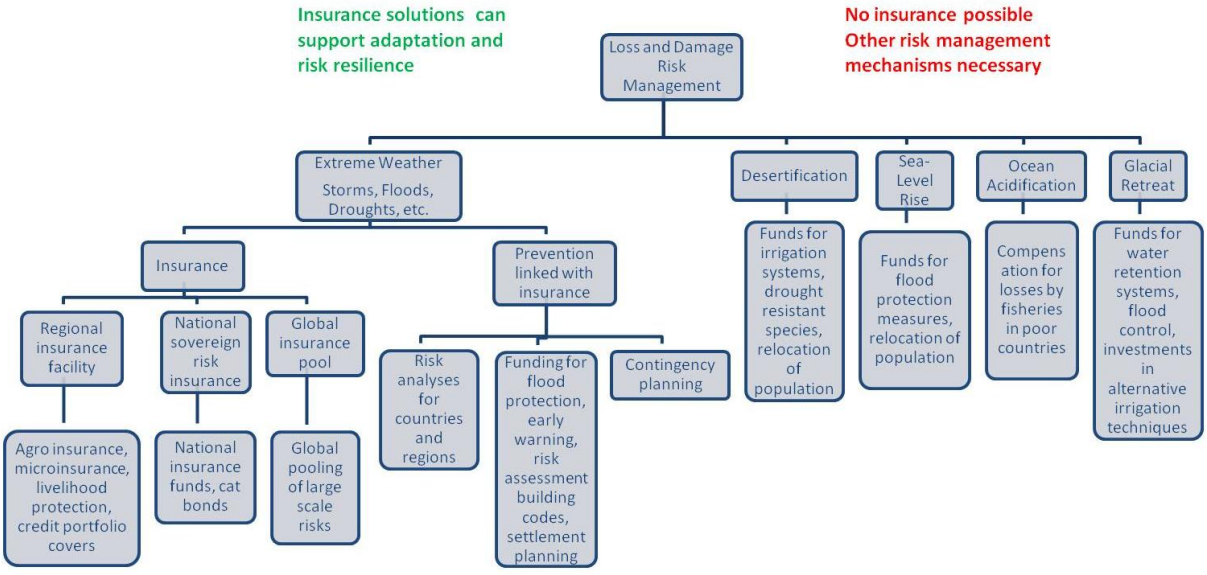
frequency events can be far costlier with respect to the losses prevented. For this high layer of risk, insurance and other risk transfer mechanisms may be more appropriate.

Economic efficiency and risk based premiums: By pricing risk, insurance can provide an important price signal to incentivize risk reducing behaviour. For example, high insurance premiums will discourage persons from locating in high-risk areas. Care should be taken, therefore, not to significantly distort insurance prices or market competition, while addressing affordability and accessibility needs.

Solidarity and responsibility: While risk-based pricing promotes loss reduction, an equally important principle relates to solidarity and the allocation of responsibility for climate change impacts. The loss burden can be far more severe in vulnerable developing countries and, within these countries, among poor households and communities. Since these communities have contributed little to climate change, it is incumbent on countries with high per capita emissions of green house gases to take a share of responsibility. Pilot projects are demonstrating that market based insurance can be a viable option for providing security to the poor, but generally not without donor support. Combined with other forms of social protection, premium support for the poorest will be an important feature of any insurance approach for vulnerable people and countries. This can take many forms, including direct financial support that minimally distortsdistorts incentives, capital support for local insurers (thus lowering premiums), technical assistance and education programs.

Subsidiarity principle: Decisions should be made as close as possible to their point of application and where the need is manifest. Transparency and accountability are important criteria for the creation of insurance programs. International finance may best be allocated on a strategic basis and not involve international micro-management at the project level.

Figure 3: *Tree of options for loss and damage risk management (Source: MCII, own design).*



2.2 Assess loss and damage potential

Assessment of loss and damage is a prerequisite for identifying needs and policy priorities, and it is a core function of insurance approaches. Risk assessment frequently serves to bring attention to the hazard potential, the exposure and vulnerability, and in this way it can raise awareness and expose new options for managing the risks. Publically collected and open-source data and risk assessments, as well as open-source hazard modeling, can contribute meaningfully to national and regional risk management and investment decisions. Insurance risk assessment can facilitate regional and international data analysis, such as establishing data standards, comparability, methods and data repositories.

2.3 Incentivize loss reduction & resilience building activities

Countries can define nationally appropriate risk reduction priorities, and identify and make plans for reducing weather-related risks. The principles of climate resilient development (including principles from the Hyogo Framework[8]) can guide these actions. Such activities include:

- Mapping risks and avoiding settlements in high-risk zones
- Building hazard-resistant infrastructures and houses
- Protecting and developing hazard buffers (forests, reefs, mangroves, etc.)
- Improving early warning and response systems
- Building institutions, and developing policies and plans
- Developing a culture of prevention and resilience

Many of these measures will be cost effective for low-impact events but not for very extreme disasters. This suggests a layered approach to risk management as discussed in Box 1.

Applying loss-avoiding measures can in many contexts (for example, building hazard-resilient structures) reduce insurance premiums, and in this way insurance sends a signal to households, firms and governments to reduce risks. Additional design elements, besides reduced premiums to reward risk reduction, can be incorporated in insurance contracts. Ongoing participation/renewal of insurance coverage with public or international support could be dependent upon evidence that participating vulnerable countries are making tangible progress in implementing their loss reduction plans.

2.4 Reduce financial repercussions of volatility and create more certainty in decision making

The volatility in economies and social systems caused by weather extremes is a challenge for social and economic development. Insurance can help create a space of certainty within which investments and planning can be undertaken. This certainty, in turn, can help create an environment more conducive to climate-resilient investments in sectors like tourism and agriculture (typically heavily exposed to climatic stressors), in job creation and in market development. Moreover, insurance can provide the safety net essential for taking productive, yet high risk, investments. As an example, a micro-insurance scheme in Malawi enabled farmers to receive loans for purchasing hybrid seeds that increased their productivity five-fold (Suarez et al., 2008).

The graph below (from ECA 2009) illustrates the main benefits of insurance, and the complementary nature of risk transfer with risk reduction and risk retention approaches. It also illustrates the costs

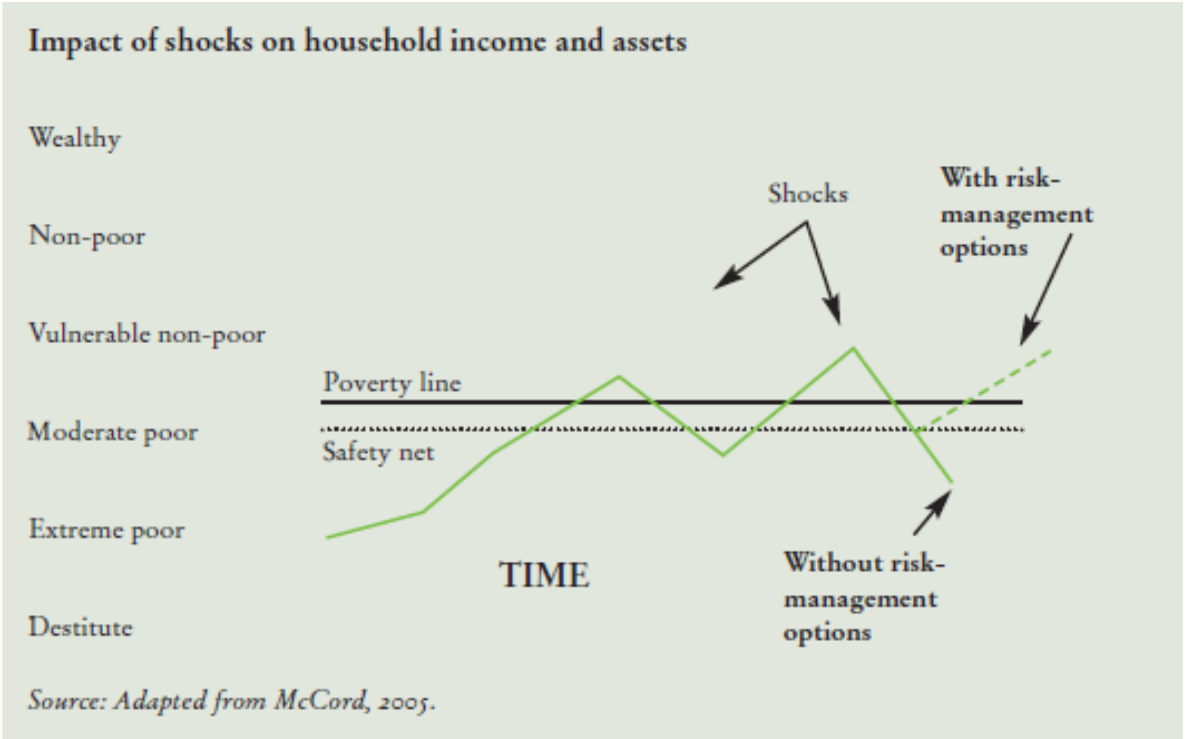
[8] UNISDR (2005): Hyogo Framework for Action (HFA): Building the Resilience of Nations and Communities to Disasters.

of insurance. Insurers that operate in developing countries have high start-up and transaction expenses, which can greatly limit affordability and constrain insurance penetration. Moreover, because disasters can affect whole communities or regions (co-variant risks), insurers must be prepared for meeting large claims all at once. Their cost of requisite backup capital, diversification or re-insurance to cover co-variant claims can add greatly to the business expenses and raise the premium far above the client's expected losses. Without government or donor support, private insurance is not easily affordable by households and SMEs in highly exposed and vulnerable countries, where the opportunity costs of private risk-financing instruments can be prohibitively high in terms of meeting other human needs.

Can risk transfer help ease climatic stressors and related poverty?[9]

Risk is ever present in the lives of the poor. When a crisis occurs, the poor often resort to a variety of coping strategies, such as reducing food consumption, selling assets, asking family or friends for help, changing livelihoods or moving away, taking children out of school, and borrowing from moneylenders or microfinance institutions. Selling productive assets or borrowing from money lenders that charge high interest rates can jeopardize the economic basis of the household. Few have access to formal insurance services. The result is that their trajectory out of poverty follows a zigzag route: advances reflect times of asset building and income growth; declines are the result of shocks and economic stresses that often push expenditure beyond current income (see Figure below). The role of micro insurance, like any effective risk-management instrument, is to temper these downturns, which are major impediments to escaping poverty.

Figure 4: *Impacts of shocks on household income assets*



Source: Churchill 2006

[9] See also Churchill 2006

2.5 Provide timely finance to cover loss & damage

As discussed above, there are numerous roles that insurance can play – at the individual, community, country, regional (international) and global levels—in the context of loss and damage: providing security against the wholesale loss of assets, livelihoods and even lives in the post-disaster period; ensuring reliable and dignified post-disaster relief; setting powerful incentives for prevention; providing certainty for weather-affected public and private investments, and not least, spurring economic development and easing disaster-related poverty. A major advantage of insurance over post-disaster financing options, including aid, loans and family assistance, is its timeliness and reliability. In comparison with (usually) ad hoc disaster assistance, insured clients have a "right" to post-disaster compensation. Index-based contracts, which require no inspections for claim settlements, can in principle provide payouts immediately following the "triggering" event. Timely payouts, in turn, enable households to purchase food and other necessities without resorting to selling household assets (that can trap them in poverty), and they help governments avoid fiscal deficits and costly post-disaster loans.

3. Using insurance to address loss & damage: Examples from local, national, and regional levels

A wide variety of insurance and other risk transfer mechanisms have been introduced over the past decade in developing countries and emerging markets with mixed results. There insurance is often combined with other tools. In particular, the availability of insurance for low-income people (such as microinsurance) is often associated with microfinance and other mechanisms. This coupling can be an attractive means of introducing insurance to groups who may be either underserved and/or unfamiliar with risk transfer but might have an understanding and need for security. Combined products can also reduce costs and enhance access to consumers. Especially organized groups such as trusts, self-help groups, mutuals etc. often understand risk for their community and therefore develop an understanding for security and safety. Insurance can be linked to effective DRM as the following example from Mozambique shows (see box below).

Early warning, community disaster teams, and risk transfer in Sofala, Mozambique

A people-centered early warning project in central Mozambique is based on an impressively simple structure. A number of villagers have been nominated for the job of measuring daily precipitation levels at strategic points in the Búzi and Save river basins. Water levels along the river are also monitored using straightforward gauges. If there is particularly heavy rainfall or the water level becomes critical, this information is passed on by radio. Should reports reaching the central coordination point indicate widespread heavy rainfall, the alarm is raised. Local disaster prevention teams have been formed in a number of villages along the rivers. The system includes younger citizens as well as women in order to reinforce the part they play in the village community and in society.

In the Mozambique case, early warning and insurance can reduce risk in a low-cost way: Money that has to be spent for post disaster recovery by the Mozambique government and donors after an extreme weather event is split in two parts (funds):

- Standard Recovery Fund (SRF): The SRF is used in the usual manner serving affected communities and people to repair damage and to support recovery.
- Fast-track Recovery Fund (FTRF). The FTRF is paid out quickly and serves much faster recovery in case a disaster strikes. Communities receive much quicker funds, loss assessment can be easier managed (because risk awareness and management skills are in place, see below). However, there are preconditions. The communities can only make use of the FTRF when taking part in a tailor-made DRM program, e. g. awareness raising program at community level (capacity building) and/or adopting a DRM strategy (e.g. appropriate

land use planning, evacuation plans etc.).

- When linking this approach to private sector insurance, leveraging can be tremendous
- Through insurance mechanisms. Countries can get:
  - Professional risk assessment by private sector risk specialists,
  - Tailor-made products and effective administration (existing professionalism),
  - Sustainable solutions (since insurers will look for economic sustainability) and
  - A real PPP.

Source: The Munich Re Foundation together with partners is developing this approach for Mozambique (10/2012).

3.1 General remarks: Innovations & partnerships in using insurance

Innovations in using insurance together with other tools to address loss and damage should be tailored to the level where needs are manifest. This means **a mix of private sector, public sector, and public-private partnership solutions**. The public and public-private partnership solutions may differ significantly from standard private sector insurance solutions, and there is scope for much innovation in providing for the needs of affected communities, countries, and regions as the examples below illustrate.

Private sector solutions for well-off households and governments. In some cases, countries may choose to share a layer of risk with the private insurance market for assets such as public infrastructure (sovereign insurance). Frequently, the private sector reinsurance markets are involved in covering some portion of the largest risks a country or sector may face from extreme weather events. Private sector solutions can be "traditional indemnity products", for which insurance payouts are made proportionate to the loss, or "parametric products", which establish parameters or triggers for extreme events to determine insurance payout levels. In the latter case no loss adjustment – which as a rule is very time consuming – is needed, and payout levels are agreed to in advance for the particular trigger levels. However, parametric products bear significant "basis risk". This technical term describes the potential mismatch between the defined trigger level (e.g. wind speed of amount of precipitation) and actual loss occurrence. However, the rapid money flows in parametric (or index products) makes them very attractive for all stakeholders.

About 40 percent of the weather related-damage in developed countries is covered by private sector insurance with strong differences from country to country. This includes most of the loss and damage to homes and businesses as a result of severe wind, wildfire, winter storms and (in some countries) flood. Most of the loss and damage not covered by insurance in developed countries involves damage to public infrastructure and, in some countries, flood damage to public and private assets.

Public sector solutions to protect low-income people, policy priorities. Pure market solutions are not always desirable or appropriate—some very low-income people are not in a position to pay private market prices, may not have access to insurance markets for a variety of reasons, or may not demand the standard products on offer. When private sector markets for insurance are not fully developed—the case in most developing countries—public sector risk transfer solutions sometimes appear. Such solutions can have higher transaction costs than private sector solutions—as market infrastructure and expertise, a developed client base, and a degree of standardization may not be in place.

As the following examples show, public sector solutions are often innovative:

- **Design to overcome barriers and link to broader social goals**. Public sector risk transfer schemes sometimes show new ways of thinking in their design (to overcome some of the barriers of private sector insurance). Public sector insurance is often designed to link public

programs to existing social protection schemes (Honduras, Nicaragua, Ethiopia as examples), employing early warning and disaster risk reduction tools in combination with insurance (the Caribbean, Tanzania, Mongolia, Vietnam).

- **Provide services that complement risk transfer for low income sector**. Publically supported insurance approaches sometimes provide services not always available in private sector product lines (like helping low-income people access credit, offering support to protect livelihoods and not just to cover assets, employing agricultural extension officers for educating people about good risk management practices for extreme weather events).

- **Public support to enable participation of low-income sector**. Public sector insurance programs use public resources to develop approaches, support premium payments, and make payouts. In some programs, publically funded insurance payouts come in a form that is valuable to the target group. This may be seeds and agricultural products for low-income farmers, rapid cash payouts to poor households immediately after an extreme event, or benefits to sectors like tourism or agriculture to help them recover quickly after an extreme event.

Note: A weakness of publically-funded insurance schemes is that they can be de-stabilized through changes in government priorities, lack of sufficient funding, and insufficient support to sectors or community-level clients.

Insurance-related measures can be driven by the public sector and employed to promote a spectrum of public priorities. Some examples include:

- **Protect priority sectors and households from climatic stressors**. Some public programs protect jobs and livelihoods in activities like agriculture and tourism (through loan protection, targeted support programs, livelihood protection).

- **Reliable provision of public services**. In the Caribbean, a regional risk insurance pool improves the ability for governments to keep basic public services functioning following a major catastrophic event. The CCRIF (Caribbean Catastrophe Risk Insurance Facility) is a sovereign insurance pool designed to make rapid payouts after hurricanes or earthquakes to member governments. Since 2005 the CCRIF has paid money to the governments of Dominica, St. Lucia, Turks & Caicos Islands, and Haiti.

- **Early identification of threats and resource provision to address them**. In Africa, a new regional risk insurance pool is being developed helping governments quickly identify emerging drought situations and have the resources to avoid famine. The pan-African contingency planning and food security insurance pool (Africa Risk Capacity) requires member governments to have drought-risk and food security plans in place, and provides payouts to help them purchase and stockpile grain in a timely way to prevent famine.

Public-private partnerships can offer the market sustainability of private sector approaches, and the flexibility and innovation of public sector approaches. Subsidiarity means that each partner will have clearly defined, distinct roles to play. The public sector may undertake data collection, needs assessment, and shape the regulatory framework for insurance-related approaches. The public sector may work with private sector actors to design tools that meet the targeted needs, and may under appropriate circumstances provide some financing to support the costs of the programs (such as when low-income groups may not be able to afford to pay). The private sector can help implement the approaches over time—ideally ensuring that the approaches are efficient, affordable, and comply with consumer-protection standards as well as technical standards (such as premiums being sufficient to cover the risk insured). Strong commitment over a longer period of time is needed when creating sustainable solutions.

Caribbean Adaptation and Insurance for Low-Income People

Studies of low-income groups in the Caribbean have shown a relatively high demand for weather risk insurance-related solutions (Lashley and Warner, 2012). A new multi-country approach is linking livelihood protection with other ex ante tools to provide timely and unbureaucratic recovery aid following excessive wind and rainfall events. However, these approaches have so far experienced difficulties in reaching out to a larger proportion of the vulnerable population due to a shortage of information on local weather risks, insufficient risk management and risk transfer experience on the part of the initiators, insurance illiteracy on the side of stakeholders and potential clients - and the lack of a clearly viable reinsurance concept.

The Climate Risk Adaptation and Insurance in the Caribbean program developed by MCII bundles an early warning system with risk reduction information, and insurance to protect the livelihoods of low income groups in Jamaica, Grenada, and St. Lucia (expanding after 2014). Germany's Federal Ministry for the Environment provides funding for the program. The approach features two insurance products: the first to protect livelihoods of low income people (livelihood protection policy), and the second to protect loan portfolios exposed to weather risks (loan portfolio cover). These products were developed collaboratively with the respective Ministries of Agriculture and Tourism, local stakeholder groups, local private sector, and the program partners (MCII, Munich Re, Microensure, and CCRIF).

The approach facilitates access to new market segments. Its partners include a company specializing in matching local needs with tailored risk management products, a regional facility (CCRIF) with access to governments and understanding of the regulatory environment and ability to serve as a regional risk aggregator, and a reinsurer with expertise in modeling, product structuring, and international practice and policy. The regional level approach allows underserved low income groups to gain protection from weather risks, and foster development of local enterprise.

For more information, visit www.climate-insurance.org

3.2 Local: Building resilience with local insurance & safety nets: Helping low-income people absorb shocks and temper downturns

Evidence of local-level insurance approaches to manage extreme weather events suggests that safety nets can be enhanced when linked to or designed to have some insurance-like properties. The role of insurance-related approaches at the local level, like any effective risk-management instrument, helps low-income people to better absorb shocks and to temper downturns, which are major impediments to escaping poverty. Many examples and pilot projects exist demonstrate the combination of insurance mechanisms with livelihood protection, social safety nets, and prevention measures on local level. A promising example is HARITA in Ethiopia (see box below).

HARITA (Ethiopia)

In Ethiopia, 85 per cent of the population rely on smallholder, non-irrigated farming for their livelihood. The people are therefore highly vulnerable to drought-related risks. Initially targeting teff farmers in the village of Adi Ha, an index insurance product allows farmers to either pay the premiums in cash or in kind by contributing labor to projects that increase the community's resilience to climate change. Farmer participation is ensured by a management team of five village members and financial literacy workshops. To overcome data limitations and to reduce basis risk, new techniques such as satellite data or simulation models are being explored. This clearly demonstrates how insurance besides addressing monetary issues improves research and minimizes risk.

HARITA is embedded in an important government program, the Productive Safety Net Program

(PSNP[2]). It integrates insurance with both risk reduction and credit. It allows very vulnerable farmers – even the poorest of the poor - to pay their premiums through risk reducing labor such as helping planting, composting or planting for protection. Thus farmers benefit even when there is no payout because these risk reduction activities will help minimize vulnerability to drought and improve yields.

Resilience-building activities for smallholders participating in HARITA include

- 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 and
- Learning how to clean teff-seeds before sowing them in order to boost productivity

Through HARITA, farmers enrolled in PSNP 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 labor, they earn an insurance certificate protecting them against deficit rainfall.
The HARITA Project started in 2008 and was developed by institutions such as Oxfam America, Swiss Re, International Research Institute for Climate and Society (IRI) and the Relief Society of Tigray (REST). The risk carriers are the Nyala Insurance in Ethiopia and the global reinsurer Swiss Re.
In 2011 a payout was triggered. 1,810 farmers received US$ 17,392. Although this amount may sound low on average, this helps the affected poor a lot.

Source: 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.

To better link programs aimed at improving the resilience of low-income groups at the local level with risk transfer, several gaps need to be overcome. Two gaps are mentioned in the following paragraphs, and some additional gaps will be discussed again in the section dealing with the Role of the Convention (see below).

Basic financial infrastructure and regulatory environment

Many insurance schemes at the local level are started without the benefit of basic foundational requirements—this implies that pilot local-level approaches often face almost insurmountable obstacles. A financial infrastructure is essential for well-functioning risk transfer systems, especially for low-income communities. Clients must know (ideally in advance) what risks they want to "insure away", the cost of the risk, and how they shall collect their payments. The lack of basic financial infrastructure for managing shocks and building resilience—savings accounts, affordable and accessible credit, and other features needed to manage financial transactions—imply that insurance providers have to build not only new relationships to clients but also they have to build a new technical infrastructure for premium payments. Providers of risk transfer solutions must have a relationship with the appropriate regulatory authority to ensure consumer protection, and the building up of adequate financial infrastructure.

Education about weather-related extremes, risk transfer functions

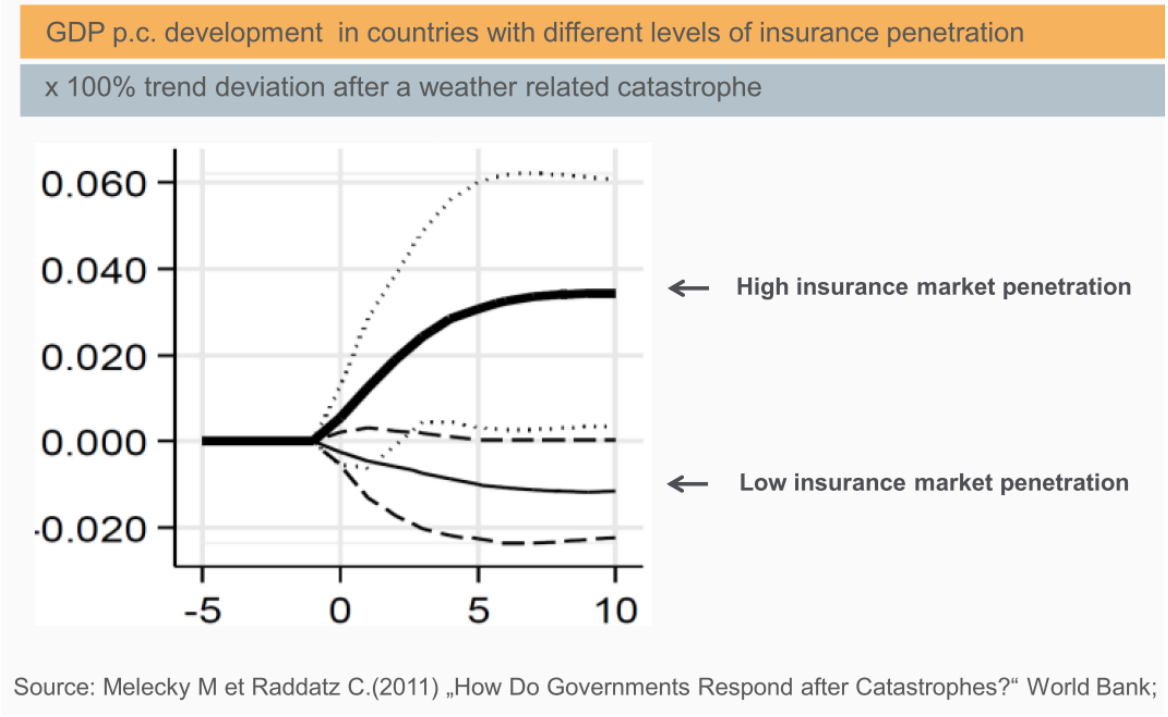
Insurance solutions for low-income communities are often driven by microfinance organizations, community groups, co-operatives, trusts, associations, self help groups and other grassroots

organizations. Insurance knowledge is not always available in those organizations. Even if a microfinance organization knows well how to manage large numbers of microfinance clients successfully, it may not have the necessary knowledge to assess risks and adequately price them. Support by technical assistance providers or cooperation between an insurance organization and e.g. a microfinance organization can help to overcome the knowledge gap. Understanding the concept of insurance is crucial – how it works, what it can do and what it cannot—for the provider and the client. Significant investment in customer-education is necessary to reduce insurance illiteracy for providers, consumers, government officials, as well as donors. This is another area where rules and regulation are needed, to ensure that any providers of risk transfer have a sound understanding of the tools, the underlying technical issues, and how to educate and protect consumers at the local level.

3.3 National: Combining risk transfer and measures to protect national development priorities

Retaining and transferring the appropriate risk layers can contribute to achieving climate resilient development. For example, in a comparative study of countries with different insurance market penetration by the World Bank the post catastrophe patterns of economic growth have been evaluated. In figure 5, the mean and the possible ranges of a weather related catastrophe triggered trend deviation of the GDP development is shown (solid lines mark the mean developments, dotted (for high insurance penetration) and dashed - for low insurance penetration - the range).

Figure 5: *Comparison of GDP (p.c.) after a weather-related loss event in countries with high- and low insurance penetration.*



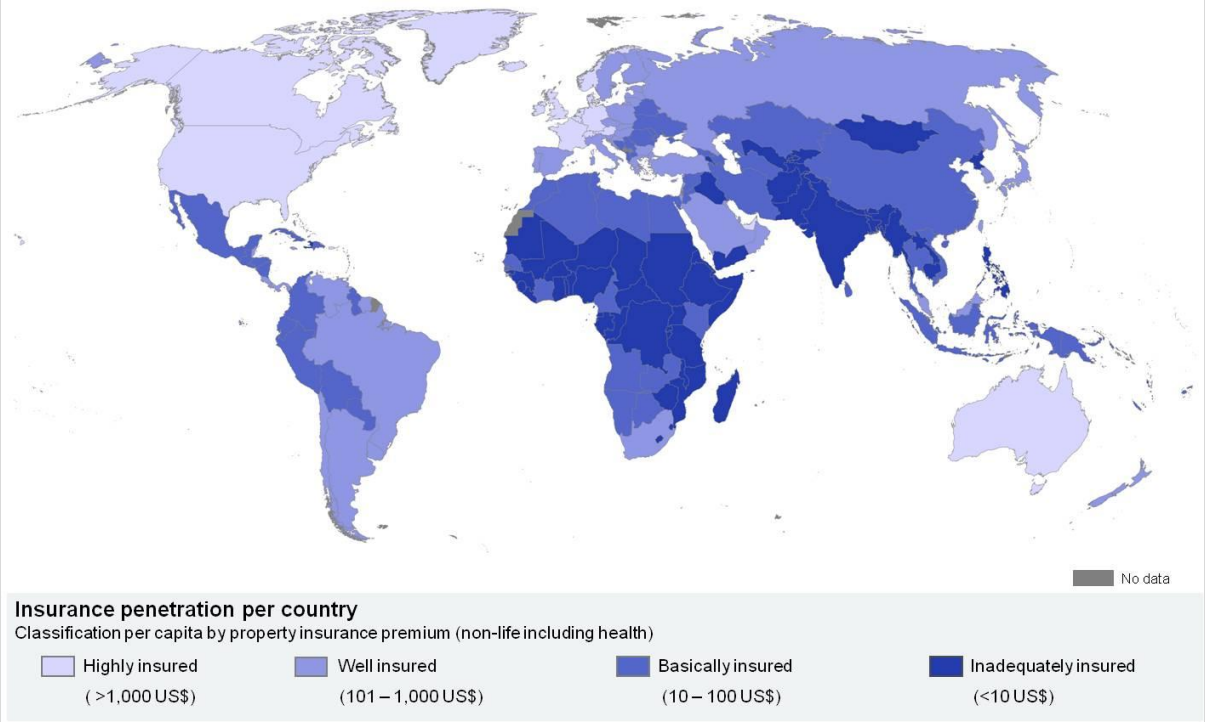
Source: Melecky M et Raddatz C.(2011) „How Do Governments Respond after Catastrophes?“ World Bank;

The study shows that in countries with high insurance penetration after a large weather related catastrophe there is even a positive GDP trend deviation (adding GDP growth) after the event and sustainable additional growth is generated. In contrast to this countries with low insurance penetration after an extreme weather event suffer from a negative GDP deviation, which if not compensated by other growth factors can lead to long term reductions in GDP, which inhibits their further development. If several of such extreme weather events occur within some years they will drive poor countries even further into the poverty trap. Studies like this illustrate the potential which

insurance related approaches – public, private, and combinations – have to increase resilience of countries in respect to extreme weather events.

Most developed countries already benefit from the shock-absorbing function of insurance measures, public and private, as well as public-private risk transfer arrangements. The map below shows the distribution of insurance penetration worldwide.

Figure 6: *Insurance penetration worldwide since 2012*



Source: Munich Re 2012

An example from the private sector is that insurance companies anticipate, and pre-fund loss events with accumulated capital and the purchase of reinsurance (insurance for insurers). As a result, the use of insurance supports (an earlier and fuller) recovery for society from a loss and damage event. Damage claims are paid promptly, so homeowners and businesses can quickly return to a state similar to before the loss event. Moreover, in developed countries there is high confidence among consumers in the role of insurance, bolstered by experience with previous loss and damage events, and regulation. Insurance related approaches can help make economic activity more resilient to climate-related loss and damage, such as in the agricultural and tourism sectors in many developing countries, by protecting livelihoods of low-income people, and by providing coverage for business interruption from extreme weather events.

Transferring at least the increases of the losses of developing countries caused by extreme weather events can reasonably be absorbed by insurance related approaches, if they are supported by the industrialized countries which have caused this problem. This would increase the resilience of these countries in respect to these hazards.

Reliable data is essential to adequately assess the potential loss and damage from extreme weather events, give a price to risk, and come up with options to manage that risk (including insurance). However, countries interested in exploring risk transfer solutions frequently have to deal with inhomogeneous, inadequate or inappropriate data. Historical data are often not available for longer time periods, and are only occasionally in digital format. Many countries struggle to establish

sufficient networks of weather stations, making the assessment of weather related risks difficult. Data gathering and quality assurance of the data often requires time and resources to improve the data e.g. through interviews or by transferring historical data from written documents in electronic databases. Some databases do exist about loss and damage from weather-related extremes such as those from reinsurers (Munich Re NatCatService or the Swiss Re sigma as well as EM-DAT of CRED). The compilation of meaningful, useful data on loss and damage especially for developing countries remains a premier obstacle for those countries to develop more comprehensive approaches (not only insurance) to address loss and damage. **Where insurance exists or is built up, data gathering and processing exists, too – and the interest to collect better data is systemic. Thus insurance can address many of the problems described above.**

3.4 Regional & international: Combining risk transfer with regional risk capacity & forecasting

A trend is emerging in which countries in a region create insurance pools to share and transfer loss and damage from extreme weather events. An underlying principle of insurance is the diversification of risk—reducing the likelihood that an insurance scheme will be overwhelmed by the same types of stressors (a single event can cause simultaneous losses to many insured assets) or the same group of insured needing a payout all at the same time – such as a community where most households are affected by the same stressor). A multi-country or multi-region approach can prove viable where local and national pooling arrangements may not be feasible for statistically dependent (co-variant) risks that cannot be sufficiently diversified. For this reason, primary insurers, individuals, and governments (particularly in small countries) do and may need to rely on risk-sharing and transfer instruments that diversify their risks regionally and even globally.

Light governance structures for risk pools. For regional and international-level insurance approaches, examples such as the CCRIF show that 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 capita.. International support, such as in a global climate risk pool, could ensure the needed cover for regions and countries following an event.

Africa Risk Capacity (ARC) –an approach linking contingency planning, insurance for food security & drought in Africa

African countries regularly experience drought, which often turns to famine if timely assistance is not available. Traditional ex post humanitarian aid often comes too late to avoid loss of life and property for many people. Today, luckily, organizations such as the World Food Program support victims of drought. Often the support comes late due to a time consuming process (support request, verification, confirmation, claims assessment, payout etc.). With ex-ante mechanisms (e. g. money flows after no rain in April, because there will be known effects on yield in September), people can be served even before the crisis materializes.

Establishing contingency funding, or resources, that become available automatically if an extreme drought, flood or cyclone occurs in a vulnerable area, ensures a more timely and reliable response. Because extreme weather events do not happen in the same year across the continent, pan-African solidarity in the creation of a disaster risk pool was deemed financially effective. Such a facility will provide participating Member States with readily available res

ources in the event of severe droughts with additional hazards to be incorporated later.

ARC is one of several tools that governments can use to eliminate delays in disaster response due to a lack of predictable funding and to limit reallocation of government resources from planned development activities in times of crisis. In advance of joining the ARC, each participating country needs to create a contingency plan identifying how ARC funds will be used to assist those affected.

ARC's capacity-building program will not only enable governments to make informed decisions on their participation in the ARC's financial services, but also, significantly, enable meaningful, risk-informed fiscal management of natural disaster risk for African governments with enhanced national capacity to respond to these predictable disasters.

The ARC aims to provide parametric contingency funding for approved contingency plans for events of a frequency of 1:5 or greater up to an initial maximum of US$ 30 million per season.

The ARC supports national disaster risk managers in identifying realistic contingency plans maximizing the value of early and reliable funding for events greater than roughly 1:5. At less frequent but more severe risks, roughly above 1:5, contingency funding makes sense for two reasons. First, investments are unlikely to create resiliency for events less frequent than 1:5 in a reasonable timeframe and, second, the potential for pooling, as shown in ARC's dynamic financial analysis, reduces cost.

Courtesy of ARC (www.africanriskcapacity.org)

Payouts. There are many different ways to define the payout from a (regional) 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 a percentile (e.g. 30) of the most extreme losses. In the latter case a regional analysis on the return periods of losses has to be made and the payout be calibrated regionally (IIASA 2009).

In the 2010 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 US$ 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 ratio. In this instance, the insurance provided a rapid payout in a crisis situation when liquidity was greatly needed. This is a notable 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).

4. Considerations on the role of the Convention in insurance approaches to address loss & damage

This section calls attention to gaps that can be best filled through regional and international action, supported by the guidance of the Convention. It outlines regional-level and international elements that can be part of a COP18 decision on loss and damage. These elements are required to address needs or gaps arising from loss and damage due to failure to achieve the objective of the Convention, particularly those that cannot be adequately addressed at the national level.
It is recommended that the international community considers.

A risk layering approach to addressing loss and damage, which can increase efficiency and value added by targeting support differently for infrequently occurring high-consequence risks versus the frequently occurring low-consequence risks;

*The establishment of a **climate risk insurance facility**[10] operationalized as a network of international and regional risk management and transfer platforms embedded in wider efforts to address loss and damage, and in coordination with adaptation and mitigation efforts. The rationale for coordinated international and regional platforms is they can serve multiple functions, including pooling and transferring, more cost effectively than if they are carried out at the national or community levels.*

Principles underlying the design of such an approach should include:

- **Ex ante approach emphasizing assessment, planning, decision support**. The Convention can play a role in helping support purposeful rather than ad hoc responses to negative impacts of climate change. The Convention can help ensure the identification of threats and bringing this information to decision making and planning to address loss and damage.

- **Risk layering / subsidiarity**. The Convention has a special role to play in facilitating strategies to address loss and damage. Following the principle of subsidiarity, efforts to address the spectrum of loss and damage—ranging from extreme weather and other kinds of climatic variability, and incremental profound climate change—may be best designed and implemented on various levels, such as country and local levels under the jurisdiction of Nation States, but also on a regional and international scale. Implementation of risk transfer approaches should be embedded in wider programs designed to reduce loss and damage and enhance the ability of societies to adjust to the negative impacts of climate change. Such approaches should address needs and engage participation of key stakeholders as close as possible to the level where needs are manifest (principle of subsidiarity).

- **Finance and other means to support implementation**. The international community can play a role in helping overcome some of the current obstacles (such as a lack of meaningful back-up mechanisms, i.e. reinsurance; the lack of technical and financial capacity and expertise; and the quality and availability of loss and exposure related data) for countries to employ risk transfer solutions in a broader toolset for promoting climate resilient growth, and adaptation, and for dampening the negative impacts of climate change-related loss and damage..

4.1 Functions of a climate risk insurance facility, coordinated internationally & operationalized regionally

The functions outlined below have a trans-boundary nature and will therefore be particularly useful if implemented at a regional or international level, rather than in compartmentalized national contexts.

The climate risk insurance facility could have capacities that include, but are not limited to, the objectives and functions shown in the overview table below and explained subsequently:

Possible Roles of the Convention in facilitating Insurance to Address Loss and Damage		
	Objective	Function

[10] See Cancun Adaptation Framework, paragraph 28(a).

1	Provide loss and damage potential assessments that support **decision making** and facilitate management of weather related risks.	**Guide and enable assessments** of loss & damage potential for extreme weather events.
2	Provide timely finance to cover loss and damage in order to **reduce the financial repercussions of volatility** related to extreme weather events.	**Operationalize climate risk insurance including finance mechanisms** and other means for implementation.
3	**Incentivize loss reduction and embed risk transfer into wider resilience building efforts.**	**Ensure policy coherence and appropriate use of risk transfer tools** in a wider context of climate risk management.

4.1.1 Objective: Provide loss and damage assessments in order to support decision making and facilitate management of weather related risks

Function: Guide and enable assessments of loss & damage potentials for extreme weather events.
The UNFCCC process can help fulfill this function *inter alia* in the following ways:

- **Provide guidance on assessment methods and data collection standards** for risk transfer, which could benefit wider efforts in the assessment of loss and damage. This could be done by supporting "open source" projects (similar to GEM[11]), where risk assessment approaches are made available for a defined (e.g. political decisions makers, insurance industry) audience. On the other hand, guidelines and methods could also be spread by publication and presentation (i.e. knowledge transfer).

- **Support development of standardized hazard maps** (e.g. providing river flood zones, extreme precipitation estimation, wind speed zones). This could also include support for establishing regional / international catastrophe loss indices (akin to PCS[12] in the United States or PERILS[13] in Europe). Technical assistance may also involve pooling technical expertise and collaborative networks worldwide.

- **Coordinate data repositories and encourageencourage coherence across information frameworks** (such as adequate standards for data gathering, open source assessment methods including remote sensing, open source risk models, and other information needed to assess risk exposures) that is sensitive to vulnerable groups and people.

- **Systematic capacity building** for tools that in combination can be appropriately used to manage and reduce loss and damage potential. This involves **technical assistance** to facilitate dialogue across countries on experiences in design and implementation of packages of

[11] http://www.globalquakemodel.org/landing/index.html
[12] http://www.iso.com/Products/Property-Claim-Services/Property-Claim-Services-PCS-info-on-losses-from-catastrophes.html
[13] http://www.perils.org/

different tools, foundational requirements, and outcomes of appropriate combinations of insurance measures with other tools to address the impacts of extreme weather events.

National governments with the engagement of relevant public and private actors can help fulfill this function *inter alia* in the following ways:

- Obtaining reliable sources of information about managing, reducing and transferring risks; investing in systematic & reliable risk exposure data;;
- Understanding risks of greatest concern by identifying key risks and vulnerabilities, and estimating exposure:.
- Putting a price on risks and adaptation options; Helping evaluate the relative merits (e.g. by cost benefit analysis) of specific adaptation interventions for national implementation.

4.1.2. Objective: Provide timely finance to cover loss and damage to reduce repercussions of volatility related to extreme weather events.

The regional risk management and –transfer platforms that form the climate risk insurance facility can have a distributive function, help regions absorb and manage higher layers of financial loss and damage, and help capitalize risk management approaches at lower risk layers that are tailored to national and local contexts. The regional platforms would help manage and limit financial losses which may be incurred from possible yet uncertain loss events.

Function: Operationalize climate risk insurance including finance mechanisms and other means of implementation.

The UNFCCC process can help fulfill this function *inter alia* in the following ways:

- **Set-up an international or a network of regional risk management and transfer platforms** that cover catastrophic layers of risk. This may include seed funds for regional (and national) risk reduction and risk transfer initiatives.
- **Support an evaluation of different roles of finance to support approaches under the convention** (particularly areas for facilitating, providing platforms, considerations of price support and investments in elements necessary for functioning of appropriate risk transfer approaches).
- **Channel commitment of the donor community in providing expertise, capacity building and financial support** to innovative mechanisms for addressing the financial aspects of loss and damage associated with extreme weather events. It is essential that innovative risk transfer mechanisms are designed in a way that the needs and priorities of low-income and vulnerable people are met.
- **Plan and implement packages of tools to reduce risk and enhance resilience in regional cooperation.** Such packages of tools should help create the context within which decisions can be taken with greater certainty.

National governments with the engagement of the relevant public and private actors can help fulfill this function *inter alia* in the following ways:

- Act on lessons learned about regional public-private partnerships.

- Design and implement measures to avoid loss & damage, and transfer risk which cannot be avoided; use risk reduction as criteria for participation in insurance schemes.

4.1.3. Objective: Incentivize loss reduction, embed risk transfer into wider resilience building efforts

Function: Ensure policy coherence and appropriate use of risk transfer tools in a wider context of climate risk management.

The UNFCCC process can help fulfill this function *inter alia* in the following ways:

- **Provide guidance on purposeful, planned approaches to loss & damage.**

- **Provide guidance on technical measures and design elements of risk transfer** to incentivize loss reduction and resilience building activities for beneficiaries of the international mechanism.

- **Foster a better understanding of the value added and the scalability of a package of tools**, of how they work together, and of cost savings of jointly implementing approaches including innovative risk financing mechanisms.

- **Facilitate regional and international dialogue to advance policy coherence and regulations** on insurance-related measures at the local and national levels to address loss and damage. Such dialogue should improve conditions for regulators and decision makers in developing countries to develop appropriate regional and national financial risk management tools including insurance. Policy coherence should enhance consumer protection, links to resilience building and risk reduction, and links to adaptation and national development planning processes.

- Where appropriate **coordinate with bodies on technical matters related to assessments** such as the International Association of Insurance Supervisors. Such a process could ensure for the compiling, open access and standardization of data.

National governments with the engagement of relevant sectors including public and private can help fulfill this function *inter alia* in the following ways:

- Engage in risk reduction activities and provide enabling environment for risk management, insurance, governance, etc.

4.2 Some cost figures

Estimating costs for a global coverage for developing countries is a challenging task as the (technical) premium costs are highly individual and strongly depend on the regional and international settings. Nevertheless, there are first estimates of capital costs and costs of maintaining regional risk sharing facilities.

A global extreme risk fund, possibly like the one proposed by MCII (MCII 2008), could need US$ 10 billion in initial capitalization, and would be maintained at that level. Young (2009b) estimates initial capitalization needs for regionally-organized risk pooling solutions at 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 weather 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).

4.3 Accompanying activities in the emerging institutional set-up of adaptation and mitigation.

The UNFCCC, through the Cancun Decisions, already achieved major advances on the issue of adaptation. Several elements that are underway towards their operationalization have to play synergetic roles for advancing a climate insurance approach.

National Adaptation Plans (NAPAs)

Parties agreed to operationalize the National Adaptation Plan process as mandated by the Cancun Adaptation Framework. This includes a medium to long-term strategic approach for LDCs in how to do adaptation at the national level. The developed modalities and guidelines should also be applied by other developing countries.

National Adaptation Plans will be accompanied by concrete investment activities. The Cancun Adaptation Framework already gives guidance on eligible adaptation activities. Countries should consider embracing a risk layering approach and include elements of a climate insurance approach in their concrete activities.

Regarding loss & damage, there is no immediate mentioning in the NAPs decision. However, many approaches to be discussed under the loss & damage work programme (such as assessment of loss & damage and relevant decision making tools) have also a high relevance for medium to long-term adaptation planning. In elaborating the work programme on loss & damage, Parties should therefore also link this with the NAPs concept and possibly include it in the review of the guidelines to be conducted by the Least Developed Expert Group.

The Green Climate Fund

In Durban Parties succeeded in operationalizing the Green Climate Fund. The decision includes an annex on the governing instrument, which lays out the fundamental structures and procedures of the fund. Part of this is the decision to fund adaptation, which is likely to be interpreted as funding eligible activities under the Cancun Adaptation Framework Para 14. So far loss and damage is not considered an eligible activity for funding.

However, possible loss & damage related activities might well be eligible: This includes inter alia, impact, vulnerability and adaptation assessments, climate change related disaster risk reduction strategies, risk assessment and management, and sharing and transfer mechanisms, enhance understanding, coordination and cooperation with regard to climate change induced displacement, strengthening data and improving climate-related research and systematic observation. In the medium- and long term, funding of the risk transfer mechanisms for developing countries to address loss and damage should, among other international sources[14], generally also be financed and capitalized by the Green Climate Fund. The regional facilities can be a conduit for distribution of payments, other appropriate forms of support, etc.

[14] Some countries take the position that national funding should not compete with funding for regional purpose. Therefore, international funding sources are one option, but more discussion is needed to ensure that national and regional priorities are addressed.

Adaptation Committee

In Durban Parties operationalized the Adaptation Committee (decision 2/CP.17). The Adaptation Committee will be the major advising body on adaptation under the UNFCCC, extract lessons learnt and recommendations to Parties, and provide general coherence. The AC should therefore work on the general guidance on risk transfer solutions as part of the adaptation and loss and damage portfolio.

5. Outlook

The impacts of loss and damage associated with climate-related stressors including weather extremes and long-term climatological shifts can impair socio-economic development and reinforce cycles of poverty across the globe. Building the management capacity for dealing with today's extreme climate-related events will provide the basis for dealing with both current climate variability and long-term shifts in climate patterns. This comprehensive approach will help both smoothening development pathways and cushioning the expected negative impacts of loss and damage in the future.

In today's world there are challenges associated with creating strategies to address loss and damage. Faced with financial crisis, political strife, population growth, and a multitude of other challenges, decision makers may be tempted to postpone considering approaches to address loss and damage related to climate change impacts. In spite of these challenges, international and national policy fora, as well as communities of policy, science, and practice have many tools to help them begin to address loss and damage. Tapping into and jump-starting action of this different communities and processes should be an essential next step for the UNFCCC process, as the discussions on loss and damage become more mature and probably more institutionalized.

References

Churchill, C. (2006): Protecting the poor – A microinsurance compendium Vol. I, Munich, Geneva.

CCRIF (2010): Annual Report 2009-2010. Caribbean Catastrophe Risk Insurance Facility (CCRIF).

Climate Action Tracker (2012): Emissions gap looks set to increase if government action doesn't step up. http://climateactiontracker.org/news/126/Emissions-gap-looks-set-to-increase-if-government-action-doesnt-step-up.html

Cummins, D. and Mahul, O. (2008) "*Catastrophe risk financing in developing countries: principles for public intervention"*, Washington D.C: World Bank Publications.

Economics of Climate Adaptation Working Group (ECA) (2009). Shaping climate-resilient development: A framework for decision-making. A report of the Economics of Climate Adaptation Working Group. Climate Works Foundation, European Commission, Global Environmental Facility, McKinsey & Company, Rockefeller Foundation, Swiss Re, UNEP.

IEA (2008): World Energy Outlook.

IPCC (2007): Climate Change 2007: Synthesis Report.

IPCC (2012) Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. Cambridge University Press.

Lashley, J. and Warner, K. (2012): Weather-related insurance and risk management: A demand study in the Caribbean. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

Linnerooth-Bayer, J., Bals, M.J., & Mechler, R. (2010) "Insurance as part of a climate adaptation strategy", in Hulme, M. & Neufeldt, H. (Eds.). Making climate change work for us: European perspectives on adaptation and mitigation strategies, Cambridge: Cambridge University Press.

Suarez,, P., Linnerooth-Bayer J. and Mechler R. (eds.) (2008) "Feasibility of Risk Financing Schemes for Climate Adaptation: The case of Malawi". Report prepared for the World Bank Development Economics Research Group. IIASA: Laxenburg (Austria).

Cummins, D. and Mahul, O. (2008) "*Catastrophe risk financing in developing countries: principles for public intervention"*, Washington D.C: World Bank Publications.

Linnerooth-Bayer, J. Warner, K., Bals, C., Höppe, P., Burton, I., Loster, T. & Haas, A. (2010b) "Insurance mechanisms to help developing countries respond to climate change, Special issue on Climate Change and its Economic Impact on Insurance", *The Geneva Papers on Risk and Insurance – Issues and Practice*.

Melecky, M., Raddatz, C. (2011): How do governments respond after catastrophes? Natural-disaster shocks and the fiscal stance. World Bank.

MCII (2008): Insurance Instruments for Adapting to Climate Risks: A proposal for the Bali Action Plan. Submission by the Munich Climate Insurance Initiative (MCII), 30 September 2008. 4th session of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention (AWG-LCA 3). Poznan 1-13 December, 2008.

Munich Re (2012): Geo Risks Research, NatCatSERVICE.

Pope, V (2008): "Up to 6°C". World Energy Outlook, Nov. 2008. International Energy Agency.

Stern, Nicholas (2007): The Economics of Climate Change: The Stern Review

Suarez, P., Linnerooth-Bayer J. and Mechler R. (eds.) (2008) “Feasibility of Risk Financing Schemes for Climate Adaptation: The case of Malawi”. Report prepared for the World Bank Development Economics Research Group. IIASA: Laxenburg (Austria).

Young (2009): Cost Estimates for Multi-Regional Risk-Sharing Pools. Caribbean Risk Managers Ltd.

UNEP (2010): The Emission Gap Report: Are the Copenhagen Accord Pledges Sufficient to Limit Global Warming to 2° C or 1.5°C? A preliminary assessment.

UNEP (2011): Bridging the Emissions Gap: A UNEP Synthesis Report. http://www.unep.org/publications/ebooks/bridgingemissionsgap/

UNISDR (2005): Hyogo Framework for Action (HFA): Building the Resilience of Nations and Communities to Disasters.