

## Insurance Solutions in the Context of Climate-Change-Related Loss and Damage: Needs, Gaps and Roles of the UNFCCC in Addressing Loss and Damage

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### *Abstract*

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. As 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. In 2012, at the United Nations Climate Change Conference in Doha (COP18), the Doha Gateway Package entailed a decision to establish an institutional arrangement, including functions and modalities, to address loss and damage. This article outlines the potential roles of insurance in the contexts of adaptation and loss and damage, highlighting a set of recommendations to the United Nations Framework Convention on Climate Change (UNFCCC). Insurance-related approaches are designed for managing loss and damage caused by events which cannot be foreseen, where and when they occur. This contribution also offers insights into design principles – objectives and functions – that could guide a range of approaches, including insurance. It suggests that the UNFCCC can foster long-term commitment to risk transfer in order to enable sustainable solutions and partnerships, and makes a case for an international climate risk insurance facility that could be part of a wider coordination function of a loss and damage mechanism operationalised through a series of regional risk-management platforms, including risk insurance pools, which collaborate and coordinate on the management of loss and damage. Such a facility would help diversify risks of loss and damage from extreme

weather events, lower the costs of managing these risks, and ensure more timely and targeted delivery of support when catastrophes strike.

## *A. Executive Summary*

### *I. Challenges of Addressing Loss and Damage caused by 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. As 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 development that is more climate-resilient in the face of potentially growing weather extremes and incremental, profound shifts in natural systems, such as 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 have to 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 in particular.

### *II. Strategies for Managing Weather Extremes*

Strategies are needed to manage unexpected shocks from weather extremes. These strategies should 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 loss and damage 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 occur. 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 can help the international community in planning more accurately with respect to issues such as financial requirements for adaptation as well as for managing loss and damage.

The UNFCCC could establish a global climate risk insurance facility coordinated internationally but operationalised through a series of regional risk-management platforms which could receive funding from sources like the Green Climate Fund. Such a climate risk insurance facility could incentivise 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.

Insurance-related approaches, in combination with a wide range of others at local, national, regional and international levels, can contribute towards creating a space of certainty within which it would be safe to make investments in climate-resilient development. Thus, insurance-related approaches should 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 insurance with insurance supported in a public–private arrangement with other forms of social protection at the local level can help people in the low-income bracket to better absorb shocks. Including risk-transfer mechanisms in national budgets can contribute to climate-resilient development. At regional and international levels, countries can create insurance pools that build on solidarity concepts to share and transfer loss and damage resulting 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 that have contributed to a larger share of human-induced climate change should consider supporting the risk-management activities of the most vulnerable countries.

### III. A Unique Role for the UNFCCC

The UNFCCC has a unique role to play in facilitating short- and long-term strategies to address loss and damage. The UNFCCC should include a global climate risk insurance facility in its decision on loss and damage. This facility, operationalised through regional risk-management platforms, could fulfil three functions in order not only to address loss and damage, but also to complement adaptation and mitigation efforts, as follows:

1. **Assess loss and damage:** The climate risk insurance facility can provide guidelines for assessing loss and damage. Technical assistance may involve pooling technical expertise, coordinating data repositories, and encouraging collaborative worldwide networks and coherence across information frameworks – such as adequate standards for data-gathering, open-source remote sensing, and other information needed to assess risk exposures – that are sensitive to vulnerable people and groups.
2. **Facilitate regional and international dialogue to advance policy coherence and regulations** on insurance-related measures that address loss and damage at local, national and regional level. 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 resilience-building and risk reduction through links to adaptation and national development planning processes.
3. **Operationalise a global risk insurance facility through regional risk management to address loss and damage**, including regional risk insurance pools, which could, in the longer term, become part of a future global system for managing weather extremes. This operationalisation would include appropriate financial and other support. These regional platforms could provide technical assistance to facilitate appropriate combinations of insurance measures which could, together with other tools, address the impacts of extreme weather events.
4. **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.

### Box 1

The UNFCCC can 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, can be a sustainable solution to parts of the loss and damage spectrum. An international climate-risk insurance facility will help better diversify risks of loss and damage from extreme weather events, lower the costs of managing these risks, and ensure 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, which could be operationalised through a series of regional risk-management platforms, including risk insurance pools, which could collaborate and coordinate on the management of loss and damage.

### B. Introduction

The Cancun Adaptation Framework recognises –<sup>1</sup>

... 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.

The Framework invites views and information on possible approaches to address loss and damage, including a climate risk insurance facility:<sup>2</sup>

- 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, and<sup>3</sup>
- Approaches for addressing rehabilitation measures associated with slow onset events.<sup>4</sup>

The Cancun Adaptation Framework asked the Subsidiary Body for Implementation (SBI) to make recommendations on loss and damage to the Con-

1 Report of the Conference of the Parties on its Sixteenth Session, held in Cancun from 29 November to 10 December 2010, para. 25–29, FCCC/CP/2010/7/Add.

2 (ibid.:para. 28(a)).

3 (ibid.:para. 28(b)).

4 (ibid.:para. 28(c)).

ference of the Parties (COP) for consideration at COP18,<sup>5</sup> as well as to strengthen international cooperation and expertise in order 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.<sup>6</sup>

The Munich Climate Insurance Initiative (MCII)<sup>7</sup> has written the current contribution in response to the invitation to engage stakeholders with relevant specialised expertise in order to share their views on exploring approaches to address loss and damage.<sup>8</sup> In particular, the MCII's submission is a response to the invitation to explore a "[p]ossible development of a climate risk insurance facility to address impacts associated with severe weather events."<sup>9</sup> The submission further addresses "[o]ptions for risk management and reduction; risk sharing and transfer mechanisms such as insurance, including options for microinsurance; and resilience building, including through economic diversification."<sup>10</sup>

This contribution 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, microinsurance, catastrophe bonds, and insurance linked to sectoral or community risk-management programmes. Although beyond the scope of this contribution, it is clear that a wider spectrum of approaches needs to be employed across the full scope of loss and damage,

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5 (ibid.:para. 29).

6 (ibid.:para. 25).

7 The Munich Climate Insurance Initiative (MCII) was launched in April 2005 in response to the growing realisation that insurance-related solutions can play a role in adaptation to climate change, as advocated in the United Nations Framework Convention on Climate Change and the Kyoto Protocol associated with it. The MCII brings together insurers, experts on climate change and adaptation, non-governmental organisations, and policy researchers who are intent on finding solutions to the risks posed by climate change. The MCII provides a forum and gathering point for insurance-related expertise on climate change impact issues. The MCII is hosted at the United Nations University Institute for Environment and Human Security (UNU-EHS) in Bonn, Germany; [www.climate-insurance.org](http://www.climate-insurance.org), [info@climate-insurance.org](mailto:info@climate-insurance.org).

8 Decision 1/CP.16, para. 28(d).

9 Report of the Conference of the Parties on its Sixteenth Session, held in Cancun from 29 November to 10 December 2010, para.'s 25–29, FCCC/CP/2010/7/Add.

10 (ibid.:para. 28(b)).

particularly for slow incremental changes that also cause significant long-term loss and damage.

## Box 2

### The MCII Submission in the Context of UNFCCC Discussions on Loss and Damage Related to Insurance

- This contribution responds to the invitation<sup>11</sup> to give a submission to COP18 on the possible elements to be included in the recommendations on loss and damage, under the SBI Work Programme on Loss and Damage. This submission addresses some of the questions related to the use of insurance in the context of loss and damage, as follows:<sup>12</sup>
- The cost-effectiveness of various approaches, and at what level various tools are employed (local, national, regional and global)
- The resources required for the successful implementation of various tools, including budget, technical capacity for implementation, data and infrastructure
- Lessons learnt from existing efforts within both the public and private sectors, considering 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 tool kits can be designed, and
- 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 provides further insights into design principles that could guide a range of approaches, including an international mechanism.<sup>13</sup>

### *I. The Burden of Loss and Damage Today*

Since 1980, a general upward trend has been recorded as regards frequency of weather-related loss events. This trend is detectable in both rich and poor

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11 See Decision 7/CP.17, para. 's 1–9; available at [http://unfccc.int/files/meetings/durb\\_an\\_nov\\_2011/decisions/application/pdf/cop17\\_loss\\_damage.pdf](http://unfccc.int/files/meetings/durb_an_nov_2011/decisions/application/pdf/cop17_loss_damage.pdf), last accessed 14 May 2013.

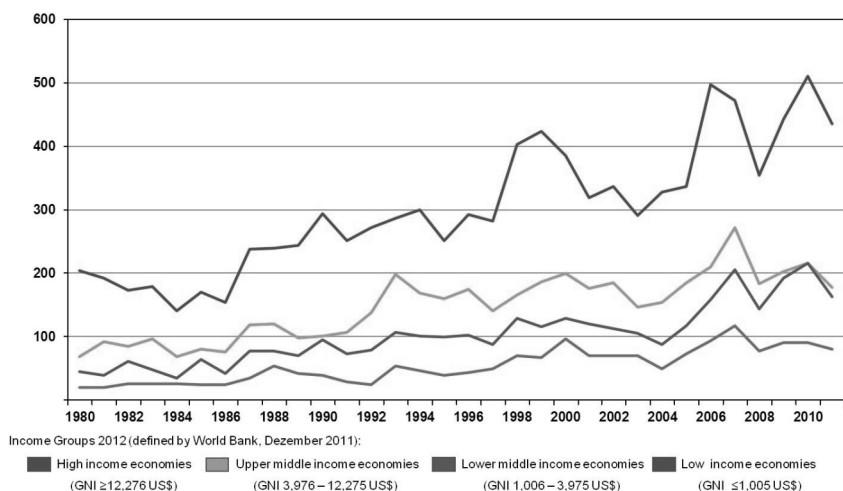
12 (ibid.:para. 2 and Annex 2).

13 (ibid.:para. 5).

countries. The average annual weather-related disaster losses in the last five years (2007–2011) in countries with ‘low’ and ‘lower-middle’ economies have reached US\$1.3 billion and US\$6.8 billion, respectively. Data from 1980 onwards reveal that over 80% of people killed due to these weather-related disasters lived in developing countries.

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

**Figure 1: Annual Numbers of Weather-related Loss Events Globally in Countries with Different Economies (1980–2011)**



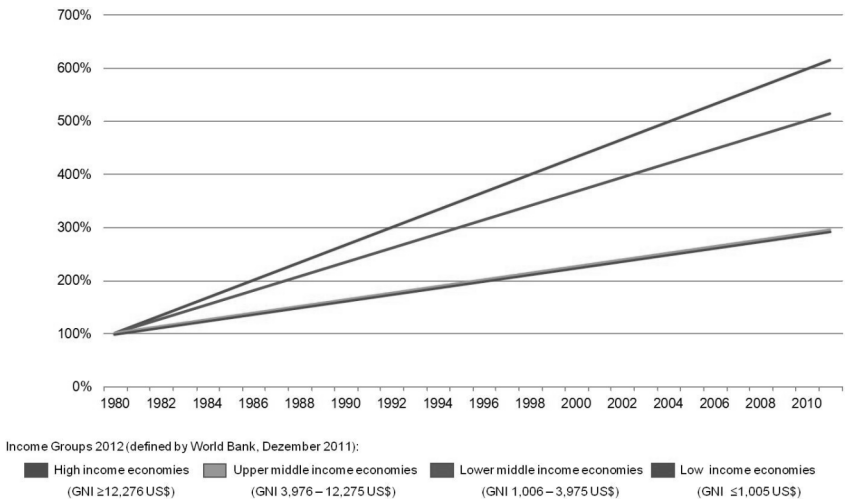
GNI = gross national income

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

Figure 2 shows that the countries with the lowest-income economies show not only the lowest number of events, but also the largest increase from 1980 to 2010. The relative number of loss events has increased by a factor of six in those countries with the lowest-income economies while, in the richest countries, loss events has increased by a factor of three, i.e. half as much. To what extent this difference is due to increasing wealth in developing nations, or to more frequent extreme weather events, is an open question. In terms of managing future risks, we recommend that the possibility of changing weather patterns impacting developing countries severely in decades to come should be taken seriously.



**Figure 2: Relative Trends of Annual Numbers of Weather-related Loss Events Globally in Countries with Different Economies (1980–2011)**



GNI = gross national income

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

## II. Loss and 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. It also involves preparing for and addressing actual loss and damage when it occurs, today and in the future.

Choices about mitigation and adaptation will be the main factor determining the degree of climate change and, thus, will have an influence on the magnitude of loss and damage, particularly from around 2030 onwards, when measures will have to be taken to adapt to the unavoidable changes that will have taken place, since global warming is a given until 2030. Decisions that affect the level, scale and efficacy of adaptation will affect the ability of societies to adjust to manifestations of changes in climatic variability, e.g. shifts in seasonality of rainfall, heatwaves, and magnitude and frequency of extreme weather events. The preeminent approach to loss and damage in the medium and longer term – in respect of avoiding future loss

and damage, and minimising impacts in the short and medium term – lies in our choices about mitigation and adaptation.

### Box 3

#### **What Does a 4°C World Mean in the Context of Loss and Damage?**

At COP16 in Cancun in December 2011, states parties agreed “to hold the increase in global average temperature below 2°C above pre-industrial levels”. In 2011, a United Nations Environment Programme (UNEP) report anticipated a gap in 2020 between expected emissions and the global emissions consistent with the 2°C target, even if pledges were to be implemented fully.<sup>14</sup> One year after COP16, 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”.<sup>15</sup>

Even this might be an optimistic scenario, however. 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 (GHG) emissions, “temperatures would most likely rise by more than 5°C by the end of the century”.<sup>16</sup>

This has at least two consequences for all climate insurance concepts:

- The question of insurability has to be discussed for each of these different risk levels. For a 5° world, the risk of regional or continental scale might become unmanageable or at least be 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 maladaptation, along the lines of, “I’m insured; I don’t have to prepare for a possible disaster.” Now, a second wrong incentive signal by insurance also 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.”

14 UNEP (2011).

15 See <http://climateactiontracker.org/countries.html>, last accessed 20 May 2013.

16 Pope (2008).

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

- Risk reduction, GHG reduction, disaster preparedness and 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 of GHGs 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 on 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 such loss or damage – at all scales.<sup>17</sup>

### C. *What Role can Insurance Play in the Context of Loss and Damage?*

This section outlines the key functions that insurance can play at the individual, community, national, regional and international level in the context of loss and damage. Section D revisits this discussion by asking what the UNFCCC can do to harness these functions, possibly in the form of a climate risk insurance facility operationalised through regional risk-management platforms that address climate-change-related loss and damage.

It should, however, be emphasised 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 and risk resilience for extreme weather events, but such options are not appropriate for many, usually slower-onset, climate-induced impacts.

Figure 3 also illustrates that insurance is not appropriate or even generally feasible for slowly developing and foreseeable events, or for 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.<sup>18</sup> Even for weather-related events, in-

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17 See e.g. Stern (2007).

18 IPCC (2012:9); also see Parry et al. (2007:23–78).

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.

Nonetheless, insurance is a feasible adaptation measure to address extreme weather events, including insurance for households (e.g. microinsurance), farms (e.g. index-based crop insurance) and governments (e.g. sovereign insurance). As we discuss in this contribution, insurance arrangements at these scales might be usefully supported by regional and global risk-management facilities.

### *I. Insurance as Adaptation*

By spreading losses among people and across time, insurance reduces the catastrophic impact of disasters and enables a timely recovery. Insurance is an adaptation measure when it reduces the *burden* of loss and damage, if not the average loss.<sup>19</sup>

In addition to providing timely capital after a disaster, as illustrated in Figure 3, insurance can and should be linked to risk-reducing, preventive activities.<sup>20</sup> Prudently employing a combination of insurance measures with risk reduction – including early warning, education, infrastructure strengthening, and land-use regulations – can greatly reduce the immediate losses and long-term development setbacks from disasters.<sup>21</sup> 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.<sup>22</sup> In Box 4 we discuss the principles that guide the MCII proposals for assisting vulnerable communities and governments to pool and reduce their losses from extreme weather events.

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19 Linnerooth-Bayer et al. (2010a).

20 Warner et al. (2009).

21 ClimateWise (2010); Warner et al. (2010).

22 Linnerooth-Bayer et al. (2010b).

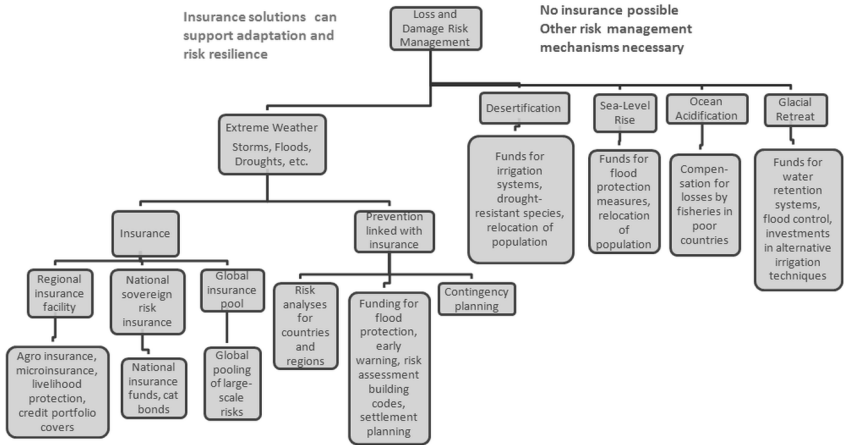
#### Box 4

#### MCII Principles for Weather-Related Insurance Targeted at the Most Vulnerable

Insurance solutions, as proposed by the MCII, should serve the interests of the most vulnerable people, communities and countries. The following principles suggest how insurance can be guided 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 for limiting loss and damage. The costs of preventing low-impact, frequent events are typically much lower than the losses that would occur without investments in prevention measures. Alternatively, prevention measures for high-impact, low-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 incentivise risk-reducing behaviour. For example, high insurance premiums will discourage people 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 GHGs 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 distorts incentives, capital support for local insurers (thus lowering premiums), technical assistance, and education programmes.
- **Subsidiarity principle:** Decisions should be made as close as possible to their point of application and to where the need is manifest. Transparency and accountability are important criteria for the creation of insurance programmes. International finance may best be allocated on a strategic basis and not involve international micromanagement at the project level.

**Figure 3: Tree of Options for Managing Climate-change-related Loss and Damage**



Source: Warner et al. (2012)

## II. Assessing Loss and Damage Potential

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

## III. Incentivising Loss Reduction and 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<sup>23</sup> – can guide these actions. Such activities include –

- mapping risks and avoiding settlement in high-risk zones
- building hazard-resistant infrastructure and houses
- protecting and developing hazard buffers (forests, reefs, mangroves, etc.)
- improving early warning and response systems
- building institutions and developing policies and plans, and
- 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 4. Applying loss-avoiding measures can reduce insurance premiums in many contexts, e.g. building hazard-resilient structures. In this way, insurance sends a signal to households, businesses and governments to reduce risks. Besides reduced premiums to reward risk reduction, additional design elements can be incorporated into insurance contracts. Ongoing participation/renewal of insurance coverage with public or international support could be dependent on evidence that participating vulnerable countries are making tangible progress in implementing their loss-reduction plans.

#### *IV. Reducing 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 that is more conducive to climate-resilient investments in sectors like tourism and agriculture, which are typically heavily exposed to climatic stressors, as well as in job creation and market development. Moreover, insurance can provide the safety net essential for making productive yet high-risk investments. As an example, a microinsurance scheme in Malawi enabled farmers to receive loans for purchasing hybrid seeds that increased their productivity five-fold.<sup>24</sup>

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23 UNISDR (2005).

24 Suarez et al. (2008).

Apart from illustrating the costs of insurance, Figure 4<sup>25</sup> indicates its main benefits as well as the complementary nature of risk transfer with risk-reduction and risk-retention approaches. Insurers operating 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 (covariant risks), insurers need to be prepared to meet large claims all at once. Their costs as regards the requisite back-up capital, diversification or reinsurance<sup>26</sup> to cover covariant claims can add greatly to 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 or small- and medium-scale enterprises 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.

#### *V. Determining Whether Risk Transfer Can Help Ease Climatic Stressors and Related Poverty*<sup>27</sup>

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, moving away, taking children out of school, and/or borrowing from moneylenders or microfinance institutions. Selling productive assets or borrowing from moneylenders who charge high interest rates can jeopardise the economic basis of a household. Few of these households 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 (Figure 4). The role of microinsurance, like any effective risk-management instrument, is to temper these downturns, which are major impediments to escaping poverty.

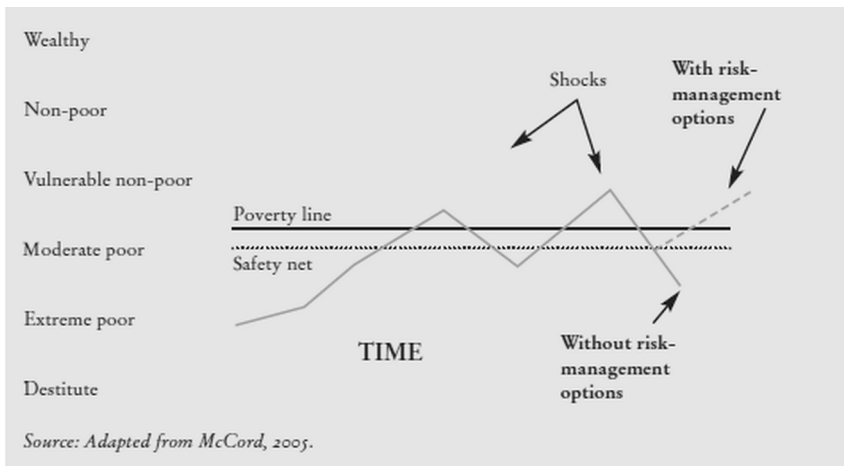
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25 ECA (2009).

26 Insurance for insurers.

27 See also Churchill (2006).



**Figure 4: Impacts of Shocks on Household Income and Assets**

Source: Churchill (2006)

## VI. Providing Timely Finance to Cover Loss and Damage

As previously mentioned, there are numerous roles that insurance can play at the individual, community, national, regional and international level in the context of loss and damage, i.e. –

- 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
- 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 sell-

ing household assets, which could trap them in poverty. Timely payouts also help governments avoid fiscal deficits and costly post-disaster loans.

*D. Using Insurance to Address Loss and Damage: Examples at Local, National and Regional Level*

A wide variety of insurance and other risk-transfer mechanisms have been introduced since 2002 in developing countries and emerging markets, with mixed results. In these countries, insurance is often combined with other tools. In particular, the availability of insurance for people in the low-income bracket (e.g. microinsurance) is often associated with microfinance and other mechanisms. This coupling can be an attractive means of introducing insurance to groups who may not only be underserved and/or unfamiliar with risk transfer, but who also may have an understanding and need for security. Combined products can reduce the costs of insurance to consumers, and enhance access to financial resources so as to minimise effective losses. Organised groups in particular, such as trusts, self-help groups and mutual, understand risk for their community and, therefore, develop an awareness of security and safety. Insurance can be linked to effective disaster risk management (DRM), as is shown from the example in Box 5.<sup>28</sup>

**Box 5**

**Early Warning Community Disaster Teams and Risk Transfer in Sofala, Mozambique**

A people-centred 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 rivers 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 these rivers. The system includes younger citizens and women in order to reinforce the part they play in the village community and in society.

28 The Munich Re Foundation is developing this approach, with partners, for Mozambique.

In the Mozambique case, early warning and insurance can reduce risk in a low-cost way. Money that has to be spent on post-disaster recovery by the Mozambican government and donors after an extreme weather event is split between two Funds:

- *The Standard Recovery Fund*: This Fund is used in the usual manner to support recovery, i.e. serving affected communities and people to repair damage, and
- *The Fast-Track Recovery Fund*: This Fund is paid out quickly and serves much faster recovery in case a disaster strikes. Communities receive funds much more speedily, and loss assessment can be managed more easily because risk awareness and management skills are in place (see also the bullet points below).

There are preconditions to these funds, however. Communities can only make use of the Fast-Track Recovery Fund if they take part in a tailor-made DRM programme, e.g. an awareness-raising programme at community level (capacity-building) and/or adopt a DRM strategy (e.g. appropriate land-use planning and evacuation plans).

If one links this approach to private-sector insurance, leveraging can be very effective. Through insurance mechanisms, countries can get the following:

- 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 public–private partnership.

### *I. General Remarks: Innovations and 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, i.e. there should be a mix of private-sector, public-sector, and public–private partnership (PPP) solutions. The public-sector and PPP solutions may differ significantly from standard private-sector insurance solutions. 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’ (or index) 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, i.e. the potential mismatch between the defined trigger level such as wind speed or amount of precipitation and the actual occurrence of loss. However, the rapid money flows in parametric products make them very attractive to all stakeholders. About 40% of the weather-related damage in developed countries is covered by private-sector insurance, with strong differences occurring 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 – floods. Most of the loss and damage not covered by insurance in developed countries involves damage to public infrastructure and, again, in some countries, flood damage to public and private assets.

- ***Public-sector solutions to protect people in the low-income bracket and their policy priorities:*** Pure market solutions are not always desirable or appropriate. Some in the low-income bracket 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 – which is the case in most developing countries – public-sector risk-transfer solutions sometimes appear.<sup>29</sup> Such solutions can have higher transaction costs than private-sector solutions because market infrastructure and expertise, a developed client base, and a degree of standardisation may not be in place.

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29 Melecky & Raddatz (2011).

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

- ***They are designed to overcome barriers and link to broader social goals:*** Public-sector risk-transfer schemes sometimes evince new ways of thinking in their design. These ways of thinking aim to overcome some of the barriers of private-sector insurance. Public-sector insurance is often designed to link public programmes to existing social protection schemes (e.g. Ethiopia, Honduras and Nicaragua), employing early warning and disaster-risk reduction tools in combination with insurance (e.g. the Caribbean, Mongolia, Tanzania and Vietnam).
- ***They provide services that complement risk transfer for the low-income sector:*** Publicly supported insurance approaches sometimes provide services that are not always available in private-sector product lines, such as helping people in the low-income bracket access credit, offering support to protect livelihoods and not only to cover assets, and employing agricultural extension officers to educate people about good risk-management practices for extreme weather events.
- ***They offer public support to enable participation by the low-income sector:*** Public-sector insurance programmes use public resources to develop approaches, support premium payments and make payouts. In some programmes, publicly funded insurance payouts occur in a form that is valuable to the target group. This may be by way of seeds and other agricultural products for farmers in the low-income bracket, 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.

It should be noted that a weakness of publicly funded insurance schemes is that they can be destabilised 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 the following:

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

- **Reliable provision of public services:** In the Caribbean, a regional risk insurance pool improves the governments' ability to keep basic public services functioning in the aftermath of a major catastrophic event. The Caribbean Catastrophe Risk Insurance Facility (CCRIF)<sup>30</sup> is a sovereign insurance pool designed to make rapid payouts to member governments after hurricanes or earthquakes. Since 2005, the CCRIF has paid money to the governments of Dominica, Haiti, St Lucia, and the Turks and Caicos Islands.
- **Early identification of threats and resource provision to address them:** In Africa, a new regional risk insurance pool is being developed to help governments quickly identify emerging drought situations and accumulate resources to avoid famine. Africa Risk Capacity, the pan-African contingency planning and food security insurance pool, 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.

PPPs 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, and decisions need to be made not only where the need is manifest, but also as close to their point of application as possible. For instance, the public sector may undertake data collection and needs assessment, and may shape the regulatory framework for insurance-related approaches. The public sector may also work with private-sector actors to design tools that meet the targeted needs, and may, under appropriate circumstances, provide some financing to support programme costs, such as those which groups in the low-income bracket cannot afford to pay. The private sector, on the other hand, can help implement the approaches over time, ideally ensuring that such approaches are effective and affordable, and comply with consumer protection and technical standards, such as premiums being sufficient to cover the risk insured. Strong commitment over a longer period is needed when creating sustainable solutions.

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30 CCRIF (2010).

## Box 6

### Caribbean Adaptation and Insurance for People in the Low-income Bracket

Studies of low-income groups in the Caribbean have shown a relatively high demand for weather risk insurance-related solutions.<sup>31</sup> 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 thus 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 part of stakeholders and potential clients, and the lack of a clearly viable reinsurance concept.

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

The approach facilitates access to new market segments. Its partners include a company that specialises in matching local needs with tailored risk-management products; a regional facility (CCRIF) that has access to governments, an understanding of the regulatory environment and the ability to serve as a regional risk aggregator; and a reinsurer with expertise in modelling, product structuring, and international practice and policy. The regional-level approach allows underserved, low-income groups to gain protection from weather risks. It also fosters the development of local enterprise.<sup>32</sup>

31 Lashley & Warner (2012).

32 For more information, see [www.climate-insurance.org](http://www.climate-insurance.org), last accessed 20 December 2012.

## II. Local: Building Resilience with Local Insurance and Safety Nets – Helping People in the Low-income Bracket 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 people in the low-income bracket to better absorb shocks and to temper downturns, which are major impediments to escaping poverty. Many examples and pilot projects exist which demonstrate the combination of insurance mechanisms with livelihood protection, social safety nets, and prevention measures on the local level. A promising example is Horn of Africa Risk Transfer for Adaptation (HARITA) in Ethiopia (Box 7).

### Box 7

#### **HARITA, Ethiopia**<sup>33</sup>

In Ethiopia, 85% of the population rely on smallholder, non-irrigation 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 was developed which allows farmers to pay their premiums either in cash or in kind by contributing labour to projects that increase the community's resilience to climate change. Farmer participation is ensured by a management team of five village members. Financial literacy workshops are given. 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 minimises risks. Horn of Africa Risk Transfer for Adaptation (HARITA) is embedded in an important government initiative, namely the Productive Safety Net Programme (PSNP),<sup>34</sup> which 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 labour, such as helping to plant, compost or plant for protection. Thus, farmers benefit even when there is

33 For more information, see Oxfam America, available at <http://www.oxfamamerica.org/publications/harita-quarterly-report-jan-mar-2011>, last accessed 20 December 2012.

34 The PSNP is the Ethiopian Government's conditional cash-transfer programme that serves around 8 million chronically food-insecure households.



no payout because these risk-reduction activities improve yields and help minimise vulnerability to drought.<sup>35</sup>

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 farmland
- 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 labour, they earn an insurance certificate which protects them against deficit rainfall.

The HARITA project started in 2008 and was developed by institutions such as Oxfam America, Swiss Re, the International Research Institute for Climate and Society (IRI), and the Relief Society of Tigray (REST). The risk carriers are Nyala Insurance in Ethiopia and the global reinsurer, Swiss Re.

In 2011, a payout was triggered and 1,810 farmers received US\$17,392. Although this amount may sound low on average, it helped the affected poor to a large degree.

Several gaps need to be overcome in order to improve the links between and among programmes aimed at improving the resilience of low-income groups at the local level by way of risk transfer. Two such gaps are mentioned in the following paragraphs, and some additional gaps will be discussed in Section F.

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35 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 whether or not 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 farmers who do not want a loan can still obtain insurance.

## 1. *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 have to know – ideally in advance – what risks they wish to ‘insure away’, what the cost of such risks is, and how they will collect their payments. Basic financial infrastructure such as savings accounts, affordable and accessible credit, and other features needed to manage financial transactions is lacking when it comes to managing shocks and building resilience; this implies that insurance providers have to build not only new relationships with clients, but also a new technical infrastructure for premium payments. In addition, providers of risk-transfer solutions need to have a relationship with the appropriate regulatory authority to ensure consumers are protected and that adequate financial infrastructure is in place.

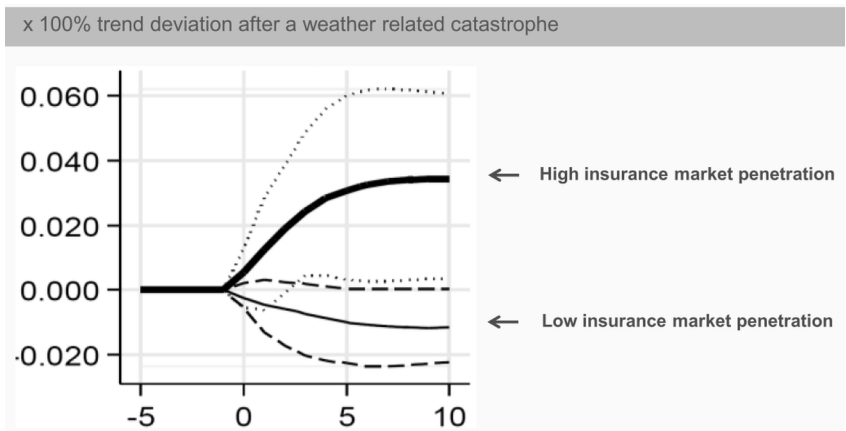
## 2. *Education about Weather-related Extremes and Risk-transfer Functions*

Insurance solutions for low-income communities are often driven by microfinance organisations, community groups, cooperatives, trusts, associations, self-help groups and other grass-roots organisations. Insurance knowledge is not always available in such organisations. Even if a microfinance organisation knows how to manage large numbers of microfinance clients successfully, it may not have the necessary knowledge to assess risks and adequately price them. Support from technical assistance providers, or cooperation between an insurance organisation and, for example, a microfinance organisation, can help to overcome this knowledge gap. Understanding the concept of *insurance* is crucial – how it works and what it can and cannot do for the provider and the client. Significant investment in customer education is necessary, therefore, to reduce insurance illiteracy for providers, consumers, government officials and donors. This is another area where rules and regulations are needed: providers of risk transfer are required to have a sound understanding of the tools and the underlying technical issues, and should know how to educate and protect consumers at the local level.

### III. 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 World Bank comparative study of countries with different insurance market penetration, the post-catastrophe patterns of economic growth were evaluated.<sup>36</sup> The results, summarised in Figure 5, show the mean and possible ranges of a weather-related, catastrophe-triggered trend deviation on gross domestic product (GDP) development. The solid lines mark the mean developments, while the dotted (for countries with high insurance market penetration) and dashed (for countries with low insurance market penetration) lines mark the range.

**Figure 5: Comparison of GDP after a Weather-related Loss Event in Countries with High and Low Insurance Market Penetration**



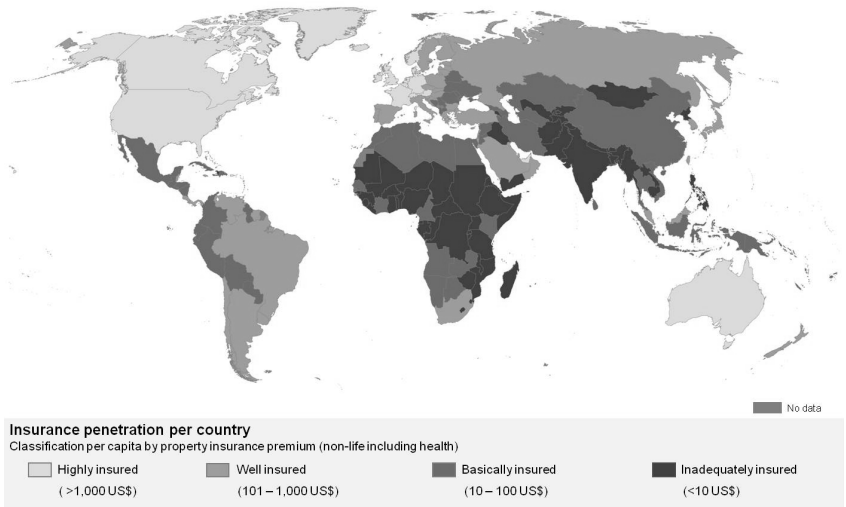
Source: Melecky & Radatz (2011)

The study shows that, after an extreme weather-related event, countries with high insurance market penetration reveal a positive GDP trend deviation, with sustainable additional growth generated. In contrast, countries with low insurance market penetration suffer from a negative GDP deviation, which, if not compensated for by other growth factors, can lead to long-term re-

36 Melecky & Radatz (2011).

ductions in GDP, which further inhibits development. If several such extreme weather-related events occur in short succession within a few years of each other, they will drive poor countries even further into the poverty trap. Studies such as this illustrate the potential which insurance-related approaches – public, private or PPP – have to increase the resilience of countries in respect of extreme weather-related events. Most developed countries already benefit from the shock-absorbing function of public and private insurance measures as well as from PPP risk-transfer arrangements. The map in Figure 6 shows the distribution of insurance penetration worldwide.

**Figure 6: Insurance Penetration Worldwide Since 2012**



Source: Munich Re (2012)

## Box 8

### An example from the private sector

Insurance companies anticipate, and pre-fund, loss events with accumulated capital and the purchase of reinsurance. 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 that which existed before the loss event. Moreover, in developed countries, consumers have high confidence in the role of insurance, which is bolstered by regulation and by experience with previous loss and damage events. Insurance-related

approaches can help to 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 the livelihoods of people in the low-income bracket and by providing coverage for business interruption from extreme weather events.

Reliable data is essential in order to give a price to risk, to come up with options to manage that risk (including insurance), and to adequately assess the potential loss and damage from extreme weather events. 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 such information, e.g. through interviews, or by transferring historical data from written documents to electronic databases. Nonetheless, some databases do exist regarding loss and damage from weather-related extremes, such as those from reinsurers.<sup>37</sup> The compilation of meaningful and useful data on loss and damage, especially for developing countries, remains a premier obstacle to developing more comprehensive approaches – not only insurance – to address loss and damage. Where insurance exists or is being built up, data-gathering and processing exist too, and the interest to collect better data is systemic. Thus, insurance can address many of the problems described above.

#### *IV. Regional and International: Combining Risk Transfer with Regional Risk Capacity and Forecasting*

A trend is emerging whereby 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, i.e. 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

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37 Munich Re NatCatService, or the Swiss Re sigma, or the Emergency Events Database (EM-DAT) of the World Health Organization Collaborating Centre for Research on the Epidemiology of Disasters (CRED) (Munich Re 2012).

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-regional approach can prove viable where local and national pooling arrangements may not be feasible for statistically dependent (covariant) 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.

### *1. Light governance structures for risk pools*

For regional- and international-level insurance approaches, examples such as the CCRIF show that light governance structures for risk pools are able to contribute to regional risk-management efforts and 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 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 involved 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. International support, such as in a global climate risk pool, could ensure the necessary cover for regions and countries following a catastrophic event.

#### **Box 9**

##### **Africa Risk Capacity: An Approach Linking Contingency Planning and Insurance for Food Security and Drought in Africa**

African countries regularly experience drought, which often turns to famine if timely assistance is not available. For many people, traditional ex-post humanitarian aid often comes too late to avoid loss of life and property. Today, luckily, organisations such as the World Food Programme support victims of drought. Often, the support comes late due to time-consuming processes that include support requests, verification, confirmation, claim assessments, and payout). 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 materialises. Establishing a contingency fund or resources that can be made available automatically if an extreme drought, flood or cyclone occurs in a vulnerable area ensures a more timely and reliable response. As extreme weather events do not happen in the same year across the continent, pan-African solidarity was deemed financially effective when a disaster risk pool was created. Such a facility will provide participating member countries with readily available resources in the event of severe droughts, with additional hazards to be incorporated later.

The Africa Risk Capacity (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 to identify how ARC funds will be used to assist those affected.

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

The ARC aims to provide parametric 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 maximising 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: firstly, investments are unlikely to create resilience for events less frequent than 1:5 in a reasonable time frame; secondly, the potential for pooling, as shown in ARC's dynamic financial analysis, reduces cost.

Source: [www.africanriskcapacity.org](http://www.africanriskcapacity.org), last accessed 12 December 2012

## 2. Payouts

There are many different ways to differentiate a payout from a (regional) climate insurance pool. It could be a proportional payout to all weather-related losses, or a payout of 100% 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 can be made, and the payout calibrated regionally.

After the 2010 earthquake calamity in Haiti, the CCRIF – designed to address hurricane and earthquake risk in the Caribbean – paid out almost US \$8 million within two weeks of the disaster. Experts estimate, though, that the amount could have been as high as US\$100 million, or a 40:1 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 the 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.<sup>38</sup>

### *E. Considerations on the UNFCCC’s Role in Insurance Approaches to Address Loss and Damage*

This section calls attention to gaps that can best be filled through regional and international action, supported by UNFCCC guidance. It outlines regional-level and international elements that may become part of a COP19 decision on arrangements to address loss and damage. These elements are required to address needs or gaps arising from loss and damage due to failure to achieve the UNFCCC objective, particularly those that cannot be adequately addressed at the national level.

#### **Box 10**

##### **Recommendation**

It is recommended that the international community consider the following:

- 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 frequently occurring, low-consequence risks, and
- The establishment of a climate risk insurance facility operationalised 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

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38 CCRIF (2010).



coordinated international and regional platforms is they can serve multiple functions, including pooling and transferring risk more cost-effectively than if such functions were carried out at community or national level.

Principles underlying the design of such an approach should include the following:

- ***Ex-ante approach, emphasising assessment, planning and decision support:*** The UNFCCC can play a role in helping support purposeful rather than ad hoc responses to negative impacts of climate change. The UNFCCC can also help to ensure threats are identified, and can bring this information to decision-making and planning to address loss and damage.
- ***Risk layering/subsidiarity:*** The UNFCCC 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 to incremental but profound climate change – may best be designed and implemented on various levels. These include country and local levels, under the jurisdiction of nation states, or on a regional and international scale. Implementation of risk-transfer approaches should be embedded in wider programmes 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 the needs and engage the participation of key stakeholders as close as possible to the level where the needs are manifest.
- ***Finance and other means of supporting implementation:*** The international community can play a role in helping to overcome some of the current obstacles. These obstacles include 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. Playing this role would mean that countries could employ risk-transfer solutions from a broader tool set for promoting climate-resilient growth and adaptation, and for dampening the negative impacts of climate-change-related loss and damage.<sup>39</sup>

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39 Cummins (2008).

## *I. Functions of a Climate Risk Insurance Facility, Coordinated Internationally and Operationalised Regionally*

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

A climate risk insurance facility could have capacities that include, but are not limited to, the objectives and functions shown in Table 1, and explained thereafter.

**Table 1: Possible Roles of the UNFCCC in Facilitating Insurance to Address Loss and Damage**

No.	Objective	Function
1	Provide loss and damage potential assessments that support decision-making and facilitate management of weather-related risks	Guide and enable assessments of loss and damage potential for extreme weather events
2	Provide timely finance to cover loss and damage to reduce the financial repercussions of volatility related to extreme weather events	Operationalise climate risk insurance, including finance mechanisms and other means of implementation
3	Incentivise 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

### *1. Objective 1: Provide Loss and Damage Potential Assessments that Support Decision-making and Facilitate Management of Weather-related Risks*

#### *Function 1: Guide and Enable Assessments of Loss and Damage Potential for Extreme Weather Events*

The UNFCCC process can help to fulfil this function, inter alia, in the following ways:

- ***Provide guidance on assessment methods and data-collection standards*** for risk transfer that could benefit wider efforts in the assessment

of loss and damage. This could be done by supporting ‘open source’ projects,<sup>40</sup> where risk-assessment approaches are made available for a defined audience, e.g. political decision-makers and the insurance industry. On the other hand, guidelines and methods could also be spread by publication and presentation, i.e. knowledge transfer.

- **Support development of standardised hazard maps**, e.g. maps providing information on river flood zones, extreme precipitation estimations and wind-speed zones. This could include support for establishing regional/international catastrophe loss indices.<sup>41</sup> Technical assistance may also involve pooling technical expertise as well as collaborative worldwide networks.
- **Coordinate data repositories and encourage coherence across information frameworks**, such as adequate standards for data-gathering and open source assessment methods, including remote sensing, open source risk models, and other information needed to assess risk exposures, which are sensitive to vulnerable people and groups.
- **Offer 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 between countries on experiences regarding design and implementation of packages of 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-sector actors, can help to fulfil this function, inter alia, by –

- obtaining reliable sources of information about managing, reducing and transferring risks
- investing in systematic and reliable risk-exposure data
- understanding the risks of greatest concern by identifying key risks and vulnerabilities, and estimating exposure
- putting a price on risks and adaptation options, and

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40 Similar to the Global Earthquake Model; see <http://www.globalquakemodel.org/> last accessed 20 May 2013.

41 Akin to the Property Claim Services in the United States or Perils AG in Europe; see <http://www.iso.com/Products/Property-Claim-Services/Property-Claim-Services-P-CS-info-on-losses-from-catastrophes.html> and <http://www.perils.org/>, both last accessed 20 December 2012.

- helping to evaluate the relative merits of specific adaptation interventions for national implementation, e.g. by a cost–benefit analysis.
2. *Objective 2: 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 to absorb and manage higher layers of financial loss and damage, and help to capitalise risk-management approaches at lower risk layers that are tailored to local and national contexts. The regional platforms would help to manage and limit financial losses which may be incurred from possible yet uncertain loss events.

*Function 2: Operationalise Climate Risk Insurance, including Finance Mechanisms and Other Means of Implementation*

The UNFCCC process can help to fulfil this function, inter alia, by –

- ***setting up an international risk-management and transfer platform (or a network of regional ones)*** that covers catastrophic layers of risk. This may include seed funds for national and regional risk-reduction and risk-transfer initiatives.
- ***supporting an evaluation of different roles of finance to support approaches under the UNFCCC***, particularly areas for facilitating, providing platforms, considerations of price support, and investments in elements necessary for the functioning of appropriate risk-transfer approaches.
- ***channelling commitment by the donor community to provide 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 meets the needs and priorities of vulnerable people and those in the low-income bracket.
- ***Planning and implementing 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 relevant public- and private-sector actors, can help to fulfil Function 2, inter alia, by –

- acting on lessons learnt about regional public-private partnerships
- designing and implementing measures to avoid loss and damage, and transfer risk which cannot be avoided, and
- using risk reduction as a criterion for participation in insurance schemes.

### 3. *Objective 3: Incentivise Loss Reduction and Embed Risk Transfer into Wider Resilience-building Efforts*

#### *Function 3: Ensure Policy Coherence and Appropriate Use of Risk-transfer Tools in a Wider Context of Climate Risk Management*

The UNFCCC process can help fulfil this function, inter alia, by –

- providing guidance on purposeful, planned approaches to loss and damage
- providing guidance on technical measures and design elements of risk transfer to incentivise loss-reduction and resilience-building activities for beneficiaries of the international mechanism
- fostering a better understanding of the value addition and the scalability of a package of tools, of how they work together, and of the cost savings of jointly implementing approaches, including innovative risk-financing mechanisms
- facilitating regional and international dialogue to advance policy coherence and regulations on insurance-related measures at local and national level to address loss and damage. Such dialogue should improve conditions for regulators and decision-makers in developing countries to devise 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, and
- coordinating, where appropriate, with bodies on technical matters related to assessments, such as the International Association of Insurance Supervisors. Such a process could ensure the compiling, open access and standardisation of data.

National governments, with the engagement of relevant public- and private-sector actors, can help to fulfil this function, inter alia, by conducting risk-

reduction activities and providing an enabling environment for risk management, insurance, governance, etc.

## *II. Some Cost Figures*

Estimating costs for a global coverage for developing countries is a challenging task because the (technical) premium costs are individual, and depend heavily on regional and international settings. Nevertheless, there are first estimates of capital costs and costs of maintaining regional risk-sharing facilities.<sup>42</sup>

A global extreme risk fund, possibly like the one proposed by the MCII,<sup>43</sup> could need US\$10 billion in initial capitalisation and would be maintained at that level. Young<sup>44</sup> estimates the initial capitalisation needs for regionally organised 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 local and national levels. Additional funds would be required to provide technical support, alongside other adaptation initiatives, and for capitalisation 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.<sup>45</sup>

## *III. Accompanying Activities in the Emerging Institutional Set-up of Adaptation and Mitigation*

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

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42 Young (2009).

43 MCII (2008).

44 Young (2009).

45 (ibid.).

## 1. *National Adaptation Programmes of Action*

States parties agreed to operationalise the National Adaptation Programmes of Action (NAPAs) as mandated by the Cancun Adaptation Framework. This includes a medium- to long-term strategic approach for least-developed countries (LDCs) as regards how to manage adaptation at the national level. The developed modalities and guidelines should also be applied by other developing countries.

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

There is no immediate mention in the NAPAs concept regarding loss and damage. However, many approaches to be discussed under the loss and damage work programme, such as assessment of loss and damage and relevant decision-making tools, also have a high relevance for medium- to long-term adaptation planning. In elaborating the work programme on loss and damage, therefore, states parties should link the programme with the NAPAs concept and possibly include the concept in the review of the guidelines to be conducted by the LDCs Expert Group.

## 2. *The Green Climate Fund*

At COP17 in Durban in 2011, states parties succeeded in operationalising 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 decision was to fund adaptation, which is likely to be interpreted as funding eligible activities under paragraph 14 of the Cancun Adaptation Framework. Up to now, however, loss and damage has not been considered an eligible activity for funding.

Nonetheless, possible loss-and-damage-related activities might well be eligible for funding. Such activities include –

- impact
- vulnerability and adaptation assessments
- climate-change-related disaster risk-reduction strategies
- risk assessment and management
- sharing and transfer mechanisms

- enhancing 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 risk-transfer mechanisms for developing countries to address loss and damage should generally also be financed and capitalised by, among other international sources,<sup>46</sup> the Green Climate Fund. The regional facilities can be a conduit for distribution of payments, other appropriate forms of support, etc.

### 3. *Adaptation Committee*

In Durban, states parties also operationalised the Adaptation Committee.<sup>47</sup> This Committee will serve as the major advisory body on adaptation under the UNFCCC; it will also extract lessons learnt, make recommendations to states parties, and provide general coherence. The Committee should, therefore, work not only on the general guidance on risk-transfer solutions as part of such adaptation, but also on the loss and damage portfolio.

### F. *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 to smooth development pathways, and cushion the expected negative impacts of loss and damage in the future.

In today's world, creating strategies to address loss and damage is challenging. Faced with financial crises, political strife, population growth, and

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

47 Decision 2/CP.17.



a multitude of other hurdles, decision-makers may be tempted to postpone considering having to determine suitable approaches to dealing with loss and damage related to the impact of climate change. In spite of these challenges, international and national policy forums, as well as communities of policy, science and practice, have many tools to help them begin to address loss and damage. Jump-starting or tapping into activities by different communities and processes should be an essential next step for the UNFCCC process, as the discussions on loss and damage mature and become, in all probability, more institutionalised.

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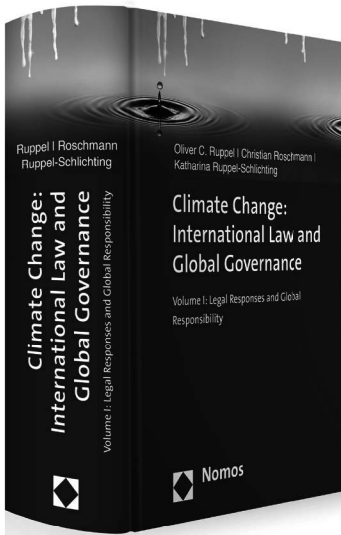
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# Climate Change

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