



Zuhra Mai by the remains of her house, one of the 1.8 million homes damaged or destroyed in Pakistan's 2010 floods.

PHOTO: ACTIONAID

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# Loss and damage from climate change: the cost for poor people in developing countries

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Discussion Paper

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# Abbreviations

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ABI	Association of British Insurers
AOSIS	Alliance of Small Island States
CCFM	Climate Change Funding Mechanism
CCRIF	Caribbean Catastrophe Risk Insurance Facility
CERF	Central Emergency Response Fund
GDP	Gross domestic product
IOPC	International Oil Pollution Compensation
MCII	Munich Climate Insurance Initiative
NGO	Non-governmental organisation
NPV	Net present value
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
UN-OCHA	United Nations Office for the Coordination of Humanitarian Affairs

# Introduction

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Debates on climate finance for developing countries tend to be limited to low carbon development, mitigation and adaptation, how much each will cost, and what the respective financial mechanisms should be. However, the real cost of climate change is much higher and should include the residual damage that is likely to remain even after mitigation and adaptation. Loss and damage should be included in decisions about how developing countries will be compensated for the impacts of climate change – impacts that they have not contributed to.<sup>1</sup>

To date, little in-depth research has been done to quantify loss and damage associated with climate change and to estimate its cost in developing countries. Addressing loss and damage should be seen as part of the climate debt framework, proposed by the Bolivian government and others, which includes three main elements:<sup>2</sup>

- An **emissions debt** – amassed by rich countries from their excessive consumption of the limited atmospheric space – which has left almost no space for developing countries to increase their greenhouse gas emissions if climate change is to be contained. To date, there is no example of a poor country that has become rich without increasing its emissions.
- An **adaptation debt** – through their emissions rich countries have

disproportionately contributed to the impacts of climate change being felt by developing countries.

- A **loss and damage debt** – where climate impacts have been so severe that no amount of adaptation will help.

To repay their climate debt, rich countries must do three things:

1. Make deeper emissions cuts than they are currently considering so that developing countries have some space to increase their emissions without destroying the planet.
2. Provide finance and technology to developing countries to enable them to reduce their emissions, adapt effectively to climate change and chart low-emission pathways out of poverty.
3. Compensate those people who cannot adapt to climate change because the impacts are so severe.

This paper highlights the looming financial hole if loss and damage in developing countries is left unaddressed, and calls for increased interest and engagement on the issue from countries negotiating through the United Nations Framework Convention on Climate Change (UNFCCC) as well as climate advocates in general. The first chapter discusses the current use of loss and damage in climate policy circles, highlighting the lack of agreement over

## Box 1: Definitions

**Mitigation** – action against the threat of climate change by reducing the concentrations of greenhouse gases, either by reducing their sources or by increasing their sinks.

**Adaptation** – action to reduce the vulnerability of ecological, social and economic systems to adverse effects of climate change to minimise threats to life, human health, livelihoods, food security, assets, amenities and ecosystems.

**Loss and damage** – effects that would not have happened in a world without climate change, which have not been mitigated, and which cannot be (or have not been) adapted to.

its definition, and looks at financial estimates of loss and damage in developing countries. The second chapter examines existing approaches to loss and damage in non-climate contexts. The third chapter looks at existing proposals for dealing with loss and damage, by actors outside the UNFCCC (the insurance industry) and within the UNFCCC (the Alliance of Small Island States, AOSIS). Finally, the paper makes recommendations and suggestions for a way forward for UNFCCC negotiators and climate advocates.

### **UNFCCC negotiators and climate advocates must:**

#### **1) Give loss and damage the attention it deserves**

Climate policy makers, both within the negotiations and outside (academics, civil society, business), should support and advocate for a comprehensive approach to the issue.

#### **2) Recognise that finance for loss and damage is needed and should be considered separately to adaptation**

Finance for loss and damage should be calculated *separately from adaptation finance*, and not further deplete an already small pot for adaptation actions. Even if insurance approaches are adopted (in part), government intervention will be needed to ensure the viability of this type of solution. Equally, civil society advocates should include demands for financial mechanisms for loss and damage in their campaigns on climate finance, alongside demands for adaptation and mitigation finance.

#### **3) Clarify definition of loss and damage**

In order to develop a shared understanding and workable approach to the issue, more work needs to be done to describe clearly

what financial costs are to be counted as loss and damage. Some difficult choices may have to be made for political expediency, but this should not be at the expense of the most vulnerable people.

#### **4) Support calls for country-specific information on loss and damage**

Parties need to recognise that there is an enormous lack of information on loss and damage, particularly in developing countries, and must endorse a UN-coordinated information mechanism responsible for dealing with this, such as the risk management component in the AOSIS proposal to address loss and damage.

#### **5) Give due attention and support to the AOSIS multi-window mechanism**

The AOSIS proposal is the most comprehensive to date, differentiating between types of impact, combining compensation with insurance, proposing new and innovative insurance solutions, and recognising that reliable information is a crucial aspect of a workable mechanism. Rich countries should support and build on the AOSIS proposal and look for ways in which they can build support for it with their own constituencies and peers.

#### **6) Ensure that any loss and damage mechanism prioritises the poorest and most vulnerable people**

As the current AOSIS proposal is still in development, there is an opportunity to ensure it recognises the poorest and most vulnerable households. Micro-insurance approaches may help to deal with this issue, though more research is needed. Process issues such as awareness, transparency and democratic oversight are essential parts of any loss and damage mechanism that genuinely benefits those who are poor.

# 1. Definitions and scale

## Loss and damage in a climate context

Although the concept of loss and damage appeared in the climate policy world as early as the 1990s, it has only received wider attention through a concrete proposal put forward in 2008 by the Alliance of Small Island States (AOSIS), which is made up of countries particularly vulnerable to the effects of climate change.<sup>3</sup>

Loss and damage essentially refers to those effects that would not have happened in a world without climate change, which have not been mitigated and which cannot be (or have not been) adapted to (see Figure 1). AOSIS, and subsequently the UNFCCC, use the term mainly to refer to physical damage – for example, land lost to rising sea-levels, glacial retreat and desertification. Recently, loss and damage has been discussed mainly in the context of proposals for insurance against or compensation for climate impacts.

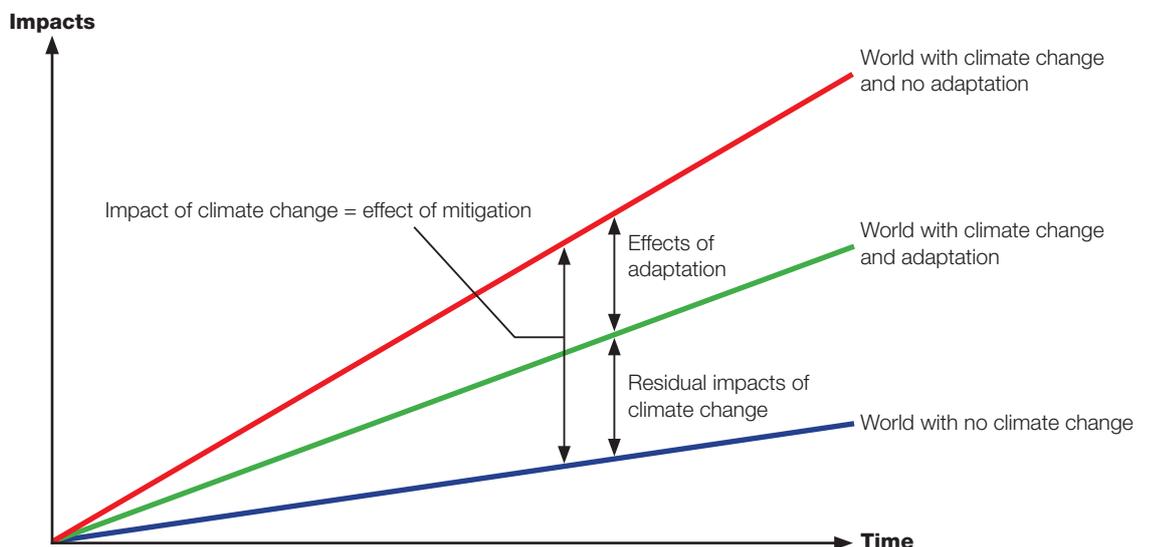
Loss and damage is beginning to be

discussed because there are limits to how much climate change can be mitigated or adapted to.<sup>4</sup> Even in ambitious scenarios with limited temperature increases and with good adaptation programmes in place, Pacific states such as Tuvalu and Kiribari face the prospect of submersion. The government of the Maldives – with 80% of the total land area less than 1 metre above sea level – has started to allocate part of its annual budget to buy a new homeland elsewhere.<sup>5</sup> Throughout the Pacific, plans to relocate whole populations are being generated in the face of looming catastrophe.<sup>6</sup>

Many parts of Africa are unlikely to be able to adapt sufficiently to climate impacts. The Intergovernmental Panel on Climate Change forecasts a halving of crop yields from rain-fed agriculture by the end of the decade in some African countries.<sup>7</sup> Smallholder farmers who rely on this type of agriculture will be severely affected and the chances of populations achieving food security and avoiding malnutrition will be severely diminished.

**80%**  
Percentage of the Maldives less than 1 metre above sea level

**Figure 1: Traditional representation of climate impacts and adaptation**



Source: OECD (2002)<sup>8</sup>

### Why poor people are most at risk

Poor people are triply vulnerable when it comes to climate impacts. They are:

- scientifically vulnerable because they are more likely to live in countries likely to experience climate impacts
- geographically vulnerable because they are more likely to live in the most exposed parts of a country, such as coastal areas or on poor agricultural land
- vulnerable simply because they are poor and more likely to lack the skills, resources and opportunities to adapt to climate change. For example, a lack of formal education makes it more difficult for a smallholder farmer to find an alternative livelihood.

### Different definitions and approaches

Although loss and damage is often mentioned in climate policy documents, only recently have a few institutions described it in more detail and outlined how it can be approached conceptually.<sup>9</sup> A paper for the International Institute for Environment and Development and the Grantham Institute pays special attention to residual damage – the climate impacts that remain after mitigation and adaptation.<sup>10</sup> The paper introduces the notion that, beyond the physical nature of climate impacts (eg the amount of land likely to be submerged under specific climate scenarios), human decisions will play a role in determining the amount of residual damage. For example, it may be considered more cost effective to deal with the impacts of climate change rather to pay for adaptation. The paper also attempts to estimate the financial implications of residual damage in the five categories used by the UNFCCC to estimate adaptation costs: infrastructure, coastal protection and low-lying settlements, health, water damage and agriculture.

### WWF UK definition

A paper from WWF UK clarifies the relationship between mitigation, adaptation and loss and damage by differentiating between three categories of damage: foreseeable loss and damage that will be *avoided*, foreseeable loss and damage that will *not be avoided* and loss and damage that is *unavoidable* (see Table 1).<sup>11</sup> Farber has argued that a definition of loss and damage should be guided by whether damage is measurable, and whether it is politically feasible to agree a compensation mechanism for that damage. The proposal therefore would be to focus on three major categories of harm: sea level rise, water-related damage (drought and flood) and harm to natural systems that can be assessed standardly as opposed to highly individualised damage.<sup>12</sup>

### Insurance industry definition

The insurance industry generally uses the concept of damages solely to refer to the payment of money to compensate a claimant for loss, injury or harm suffered by another's breach of duty.<sup>13</sup> Within a climate context, however, the industry defines loss more widely, to include both direct and indirect costs resulting from damage.<sup>14</sup> For example, major insurers are already expecting an increase in claims for loss of sales, heat stress among clients or staff, damage to vehicles and travel delays.<sup>15</sup> Further loss and damage from the effects of climate change could include death, forced relocation and loss of livelihoods.

### Official international definitions

Although loss and damage has successfully been placed on the agenda of official international climate negotiations by the 2008 AOSIS proposal, agreement on the issue remains elusive (see Chapter 3).<sup>16</sup> References

**50%**  
Predicted decline in crop yields from rain-fed agriculture in some African countries by 2020

**Table 1: Categories of damage**

<b>Avoided damage</b>	<b>Unavoided damage</b>	<b>Unavoidable damage</b>
Avoidable damage avoided	Avoidable damage and loss not avoided	Unavoidable damage and loss
Damage prevented through mitigation and/or adaptation measures	Where the avoidance of further damage was possible through adequate mitigation and/or adaptation, but where adaptation measures were not implemented due to financial or technical constraints	Damage that could not be avoided through mitigation and/or adaptation measures, eg coral bleaching, sea level rise, damage due to extreme events where no adaptation efforts would have helped prevent physical damage

in negotiating texts have become more detailed since the 2009 COP15 UN climate change conference in Copenhagen, referring to loss and damage as follows:

*[social, economic and environmental] loss and damage associated with climate change impacts in developing countries that are particularly vulnerable to the adverse effects of climate change [and/or to the impact of the implementation of response measures], including impacts related to extreme weather events and slow onset events (In footnote: Including sea level rise, increasing temperatures, ocean acidification, glacial retreat and related impacts, salinization, land and forest degradation, loss of biodiversity and desertification)<sup>17</sup>*

However, as the qualifying brackets in this extract show, the exact definition of loss and damage is still being contested and argued over within the UNFCCC.

## Conceptual issues

How the UNFCCC eventually defines loss and damage will determine what future mechanisms are triggered to deal with climate change. It is vitally important, therefore, that there is more in-depth discussion about how to deal with the issue. In the inevitable political battles that are likely to ensue, the interests of the most vulnerable developing countries must be safeguarded.

Discussions about loss and damage also border heavily on philosophical and ethical issues. It may well be instructive to look at how victims of natural disasters in rich countries are treated, to infer what would be the appropriate way forward in developing countries.

The following are some of the difficult issues that need to be considered and clarified in defining what constitutes and qualifies as loss and damage.

- Current definitions of loss and damage in the UNFCCC are limited to the direct physical impacts of *extreme weather events and slow onset events*. However, as discussed above, loss and damage could also include many indirect costs such as loss of life,

lost productivity, relocation and loss of livelihoods. The insurance industry in rich countries already considers these losses as the basis for future insurance pay outs.

- Even though there is scientific certainty that disastrous weather- and climate-related events are increasing, scientists are reluctant to attribute a single natural disaster to the change in climate. It is near impossible, therefore, to prove that specific loss and damage is due to climate change.
- Developing countries are predicted to lose out from a range of responses to climate change – including restrictions on air-freighted food, increased prices for building materials (as other countries take adaptive action) and water shortages due to increased irrigation in upstream countries.<sup>18</sup> Some rich countries, such as Saudi Arabia, are stretching this concept by claiming to suffer from reduced oil consumption.<sup>19</sup>
- Loss and damage also occurs where, even though adaptation is theoretically possible, financial and technical constraints have made it impossible, eg because there was insufficient financing to cover all necessary costs. People forced to migrate due to climate impacts have been described as employing adaptation strategies. However, in a rich country, temporary or permanent displacement following a natural catastrophe always amounts to loss and damage, often resulting in compensation claims to insurance companies or the state (see Figure 2). People losing land and homes in developing countries should be considered climate refugees who need a specific loss and damage approach.
- Most often, climate policy documents refer to *public* loss and damage in developing countries, such as damage to roads, bridges, transport systems, hospitals, schools and, at times, indirect public loss

such as reduced tax income. However, there is a large *private* component to loss and damage, such as loss of life, homes, agricultural land and livelihoods, which should not be omitted from official debates.

For technical, political and economic reasons, it is unlikely that a definition of loss and damage will include all the possible impacts of climate change. Trade-offs may have to be made between full redress and political expediency. However, what is unacceptable is that poor people – who bear no responsibility for climate change but who will suffer most – are used as political pawns. Addressing loss and damage suffered by poor people, which currently features only marginally in discussions, should be a priority.

## Financial estimates of loss and damage

### Difficulties with financial estimates

Until there is a clear and agreed definition of what constitutes loss and damage in a climate context, it is impossible to estimate what all the future associated financial costs are likely to be. Most financial estimates aim to calculate the *cost of inaction* – ie if greenhouse gases are not mitigated. There have been almost no financial estimates of the loss and damage costs of direct impacts in developing countries after mitigation and adaptation policies have been considered.

Adaptation and loss and damage are often referred to in the same breath in relation to climate change, but are very different. While adaptation costs relate to activities undertaken to adapt to the impacts of current and future climate change (eg irrigation schemes, sea defences, crop changes), loss and damage refers to the (social, environmental and

**400**  
Current  
average  
number of  
disasters  
per year  
worldwide

economic) cost after an adverse climate event (eg buildings destroyed, crops lost, people displaced, water contaminated), often despite mitigation and adaptation measures having been in place. Even the UNFCCC’s in-depth reports on adaptation provide no information about the estimated cost of residual damage under policy scenarios that assume substantial mitigation and adaptation activities.<sup>20</sup>

Financial estimates for loss and damage are difficult to make for a number of reasons.<sup>21</sup>

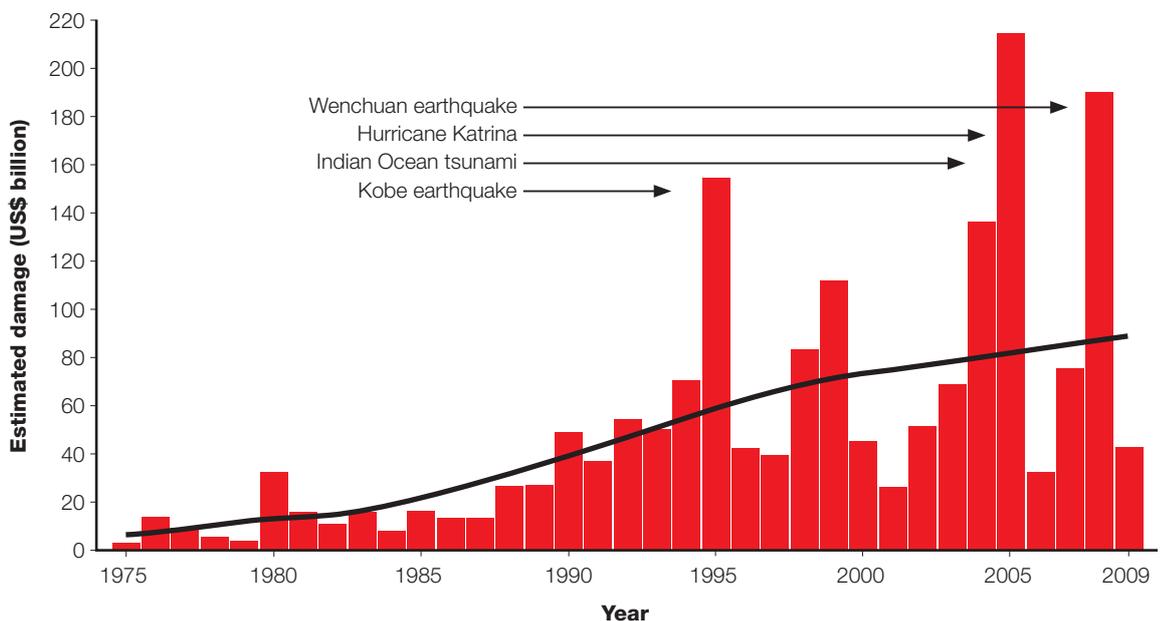
- There are many uncertainties, from GDP and population growth, to mitigation policy agreements and effectiveness of mitigation and adaptation measures.
- Non-economic, non-market impacts such as loss of life or social disruption are difficult to estimate and the cost of loss in one place will be very different from the cost in another.

- Some regions, such as Russia and Canada, will potentially benefit from moderate climate change, once they have successfully adapted. Therefore, on a global level, or even within regions and countries, the net costs of climate change need to be calculated.

What is certain is that loss and damage due to climate change will be substantial, even with ambitious mitigation and adaptation scenarios.

The number of disasters recorded by the Centre for Research on the Epidemiology of Disasters has doubled from an average of 200 per year in 1988 to an average of 400 per year in 2008.<sup>22</sup> Similarly, economic losses due to disasters have increased seven-fold over the past 40 years,<sup>23</sup> giving an indication of future losses with more climate change impacts (see Figure 2). A single natural catastrophe can have enormous financial impacts. The 2007 floods

**Figure 2: Estimated damage (US\$ billion) caused by reported natural disasters 1975–2009**



Source: EM-DAT: The OFDA/CRED International Disaster Database<sup>24</sup>

**£2–3  
billion**  
Amount of  
damage caused  
by the UK  
2007 floods

in the UK, for example, caused between £2 and £3 billion (US\$3.2–4.8 billion) worth of damage.<sup>25</sup>

### **PAGE modelling of loss and damage**

Previous estimates of the cost-benefit of action versus non-action compared the damage caused by climate change with mitigation and the damage caused without it.<sup>26</sup> Recently, however, estimates have been expanded to include an assessment of what the remaining damage costs would be under certain mitigation *and* adaptation scenarios so that a cost-benefit analysis of specific mitigation and adaptation approaches can be made. Using the PAGE2002 model (also used by Stern),<sup>27</sup> Dr Chris Hope, Reader in Policy Modelling at Cambridge University, came up with the most accurate estimate of the full costs of climate change, ie of mitigation and adaptation, as well as residual damage (see Table 2).<sup>28</sup>

Hope gives cost estimates under a business-as-usual (no mitigation) scenario, and under a mitigation scenario in which global emissions are stabilised at 450 ppm (parts per million) – the lowest emission scenario considered by the UNFCCC (the 450 ppm scenario).<sup>29</sup> Adaptation efforts assumed in this model are based on the cost estimates of the UNFCCC (2008).<sup>30</sup> The costs shown are cumulative costs over 200 years (from 2000 to 2200) and are shown as net present values (NPVs). NPVs are calculated by adding the impacts and costs from 2000 to 2200, and discounting them back to 2000 values. The PAGE2002 model calculates results along probability ranges, which are reflected in

Table 2 as the lower, mean and higher end estimates (5%, 50% and 95% points on the probability distribution scale).

The results in Table 2 show that even in a successful mitigation scenario and after adaptation action has been taken, the mean costs of impacts between 2000 and 2200 will have been reduced by only 33% compared with a business-as-usual scenario, still leaving **US\$275 trillion** of remaining cumulative impacts over the period 2000–2200 (cell in yellow). Even so, from a cost-benefit analysis point of view, it is clear that combining aggressive mitigation with adaptation is – in purely economic terms – the best course of action.

Hope also made calculations for one point in time – the year 2060 – which showed that the mean residual damage after mitigation and adaptation for that year will be about US\$1.2 trillion (measured in \$US 2000), with a low end to high end range of US\$0.3 to US\$2.8 trillion and with costs increasing every year thereafter.<sup>31</sup> Gross world product will be well over US\$100 trillion by then, so these extra costs would amount to about 1% of the world's total output. This revises Stern's cost of climate change action upwards substantially.<sup>32</sup>

### **Country-specific data: insurance companies**

While the PAGE calculations described above are the best estimates currently available of loss and damage after mitigation and adaptation is taken into account, they still only apply at a global level and are not disaggregated per region or continent. Very few regional and

**Nearly US\$10 billion**  
Economic costs of the 2004 Indian Ocean tsunami

**Table 2: Cost estimates of global loss and damage under a business-as-usual versus mitigation scenario, and with and without adaptation using the PAGE2002 model**

	Trillion US\$ (2000–2200 cumulative costs, NPV)					
	Business as usual			450 ppm scenario		
	Lower end	<b>Mean</b>	Higher end	Lower end	<b>Mean</b>	Higher end
Cost of impacts (without adaptation)	270	<b>1,240</b>	3,290	100	<b>410</b>	1,070
Cost of impacts (with adaptation)	170	890	2,340	60	<b>275</b>	760
Adaptation costs	4	<b>6</b>	9	4	<b>6</b>	9
Mitigation costs				50	<b>110</b>	170

Based on results in *Hope* (2009)<sup>33</sup>

country specific estimates of loss and damage have been made; most of those that are available come from the insurance industry.

For obvious reasons, the insurance industry is particularly concerned with estimating the future financial costs of loss and damage, and associated claims, so that it can plan for the future, develop new products and promote risk reduction strategies. To be able to continue to provide insurance, companies need information that is as accurate as possible about the probabilities of future risk and its financial implications.

For example, very detailed estimates of the financial impact of climate change have been

made by the Association of British Insurers (ABI), including estimates of the likely costs in Britain if no mitigation agreement is reached.<sup>34</sup> Recent research commissioned by ABI looks at the financial impacts (for different regions in the UK) under different temperature increase scenarios (with fixed adaptation approaches). Even in a scenario matching the current global ambition to limit temperature increases to 2 degrees Celsius, and under an aggressive mitigation adaptation scenario, Britain will face an 8% increase in the costs of inland flooding, an increase of £46 million (US\$73.7 million). A similar exercise looking at the projected impact of an increased number of typhoons

## US\$275 trillion

Mid-range total global cost of climate impacts after mitigation and adaptation by 2200

in China showed that a 2 degree rise in global temperature would increase losses by 20.4% (a 4 degree rise by 32.4%, and 6 degree rise by 44.6%).<sup>35</sup>

**Costs of natural disasters in developing countries**

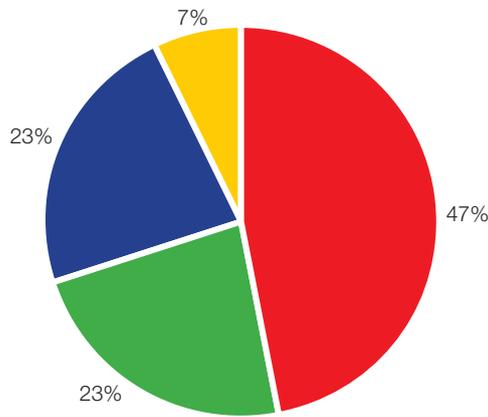
One way to estimate future developing country costs would be to examine current economic costs of natural catastrophes and disasters. However, no single institution is responsible for collecting and verifying disaster information, resulting in a heavy reliance for economic data on reports from insurance companies. Given that the insurance industry prioritises areas

where disaster insurance is widespread,<sup>36</sup> its reports tend to omit poorer disaster-affected regions where insurance is unaffordable or unavailable (see Figure 4).<sup>37</sup> As a result, there are inconsistencies, data gaps and ambiguity in the existing data, and a severe under-reporting of economic costs in developing countries.

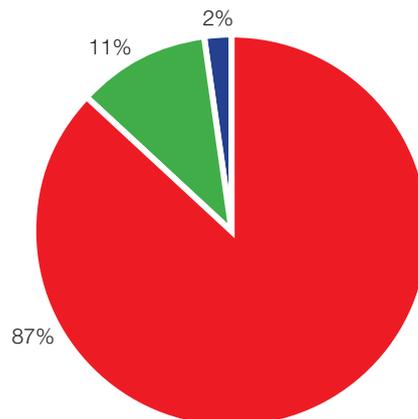
Economic costs of damages in poor countries, even with better data, are unlikely to reach the levels in rich countries any time soon. As a percentage of GDP, however, the impact of natural disasters on developing countries is much greater, currently around 13% of GDP compared with around 2% of GDP for rich nations (see Figure 4). As a result, the World

**Figure 3: Natural catastrophes in differently insured countries**

**Overall losses 1980–2009  
(at 2009 values)  
Total: US\$2,750 billion**



**Insured losses 1980–2009  
(at 2009 values)  
Total: US\$690 billion**

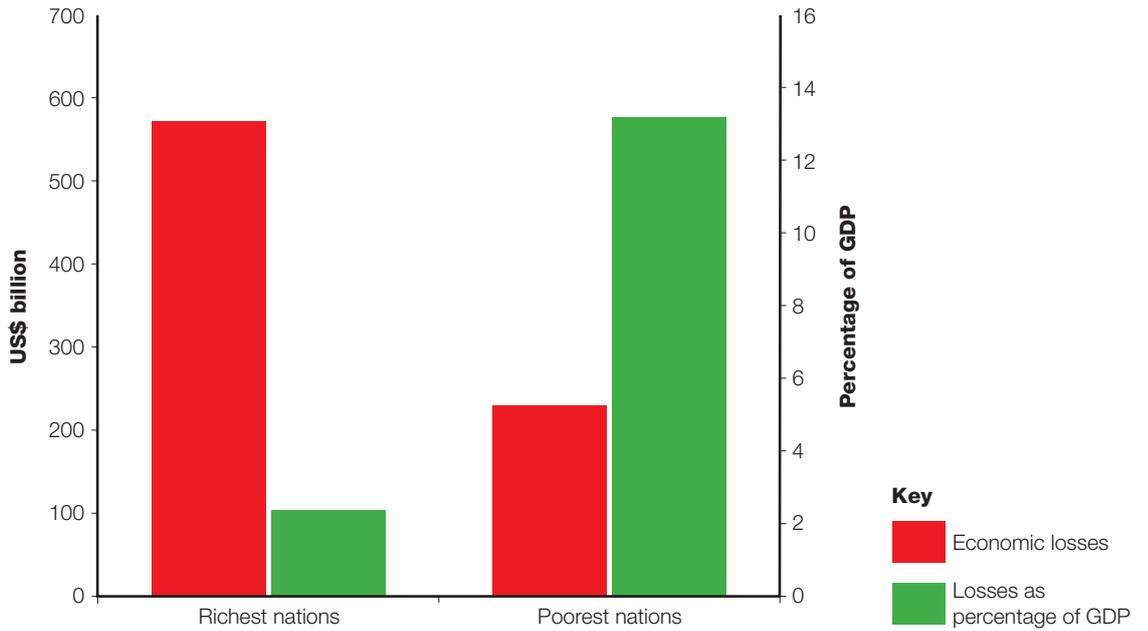


**Key**

- Highly insured countries (US\$ > 1,000 per capita)
- Well insured countries (US\$ 101–1,000 per capita)
- Basically insured countries (US\$ > 11–101 per capita)
- Inadequately insured countries (US\$ < 10 per capita)

Source: Munich Re<sup>38</sup>

**Figure 4: Disaster losses, total and as share of GDP, in the richest and poorest nations, 1985–1999**



Source: Munich Re, 2002<sup>39</sup>

Bank has become the world's third largest reinsurer after Munich Re and Swiss Re because it has to divert so much of its development funds into disaster relief.<sup>40</sup> If this looming financial deficit is not addressed

structurally, the long-term development efforts of developing countries and international development institutions are likely to be increasingly diverted to deal with disasters and catastrophes.

## Pakistan Floods 2010 – an example of permanent loss and damage

### Key statistics

Number of people killed: 1,600

Number of people affected: 20 million

Number of affected districts: 77 out of 139

Number of houses damaged/destroyed: 1.8 million

Number of schools damaged/destroyed: 10,000

Acres of farmland lost: 5.9 million

Hardest hit sectors: Agriculture and livestock

Estimated economic loss in crops, infrastructure and private property: US\$9.5 billion

Estimated cost of infrastructure and compensation: US\$25–30 billion

Flooding which started in the north of Pakistan in July 2010, and spread further south over the following three months, devastated the lives of more than 20 million people. Two weeks into the emergency, UN Secretary-General Ban Ki-moon described the flooding as the worst disaster he had ever seen, while Pakistani Prime Minister Syed Yousuf Raza Gilani said Pakistan was experiencing “the worst natural calamity of its history”. According to the IMF’s regional director, Masood Ahmed, the flooding will have “a major and lasting impact”.

### Raima Mai and her children lost their home in South Punjab to the floods

“Water started to rise and soon it reached the edge of our village. We knew it was going to be a big flood, but no one had guessed it would destroy our homes and take away our livestock.

“I started to panic and quickly grabbed my children, goats, some clothes and dry bread. We started to walk east, towards the hills. The rains were never-ending; it took us one hour to reach a shed where we spent the night.”

When a brief break in the rains came, Raima and her four children moved to a relative’s, and later returned to the ruins of her own house.

“When I first looked at my destroyed home, I started to scream and cry. I sat on the ground and kept asking ‘why did it have to happen to us poor people?’ If my husband were alive, he’d die again at the loss of his life’s savings.

“Now we are back, but everything is ruined and we have been left empty handed. I have even sold my goats as I need money to buy food. My son goes to the city every day looking for daily-wage work, but returns empty handed. The roads are broken and flooded, I fear for his safety when he is gone. Flood waters have taken away all I had. I am too tired now to start over.”

## 2. Compensation for loss and damage

### Liability for loss and damage from climate change

With developed countries' implicit recognition that they are responsible for causing climate change<sup>41</sup> comes the urgent question of liability and compensation. An increasing number of voices from both developing countries and forums, such as the Bolivia climate conference, UNFCCC negotiations and the World Social Forum, are calling for compensation beyond the financing of mitigation, low-carbon development and adaptation. Earlier propositions of wealthy countries' ecological and environmental debt<sup>42</sup> to developing countries are being expanded – including by ActionAid – to include climate debt,<sup>43</sup> and are being developed further into specific proposals for compensation mechanisms at an international level.

Before Copenhagen, an African Union official said that “trillions of dollars might not be enough in compensation”,<sup>44</sup> and, according to the Senate president of the Philippines, “Developing countries like the Philippines should be receiving compensation for [the harm inflicted on his people].”<sup>45</sup> Bolivia has made submissions to the UNFCCC demanding that the climate debt of developed countries be repaid, and a number of Latin American presidents have called for an international climate tribunal to decide on compensation for affected nations.<sup>46</sup> AOSIS and the Group of Least Developed Countries have raised the issue of compensation for harmful effects that adaptation cannot fully address at several international negotiation sessions,<sup>47</sup> as well as submitting specific proposals for financial mechanisms on how to deal with loss and damage (see Chapter 3).

Research by lawyers for WWF UK found that legal claims for compensation from developed countries could be upheld under customary international law, and specifically under the no-harm rule. It argues that many developed countries have had the opportunity to reduce

greenhouse gas emissions, should have been well aware of the likely impact of failing to act and have failed to take proportionate action in the face of this risk. These are the three criteria used to determine breach of the no-harm rule.<sup>48</sup> From an individual company approach, the broad sign-up of the insurance industry to the Carbon Disclosure Project illustrates how insurance companies are increasingly aware of their clients' potential exposure to carbon-related claims.<sup>49</sup>

Thus, while calls for compensation of loss and damage at first appear to be based on a moral climate justice approach, they are in fact backed up by international law and could be upheld in court.<sup>50</sup> However, it has also been pointed out that case-by-case litigation for climate change compensation would be extremely time consuming, be ineffective and result in wasted time and resources. Instead, agreement on a liability and compensation scheme would be a much more interesting way forward for parties who suffer loss and damage as well as for those responsible. Such a scheme would provide greater certainty and predictability, as well as defining the limits of liability.<sup>51</sup> In the meantime, however, case litigation taken forward by a number of campaigning groups may well increase the pressure to achieve a non-litigation solution.

### Learning from current domestic compensation regimes

All developed countries have ways to deal with the impact of unexpected catastrophes and to ensure that their citizens are compensated for loss and damage.<sup>52</sup> However, there are a number of approaches, based on different philosophical starting points. Most European countries, for example, maintain a ‘solidarity’ approach to disaster victims, ensuring they receive compensation through either

**“We are not assigning guilt, merely responsibility. As they say in the US, if you break it, you buy it.”**

Pablo Solon, Bolivian ambassador to the United Nations,  
December 2009<sup>53</sup>

generalised (mandatory) individual insurance (which can be considered a kind of tax), publicly funded compensation funds, or through ad-hoc government interventions. The UK, by contrast, does not provide public funding in the case of catastrophe, focusing instead on ensuring that individuals have access to private insurance. The USA supports another system altogether, aiming to improve insurance supply by acting as a reinsurer for private insurance companies, thus taking away most of the risk. All developed countries have extensive social security systems which are accessible to everyone, including those affected by disasters.<sup>54</sup> And all, even those which do not generally provide public funds for catastrophes, still have compensation funds that apply in special circumstances, for example the USA's flood insurance programme (see Box 2).<sup>55</sup>

Approaches to dealing with victims of catastrophes can be divided along two lines: they can be mainly based on insurance solutions as opposed to state-backed compensation funds,<sup>56</sup> or they can be organised

on an ad hoc basis (ex post: after the action or event) as opposed to a structural basis (ex ante: before the action or event). Table 3 below, based on Faure and Hartlieb,<sup>57</sup> gives some examples of current systems in different countries, though it should be noted that mechanisms for financially compensating catastrophe victims appear to be fully evolved in most countries.

The state compensation mechanisms mentioned in the bottom row of Table 3 are generally funded from central taxes, though governments do not necessarily set aside money for ad hoc situations (for example, UK government intervention after a disaster happens at the discretion of Secretaries of State of relevant departments)<sup>58</sup> and mean a reduction in finance elsewhere).<sup>59</sup> Some state compensation funds have more innovative finance sources, such as the French terrorism fund, which is funded through a €3 levy on property damage contracts, and the French technological disasters fund,<sup>60</sup> which is funded from different sources: 12% from

### **Box 2: US National Flood Insurance Program (NFIP)**

The National Flood Insurance Program was established in 1968 in response to the rising cost of taxpayer-funded disaster relief and the increasing amount of damage caused by floods, coupled with the lack of available flood insurance at the time, and is financed from the federal budget. It aims to avoid a common problem with insurance, ie moral hazard (when an insured person takes more risks in anticipation of compensation) by making the availability of NFIP insurance conditional on the participation of communities in floodplain management measures to reduce future flood damage.<sup>61</sup>

Once a community agrees to take part in the NFIP, its residents and businesses are allowed to take out flood insurance at a cost of about \$500 a year. Insurance is sold through private insurance companies and agents, and is backed by federal government. A maximum of \$250,000 of building and \$100,000 of contents coverage is available for each family. Although purchasing flood insurance is highly recommended by the government, the NFIP is dependent on yearly approval by legislators in Washington, which has caused a number of temporary lapses in the programme, and spurred calls for reform.<sup>62</sup>

**Table 3: Classification of approaches to dealing with victims of catastrophes**

	<b>Ad hoc approach</b>	<b>Structural approach</b>	<b>Exceptional funds</b>
<b>Insurance based</b>	<b>UK:</b> maintains the principle of non-intervention; individuals are responsible for insurance <sup>63</sup>	<b>France:</b> mandatory private insurance coverage <b>US:</b> state intervention to facilitate the provision of private insurance	n/a
<b>State compensation</b>	<b>Germany, Sweden, Netherlands, Italy:</b> state intervention takes place in response to catastrophes (The Netherlands has very high thresholds before the state intervenes, while Italy runs an annual catastrophe bill of €3.5–€4 billion.) <b>UK:</b> in some cases the government has no option but to intervene (under popular or media pressure) <sup>64</sup>	<b>Belgium:</b> Catastrophe fund; Compensation only follows when a catastrophe is declared by Royal Decree. System reviewed in 2003, but implementation lagging <b>Austria:</b> Fund for catastrophes set up in 1996, but covers only part of victims' property damage <b>UK:</b> local authorities generally responsible for the cost of recovery, but central government departments sometimes help with costs (no individual payouts) <sup>65</sup>	<b>UK:</b> Bellwin scheme: provides emergency financial assistance to local authorities in case of flooding (no individual payouts) Pool Re: UK government acts as an insurer of last resort in the case of terrorism <b>France:</b> Fund for technological disasters, agricultural fund, fund for the victims of terrorism <b>US:</b> September 11 Victim Compensation Fund; Federal Emergency Management Agency disaster relief fund (no individual payouts)

Examples taken from Faure and Hartlief, 2006

insurance companies; 2% of all premiums paid by insured; 50% of fines on those who do not have the compulsory insurance; and through subrogation rights against liable third parties (ie claiming damages from the party responsible for the damages).

Economists have often criticised government relief programmes, whether they are ad hoc or through a compensation fund, as they result

in moral hazard. They provide insufficient incentives for prevention, encourage risky behaviour (such as building on flood plains) and are a disincentive for insurance take-up.<sup>66</sup> Most European countries are reviewing their current approach to disaster victims, with the general trend being to move towards (compulsory) insurance solutions, as in France.

## International liability and compensation schemes

There are many international treaties governing trans-boundary pollution, accompanied by mechanisms to compensate resulting loss and damage. They have been set up to prevent affected states and private citizens having to bear the costs of dangerous (industrial) activity, and are financed in a range of ways. Here only the nuclear liability scheme and the international oil pollution compensation funds are discussed, though there are other conventions that have associated compensation funds, such as The Watercourses and Industrial Accidents Protocol, the Hazardous and Noxious Substances (HNS) Convention and the European Lugano Convention addressing environmental damage.<sup>67</sup>

### International Oil Pollution Compensation (IOPC) funds

The IOPC funds have been set in international treaties to compensate for damage resulting from oil spills when compensation from ship owners (themselves governed by a civil liability convention<sup>68</sup>) is not sufficient to cover all the damage. There are currently three funds – the 1971 fund (now defunct), the 1992 fund and the Supplementary Fund (established under a protocol adopted in 2003) – each set up because the compensation limits of the previous funds were considered too low as the cost of damages increased. Only states can be members of the funds.

Anyone who has suffered pollution damage (including clean-up costs) in an IOPC member state, for example individuals, companies, local authorities or states, can claim compensation. Under the 1992 fund, compensation of approximately 203 million SDR<sup>69</sup> (equivalent to US \$309.1 million) is available, and if the limit of this fund is exceeded, a further layer of compensation is available under the

Supplementary Fund, up to 750 million SDR (approximately US\$1,142 million) for any one incident.<sup>70</sup>

The IOPC funds are financed through a levy on governments or companies that buy more than 150,000 tonnes of crude or heavy fuel oil in one year. The amounts are certified on the basis of oil receipts, which are submitted by governments of member states to the IOPC funds secretariat. If there are no entities in a state that receive more than 150,000 tonnes of contributing oil in a year, the state will have financial protection for oil spills at no cost.<sup>71</sup>

### International nuclear liability regime

International conventions governing the risks from nuclear accidents have been in place since the 1960s, recognising the potentially limitless damage from nuclear incidents.<sup>72</sup> Responsibility for damage is distributed to different groups, limiting liability of each group and with different layers of compensation available at each level. The first tier comes from a nuclear operator's compulsory financial security. A second tier comes from the state where the nuclear installation is sited, and a third tier is made available by all contracting parties.<sup>73</sup> In 2004, amending protocols were agreed, aiming to expand the reach of the existing Paris and Brussels conventions, and providing more compensation to more people for a wider scope of nuclear damage, as well as shifting more of the onus for insurance on to industry. New limits of liability were agreed as follows: nuclear operators (insurance) circa €700 million; installation state (public funds) circa €500 million; collective state contribution circa €300 million; with a total of circa €1,500 million.<sup>74</sup> These new limits will apply when the amending protocols are ratified by the Paris/Brussels parties.

The collective international fund under the nuclear liability regime collects contributions

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from member states, based on formulas weighing nuclear capacity as well as GDP. The 1997 Convention on Supplementary Compensation for Nuclear Damage divides contributions so that more than 90% of the contributions come from nuclear-power-generating countries on the basis of their installed nuclear capacity, while the remaining

portion comes from all member countries on the basis of their UN rate of assessment.<sup>75</sup> The 2004 amending protocol will use a formula based 35% on GDP and 65% on installed nuclear capacity. Both place responsibility for contributions firmly on nuclear-power-generating states. Neither treaty has been ratified.

## 3. Proposals for dealing with loss and damage

### How developing countries deal with disasters now

Unlike developed countries, most developing countries do not have elaborate public systems to deal with loss and damage from natural catastrophes. And while private insurance may be available, poor people have limited or no access to these services and have to manage climate impacts by their own means.<sup>76</sup> While extra-budgetary support may be provided by development agencies in the case of disasters, or through substantial donations from the West following major catastrophes, these responses are typically short term and on an ad hoc basis, highly dependent on the financial situation of donor countries and on the media response to disasters.<sup>77</sup> When finances raised are not sufficient or late, lives and livelihoods are lost, compromising speedy recovery and long-term development.

In 2006, the UN General Assembly set up the Central Emergency Response Fund (CERF) specifically to tackle the lack of short-term finance in case of disaster striking. It is managed by the United Nations Office for the Coordination of Humanitarian Affairs (UN-OCHA),<sup>78</sup> has a grant facility of US\$450 million and a loan facility of \$50 million and, since 2006, has allocated \$1.5 billion to humanitarian country teams in more than 70 countries.<sup>79</sup> However, although it has been reported to strengthen the humanitarian community's ability to respond quickly and effectively to emergencies, its ceiling of \$30 million per humanitarian disaster covers only a small part of costs. The overall budget is likely to be even more stretched in the future with the increasing number of disasters. Contributions are made through voluntary pledges by countries (from developed as well as developing countries), meaning that the CERF, as with many other international funds, is dependent on yearly domestic budgetary decisions by donor

governments. Finally, with regards to future climate impacts, it could be argued that finance should not be allocated from general disaster relief funds, just as it has been argued that adaptation to climate change should not come from general development funds.<sup>80</sup>

### Innovative approaches: Caribbean Catastrophe Risk Insurance Facility

The Caribbean Catastrophe Risk Insurance Facility (CCRIF) is a much talked about new approach to disaster funding in developing countries. It is a new mechanism, set up in 2007 specifically to provide short-term liquidity in the case of natural disasters. It is based on an insurance approach, is the first multi-country risk pool, and is owned, operated and registered in the Caribbean for Caribbean governments.<sup>81</sup> An important difference from the CERF is that finance goes directly to states instead of to humanitarian country teams, leaving the government to decide on the best use of the money.

Unlike most insurance-based mechanisms, financial compensation in the CCRIF is based on parametric insurance, meaning that when a triggering event occurs (eg an earthquake), a payment is made *before* the total exact cost of the disaster is known, thus providing immediate liquidity as and when disaster relief finance is needed.

According to its website, "CCRIF represents a paradigm shift in the way governments treat risks, with Caribbean governments leading the way in pre-disaster planning."<sup>82</sup> Sixteen governments are currently members of CCRIF,<sup>83</sup> and the biggest payout to date was a payment of \$7.75 million to the government of Haiti after the January 2010 earthquake. The CCRIF is capitalised through contributions to a multi-donor trust fund from Canada, the European Union, the World Bank, the UK, France, Ireland, Bermuda and the Caribbean Development

“...there is more to insurance than compensating loss. It is the most effective mechanism ever developed for assessing, managing and reducing risk.”

ABI<sup>84</sup>

Bank, as well as through membership fees from member countries.

The CCRIF's central approach is the pooling of risk between a group of developing countries which would otherwise find it impossible – given the pressures to focus on development and provide social services to citizens – to save large amounts of money from annual budgets to cover disasters. Risk pooling is therefore “a cost-effective way to provide immediate liquidity to begin recovery efforts for an individual government after a catastrophe until donations and pledged support become available. For the lowest possible premium cost, governments have almost immediate access to a large quantum of liquidity from CCRIF when large events overwhelm even the largest disaster funds.”<sup>85</sup>

As the CCRIF was specifically tasked with providing quick liquidity, the approach taken was to develop a parametric insurance programme. The advantages of such a model are:<sup>86</sup>

- Payouts can be calculated and made quickly because there is no need for exact estimates of damage. The final calculations are already made 14 days after the event.
- Paperwork and assessment needs are extremely light, as no detailed asset values need to be provided, and only one claim form has to be signed during the entire claims process.
- Calculations of impact loss are derived using hazard information as a proxy, based on information from the United States Geological Survey and the National Hurricane Center, all of which is in the public domain.
- The risk is defined uniformly, ie there is no subjectivity in the definition of the risk.
- Parametric policies do not create a moral hazard, whereby risk reduction activities may be dis-incentivised by the presence of insurance coverage.

Although the CCRIF was not set up to deal with climate change, it has already been pointed out that international risk transfer tools such as the CCRIF may be a useful model to deal with the extreme impacts of climate change, where standard climate adaptation strategies are not cost effective.<sup>87</sup>

## Current proposals to deal with climate change loss and damage

### Difficult questions

The overview of existing compensation mechanisms, both in developed and developing countries and internationally (above) illustrates that a number of different approaches can be taken to deal with loss and damage, each with a different set of assumptions and allocation of responsibility. These raise the following potentially thorny philosophical as well as technical questions.

#### *Insurance versus compensation*

The key difference between insurance and compensation systems is a presumption of fault. The compensation funds of the international liability regimes discussed above clearly identify the cause of harm (ie the nuclear company or the oil tanker), but make arrangements to distribute and limit liability as damage may be too high for an individual company to compensate. Generally, only potential causers of harm have to pay into the fund; those who will potentially be harmed do not pay. In the case of insurance mechanisms, the presumption is that the disasters are acts of God, and that no blame can be apportioned. Insurance mechanisms are based on sharing out the risk between groups of people (or countries). Those who contribute to the insurance scheme are the potential victims themselves (by paying insurance premiums).

In some cases, when disaster implications are beyond the insurers' financial means, states step in as the insurer of last resort, for example in the case of the US National Flood Insurance Program (see Box 2 in Chapter 2). Even the CCRIF, although it is donor-backed, follows the principle that states buy their own insurance premium.

In the context of climate change loss and damage, it has been argued that industrialised nations' liability can be demonstrated under international law.<sup>88</sup> On that basis it would appear that a compensation mechanism is the most appropriate mechanism. However, most discussions currently focus on the possibilities provided by insurance solutions (see below).

#### *Private versus public loss*

Some mechanisms focus on private loss only (eg the French mandatory insurance system against catastrophes), some only on public loss (the UK's Bellwin scheme), and some on a combination of both (eg the International Oil Pollution Compensation funds). Natural disasters due to climate change will result in both public and private loss and damage, but it will be much easier to develop mechanisms that deal with public loss, leaving many poor people with no support.

#### *Poor people's losses*

Insuring or compensating for climate change damage using traditional schemes is likely to pose a number of difficulties for poor people. First, the insurance products developed by private insurers are not appropriate for poor people. Expensive premiums are likely to be out of their reach and they are unlikely to have secure occupations or formal assets. In many countries, poor people do not have officially recognised titles to their assets, which may be communal or occupied land or housing in slums, so will find it difficult to provide proof of

ownership. Moreover, poor illiterate people in developing countries would find it difficult to complete the necessary paperwork to make an insurance claim.

NGOs have also pointed out that market-based insurance is unlikely to be accessible even to some governments and small-scale businesses with little capital to spare.<sup>89</sup> Initial evidence suggests that even new, innovative insurance mechanisms like the CCRIF are unresponsive to community needs, even in cases of very significant damage. Furthermore, a centralised, government-led approach may undermine community-based adaptation priorities.<sup>90</sup> Unless proposals for compensation for loss and damage from climate change explicitly outline how vulnerable groups, including those without land or property titles, would benefit from compensation payments, they risk increasing inequality even further, with compensation available only to those who are better off.

#### *Technical issues*

A major drawback for some compensation and insurance schemes is that they create moral hazard. They take away the incentive for people not to engage in risky behaviour, such as building on flood plains. In the context of climate change, compensation being available could mean fewer investments in adaptation actions because it is more cost effective to claim for the damage. Proposals have been made to address moral hazard in a climate change context by, for example, only compensating for very extreme events, or through requiring countries to engage in risk reduction programmes in lieu of premium payments.<sup>91</sup> An example of linking preventative measures with insurance eligibility is the US National Flood Insurance Program (Box 2, Chapter 2).<sup>92</sup>

Furthermore, the difficulties of attributing a single event to climate change makes a

traditional approach of compensating financial costs after the event complicated. It is impossible to differentiate between the damage that would have happened *without* climate change, and the damage that was made worse *because of* climate change. New approaches, like the parametric model of the CCRIF, which releases a lump sum after a certain threshold is passed, may be more appropriate in the context of climate change.

### **The rise of the insurance industry in loss and damage proposals**

Although insurance is no panacea to dealing with climate change impacts,<sup>93</sup> a number of organisations both within and outside the UNFCCC are looking towards insurance-based proposals to deal with loss and damage. The UNFCCC, in a paper describing possible insurance solutions, identified sovereign insurance mechanisms (domestic schemes as described above) and parametric (or index-based) mechanisms as useful approaches to climate change impacts.<sup>94</sup> It also highlighted micro-insurance: an increasingly talked about approach from the disaster risk reduction community which would address many of the issues that poor people face in accessing insurance. Micro-insurance refers to the provision of low-level entry insurance specifically targeted at low-income households that provides immediate post-disaster liquidity to households and farmers. Micro-insurance came out of a similar idea to the Grameen Bank and though coverage worldwide is still low is growing fast.

Insurance companies are themselves increasingly active on climate change loss and damage. In September 2010, four leading insurance climate change initiatives, ClimateWise, the Munich Climate Insurance Initiative, the Geneva Association, and UNEP Finance, whose combined membership

includes more than 100 of the world's leading insurers, took the unusual step of publishing a joint document aimed at international governments. The document highlights the role of industry in adaptation and risk management to climate change in vulnerable countries, and calls for government action to facilitate the transfer of knowledge and expertise from the insurance industry in a climate context. It recognises that governments are already looking at insurance industries, but stresses that governments are still failing to create an enabling environment in which insurance can operate effectively. Specifically, the statement highlights that insurance industries can provide expertise in risk management, prioritising of adaptation measures, incentivising loss reduction, developing new insurance products and raising awareness of the many stakeholders in the insurance industry.

The Munich Climate Insurance Initiative (MCII), a multi-stakeholder group from business, civil society and academics has made concrete proposals for an international insurance-based mechanism to deal with climate change loss and damage. The mechanism is based on an overall risk management programme with on the one hand a prevention pillar, and on the other an insurance pillar. The insurance pillar has two tiers, one to deal with very extreme losses where market-based insurance solutions often fail, and government action is needed, and the other focusing on medium-size losses where market-based insurance can be effective.<sup>95</sup>

Further proposals for insurance-based mechanisms were developed by Bals, Warner, and Butzengeiger<sup>96</sup> – the Climate Change Funding Mechanism (CCFM), Farber<sup>97</sup> and Faure<sup>98</sup> The international Climate Action Network has also called for the establishment of an international climate insurance pool of minimum US\$5 billion annually.<sup>99</sup>

### **AOSIS proposal for a multi-window mechanism**

AOSIS proposed the *Multi-Window Mechanism to Address Loss and Damage from Climate Change Impacts* to the UNFCCC in 2008. It would be composed of three different but complementary elements.<sup>100</sup>

- An **insurance component** to help small island developing states and other particularly vulnerable developing countries manage financial risk from increasingly frequent and severe extreme weather events, for example hurricanes, floods and droughts.

**Responsibilities:** Gives advice and technical support for the establishment of risk sharing and risk transfer schemes (eg risk pooling arrangements, indexed insurance mechanisms and weather derivatives), enables/administers/ supports specific schemes and manages contributions from rich countries.

- A **rehabilitation/compensatory component** to address the *progressive negative impacts* of climate change, such as sea level rise, increasing land and sea surface temperatures, and ocean acidification (ie slow onset events).

**Responsibilities:** Setting parameters, verifying when these are exceeded, as well as accumulating funds from rich country contributions and paying out when parametric threshold is crossed.

- A **risk management component** to support and promote risk assessment and risk management tools and facilitate and inform the insurance component and rehabilitation/compensatory component.

**Responsibilities:** Giving advice and recommendations, facilitating the collection of climate-related data, identifying hazards and capacity building.

The AOSIS proposal's three-pronged approach clearly sets out how different challenges of loss and damage will be tackled, and is by far the most comprehensive and wide reaching proposal currently under discussion. It leans closely against the MCII proposal, with the first two windows corresponding with the two tiers (high risk layer and medium risk layer) of the insurance pillar, so is therefore also likely to gain acceptance with the insurance industry. The AOSIS proposal also requires rich countries to pay most of the insurance premium.

UNFCCC negotiating texts since Copenhagen have included references to the proposal to set up an international mechanism to address loss and damage, although these are always in brackets. The negotiation text of 13 August 2010 provides most detail to date on what this mechanism would look like, and proposes that specific modalities and procedures of the mechanism be adopted by COP17 in South Africa.<sup>101</sup> The detail in the negotiation text is very similar to the AOSIS proposal.

Reports from discussions at the climate meetings in Bonn in June 2010 revealed, however, that there is a predictable split over the proposal along developed/developing country lines. Explicit endorsements came from those standing to lose a lot because of climate change, including the Maldives, Bangladesh, Ghana and AOSIS, as well as China. The proposal was rejected by a number of developed countries. New Zealand rejected it on the basis that such an international mechanism would be an "inappropriate function" for the UNFCCC as it is not possible to prove which climate change event is linked with a specific extreme event. Canada felt that new institutions should not be deliberated unless there is a real need. The European Union, in a statement by Spain, preferred to have climate change loss and damage

addressed at the national level, but did not make clear whether that would involve financial obligations for industrialised countries. Japan also spoke against a mechanism to address loss and damage, saying that, instead, current institutions should be better coordinated. None of the objectors made clear proposals on how the expected increase in disaster-related costs would be dealt with.

Some countries gave some recognition to the AOSIS proposal by recognising that insurance may play a role in dealing with loss and damage (eg Australia). The United States, although against the proposal, said it could consider several functions listed in the option favoured by developing countries. Finally, some countries have questioned loss and damage being dealt with in the adaptation chapter of the

negotiation text, with, for example, Bangladesh and Pakistan arguing that the two issues should not be linked.<sup>102</sup>

The absence of rich-country endorsement of an international mechanism to deal with loss and damage is indicative of the reticence of developed nations to address the question of responsibility. Particularly in the context of the global recession, and the recent pledge to provide financing of US\$100 billion a year for mitigation and adaptation by 2020, rich countries are likely to oppose any of these proposals. Well-placed sources in the development ministry of one rich country said that the term loss and damage implied an acceptance of liability, and therefore is very unlikely to be accepted.<sup>103</sup>

# Conclusion and recommendations

Even in the best mitigation and adaptation scenarios, the global costs of residual damage – the loss and damage – of climate change is expected to be high. The best available models to date predict an average of US\$1.2 trillion (US\$2,000) per year by 2060, with a range of \$0.3 to \$2.8 trillion, and with costs increasing every following year. Although calculations still need to be made at regional and national levels, we know from the reported cost of recent natural disasters that developing countries will, at least in terms relative to their GDP, carry a huge portion of the burden despite having contributed little to climate change.

Increasingly, developing country governments and civil society are calling for financial compensation from rich countries for the damage caused by climate change beyond the financing of mitigation and adaptation efforts. However, mechanisms based purely on a compensatory approach are unlikely to be viable politically, and actual proposals put forward to the UNFCCC are, at least in great part, based on insurance solutions. The insurance industry itself has become a key player in the debate on loss and damage from climate change, promoting specific insurance solutions, making alliances with NGOs and academics, and calling for a better regulatory environment in developing countries.

The first UN discussions negotiating the AOSIS proposal made it clear that views between developed and developing countries are still at opposite ends, and that difficult choices will have to be made to enable eventual agreement. These include whether mainly compensation or mainly insurance-based approaches should be used, whether private losses should be included, and how technical issues (such as moral hazard) can be best addressed in a climate context.

What should not be negotiable at all, however, is whether poor people are a

primary concern in this debate. Already the most vulnerable, their resilience is likely to be stretched beyond repair by climate change impacts. Although current proposals to deal with loss and damage focus on the most vulnerable and poorest countries, it is not yet clear how any potential benefits will trickle down to poor people themselves.

## **UNFCCC negotiators and climate advocates must:**

### **1) Give loss and damage the attention it deserves**

Climate policy makers, both within the negotiations and outside (academics, civil society, business), should support and advocate for a comprehensive approach to the issue.

### **2) Recognise that finance for loss and damage is needed and should be considered separately to adaptation**

Finance for loss and damage should be calculated *separately from adaptation finance*, and not further deplete an already small pot for adaptation actions. Even if insurance approaches are adopted (in part), government intervention will be needed to ensure the viability of this type of solution. Equally, civil society advocates should include demands for financial mechanisms for loss and damage in their campaigns on climate finance, alongside demands for adaptation and mitigation finance.

### **3) Clarify definition of loss and damage**

In order to develop a shared understanding and workable approach to the issue, more work needs to be done to describe clearly what financial costs are to be counted as loss and damage. Some difficult choices may have to be made for political expediency, but this should not be at the expense of the most vulnerable people.

“Of all the people involved in global warming, I think we’re on top of the list of who would be most affected. Our way of life, our traditions, maybe our families. Our children may not have a future.”

Inuit Hunter from Banks Island, Northwest Territories, Canada<sup>104</sup>

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**4) Support calls for country-specific information on loss and damage**

Parties need to recognise that there is an enormous lack of information on loss and damage, particularly in developing countries, and must endorse a UN-coordinated information mechanism responsible for dealing with this, such as the risk management component in the AOSIS proposal to address loss and damage.

**5) Give due attention and support to the AOSIS multi-window mechanism**

The AOSIS proposal is the most comprehensive to date, differentiating between types of impact, combining compensation with insurance, proposing new and innovative insurance solutions, and recognising that reliable information is a crucial aspect of a workable mechanism. Rich countries should support and build on the AOSIS proposal and look for ways in which they can build support for it with their own constituencies and peers.

**6) Ensure that any loss and damage mechanism prioritises the poorest and most vulnerable people**

As the current AOSIS proposal is still in development, there is an opportunity to ensure it recognises the poorest and most vulnerable households. Micro-insurance approaches may help to deal with this issue, though more research is needed. Process issues such as awareness, transparency and democratic oversight are essential parts of any loss and damage mechanism that genuinely benefits those who are poor.

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- 24 EM-DAT, *The OFDA/CRED International Disaster Database* – [www.emdat.be](http://www.emdat.be) – Université Catholique de Louvain, Brussels, Belgium.
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- 29 See Hope, C., in Parry *et al*, 2009 (note 10), for particularities in the 450ppm scenario in the PAGE model.
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- 32 Author's personal correspondence with Dr C Hope.
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- 34** ABI projections for the UK suggest – if no action is taken – that by 2050 the annual cost of weather claims in the UK will double from 1.1 billion GBP in 2004 to 2.2 billion GBP, while an extreme year might cost £13.2 billion or even up to £53 billion in the case of coastal flooding that affects London. Association of British Insurers, 2005, *A changing climate for insurers*, [http://www.abi.org.uk/Publications/A\\_Changing\\_Climate\\_for\\_Insurers1.aspx](http://www.abi.org.uk/Publications/A_Changing_Climate_for_Insurers1.aspx)
- 35** ABI, 2009, *Assessing the risks of climate change: financial implications*, [http://www.abi.org.uk/Publications/ABI\\_Publications\\_Assessing\\_the\\_Risks\\_of\\_Climate\\_Change\\_Financial\\_Implications\\_bf1.aspx](http://www.abi.org.uk/Publications/ABI_Publications_Assessing_the_Risks_of_Climate_Change_Financial_Implications_bf1.aspx)
- 36** Although, as a group, they have expressed an interest in providing insurance solutions in the context of climate change, if the right government support and policy frameworks are in place.
- 37** Guha-Sapir, D., 2006 (see note 14).
- 38** Munich Re, Geo Risks Research, NatCatSERVICE – as at July 2010.
- 39** In UNISDR, *Linking disaster risk reduction and climate change adaptation, Workshop on Insurance and Climate Change*, May 2003. [http://unfccc.int/files/adaptation/adverse\\_effects\\_and\\_response\\_measures\\_art\\_48/application/pdf/200305\\_insurance\\_action\\_unisdr.pdf](http://unfccc.int/files/adaptation/adverse_effects_and_response_measures_art_48/application/pdf/200305_insurance_action_unisdr.pdf)
- 40** Allianz Group and WWF, 2005 (see note 15).
- 41** WWF UK, 2008 (see note 11).
- 42** According to the Quito group Accion Ecologica, “Ecological debt is the debt accumulated by Northern, industrial countries toward Third World countries on account of resource plundering, environmental damages, and the free occupation of environmental space to deposit wastes, such as greenhouse gases, from the industrial countries.” Bond, P., ‘Climate debt owed to Africa: What to demand and how to collect’, in *International Journal of Socialist Renewal*, 5 May, 2010, [http://links.org.au/node/1675#\\_ftnref27](http://links.org.au/node/1675#_ftnref27)
- 43** See ActionAid, December 2009, *Rich countries’ climate debt and how they can repay it*, [http://www.actionaid.org.uk/doc\\_lib/updated\\_climate\\_debt\\_briefing\\_december\\_2009.pdf](http://www.actionaid.org.uk/doc_lib/updated_climate_debt_briefing_december_2009.pdf). See also Jubilee Debt Campaign, 2009, *The Climate Debt Crisis: Why paying our dues is essential for tackling climate change*, <http://www.jubileedebtcampaign.org.uk/download.php?id=879>
- 44** AU official Abebe Hailegabriel in Bond, P., ‘Don’t play games with humanity’s future’, *The Mercury*, 2 September 2009.
- 45** Senate President Juan Ponce Enrile, quoted in ‘Philippines’ Senate leader calls for climate compensation’, *Climate Justice Now*, July 2010, <http://www.climate-justice-now.org/philippines-senate-leader-calls-for-climate-compensation/>
- 46** Bolivia climate change talks to give poor a voice, *Guardian*, 18 April 2010, and Bond, P., 2010 (see note 43).
- 47** At COP 11 in Montreal in 2005, Bangladesh, on behalf of the least developed countries, called for compensation for damages caused by climate change. See, for example, <http://www.iisd.ca/vol12/enb12291e.html>. The Alliance of Small Island States and the Group of Least Developed Countries have raised this issue at a number of international negotiating sessions.
- 48** WWF UK, 2008 (see note 11).
- 49** Allianz Group and WWF, 2005 (see note 15).
- 50** According to Farber, 2006, the trend is to hold that potential damage from climate change is a legally cognisable injury. He gives many examples to support this including: Friends of the Earth v. Watson, 2005 WL 203596 (N.D. Cal. 2005) (finding that potential victims of climate change have standing); Northwest Env. Def. Center v. Owens, 434 F. Supp. 2d 957 (D. Or. 2006) (climate change victims have standing); In re Quantification of Envtrl. Costs, 578 N.W. 2D 794, 796-797 (Minn. Ct. App. 1998) (upholding agency’s quantification of harm from CO<sub>2</sub>). Farber, D., 2006 (see note 12). At the international level see Australian Conserv. Found. v. Minister for Planning, available at <http://www.austlii.edu.au/au/cases/vic/VCAT/2004/2029.html> (stating that greenhouse emissions must be taken into account in planning decision); Gbemre v. Shell Petroleum, available at <http://www.climatelaw.org/media/gas.flaring.suit.nov2005/ni.shell.nov05.judgment.pdf> (condemning natural gas flaring in Nigeria).
- 51** WWF UK, 2008 (see note 11).
- 52** The focus here is on property damage. Individual damage in most European countries will be resolved through social security systems (eg the National Health Service in the UK).
- 53** Solon, P., 2009, *Plurinational Government of Bolivia Press Release: Bolivia responds to US on climate debt: “If you break it, you buy it.”*, Copenhagen, 12 December.
- 54** Farber, 2006 (see note 51).
- 55** Faure, M. and Hartlief, T., 2006, *Financial compensation for victims of catastrophes, A comparative legal approach*.
- 56** Farber (2006, see note 12) identifies a third way, mainly valid for the United States of America, which is compensation through tort claims against federal or state government for negligence. For example, three families affected by Hurricane Katrina recently won about £420,000 in damages after the judge ruled that the corps responsible for maintaining the waterways and levees in New Orleans were guilty of ‘lassitude and failure to fulfil its duties’. The US government faces billions of dollars in compensation claims as a result of this ruling. (*Guardian*, Victims of flooding during Hurricane Katrina win compensation, 19 November 2009, <http://www.guardian.co.uk/world/2009/nov/19/hurricane-katrina-victims-compensation>)
- 57** Faure, M. and Hartlief, T. (eds), 2006, *Financial compensation for victims of catastrophes, A comparative legal approach*, Springer.
- 58** See Farber 2008 (note 56).
- 59** Author’s personal communication, Civil Contingency Secretariat, UK government.
- 60** The traditional motor vehicles guarantee fund was expanded to include uninsured victims of technological risks in 2003.
- 61** Farber, 2006 (see note 50).
- 62** National Flood Insurance Program to end as hurricane season begins, IFA webnews, 28 May 2010, <http://ifawebnews.com/2010/05/28/national-flood-insurance-program-to-end-as-hurricane-season-begin/>
- 63** Insurance coverage against flooding is often required to obtain a mortgage, so although insurance is not compulsory, it has become de facto compulsory. Despite the principle of non-intervention, the UK government has reached a gentlemen’s agreement whereby the insurance industry guarantees flood insurance regardless of the risk. Recently, however, the approach seems to be changing with premium differentiation being applied. The idea has now been introduced that the state would still have to act as insurer of last resort, showing a tendency whereby the state should also assume part of the risk. (Faure and Hartlief, 2006, see note 57).
- 64** For example, during the 2007 flooding in the northeast of the UK, it appeared that 40% of people did not have home insurance. In this case, government ended up paying, though official policy remains

that people should have insurance, for fear of disincentivising people to take out insurance. (Author's personal communication, Civil Contingency Secretariat, UK government.)

**65** For example, the Department for Education and Skills can assist with damage to school buildings, the Department for Transport with damage to highways, the Department for Communities and Local Government with house damages, and the Department for Environment, Food and Rural Affairs with damage to land and the environment. (Author's personal communication, Civil Contingency Secretariat, UK government.)

**66** Priest (1996) and Kaplow (1991) in Faure, M., 'Insurability of Damage Caused by Climate Change – A Comment', 2007, *University of Pennsylvania Law Review*, Vol. 155, <http://ssrn.com/abstract=1085980>

**67** See WWF, 2008 (note 11).

**68** The 1992 Civil Liability Convention governs the liability of ship owners for oil pollution damage. The Convention lays down the principle of strict liability for ship owners and creates a system of compulsory liability insurance. Ship owners are normally entitled to limit their liability to an amount that is linked to the tonnage of their ship. See: <http://www.iopcfund.org/npdf/genE.pdf>

**69** An international reserve asset created by the IMF in 1969 to supplement its member countries' official reserves.

**70** See website FAQ (Compensation): <http://www.iopcfund.org/compensation.htm>

**71** See website FAQ (Finance): <http://www.iopcfund.org/finance.htm>

**72** The Vienna Convention on Civil Liability for Nuclear Damage of 1963 and the Paris Convention on Third Party Liability in the Field of Nuclear Energy of 1960. Both were linked by the Joint Protocol adopted in 1988. (Wikipedia)

**73** WWF UK, 2008 (see note 11).

**74** World Nuclear Association: <http://www.world-nuclear.org/info/inf67.html>

**75** International Expert Group on Nuclear Liability, 2004, *Civil Liability for Nuclear Damage*, GOV/INF/2004/9-GC(48)/INF/5, International Atomic Energy Agency, [http://www.iaea.org/About/Policy/GC/GC48/GC48InfDocuments/English/gc48inf-5\\_en.pdf](http://www.iaea.org/About/Policy/GC/GC48/GC48InfDocuments/English/gc48inf-5_en.pdf)

**76** Syroka and Wilcox, 2006; Pelling, 2007, in Pierro, R., and Desai, B., 2008, *The potential role of disaster insurance for disaster risk reduction and climate change adaptation*, Christian Aid.

**77** For example, the tsunami that swept Asia received more coverage by the German press than the earthquake in Pakistan in 2005. The aid result is staggering: the tsunami aid totalled US\$178 million, while Pakistani earthquake aid totalled just \$8 million, <http://www.allvoices.com/contributed-news/5322502-haiti-earthquake-highlights-climate-change-insurance-mechanism>

**78** Specifically, it is managed by the Emergency Relief Coordinator (ERC), which is situated in OCHA.

**79** OCHA on Message: *Central Emergency Response Fund*, June 2010, available at <http://ochaonline.un.org/OchaLinkClick.aspx?link=ocha&docid=1164762>

**80** For example ActionAid, 2009 (see note 2).

**81** Caribbean Catastrophe Risk Insurance Facility (CCRIF) website: <http://www.ccrif.org/content/about-us>

**82** CCRIF website, *ibid*.

**83** Anguilla, Antigua & Barbuda, Bahamas, Barbados, Belize, Bermuda, Cayman Islands, Dominica, Grenada, Haiti, Jamaica, St. Kitts & Nevis, St. Lucia, St. Vincent & the Grenadines, Trinidad & Tobago and the Turks and Caicos Islands.

**84** ABI, 2005, *The economic value of general insurance*, Association of British Insurers, [www.abi.org.uk/generalinsurance](http://www.abi.org.uk/generalinsurance)

**85** CCRIF website FAQ: <http://www.ccrif.org/faq>

**86** CCRIF website (see note 81).

**87** CCRIF, *The CCRIF Model – An Essential Component of a Climate Change Adaptation Strategy*, CCRIF website: <http://www.ccrif.org/content/ccrif-model-essential-component-climate-change-adaptation-strategy>, accessed 2 September 2010.

**88** WWF UK 2008 (see note 11).

**89** Linnerooth-Bayer, J., *et al*, 2008, *Climate insurance as part of post-Kyoto adaptation strategy*, Germanwatch and International Institute for Applied Systems Analysis (IIASA), <http://www.germanwatch.org/klima/insur08.pdf>

**90** Christian Aid, June 2010, *Does disaster insurance have a role in climate change adaptation*, [www.christianaid.org.uk/images/time-for-climate-justice-july2010.pdf](http://www.christianaid.org.uk/images/time-for-climate-justice-july2010.pdf)

**91** Bals, C., *et al*, 2006, 'Insuring the Uninsurable: Design options for a climate change funding mechanism', in G. Gurekno (ed), *Climate Policy*, special journal edition, Vol 6, N 6, No. 6 pp. 637–47.

**92** Farber, D., 2006 (see note 12).

**93** Germanwatch and IIASA, 2008 (see note 89).

**94** UNFCCC, 2008, *Mechanisms to manage financial risks from direct impacts of climate change in developing countries*, FCCC/TP/2008/9, <http://unfccc.int/resource/docs/2008/tp/09.pdf>.

**95** Germanwatch and IIASA, 2008 (see note 89).

**96** Bals, C., *et al*, 2006 (see note 91).

**97** Farber, D., 2006 (see note 12).

**98** Faure, 2007 (see note 66).

**99** Climate Action Network (CAN), 2009, Finance position paper, [www.climateactionnetwork.org/climate.../CANfinance\\_position-scale\\_and\\_sourcesFinal7June2009.pdf](http://www.climateactionnetwork.org/climate.../CANfinance_position-scale_and_sourcesFinal7June2009.pdf)

**100** AOSIS, 2008 (see note 3).

**101** UNFCCC, 2010, FCCC/AWG/LCA/2010/14. Negotiating text, 13 August 2010.

**102** Author's personal communication with CAN Europe.

**103** Author's personal communication with a development official in an Annex I country (anonymous).

**104** In Kolbert E., 'Field Notes from a Catastrophe: Man, Nature, and Climate Change', in Farber, 2006 (see note 12).

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