

# Climate Change, Limits to Adaptation and the 'Loss and Damage' Debate

Written by Kirstin Dow and Frans Berkhout

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KIRSTIN DOW AND FRANS BERKHOUT, MAR 13 2014

For two decades, the issues of mitigation and reducing greenhouse gas emissions dominated international climate change discussions. Debates about how to respond to the impacts of changing weather and climate – adaptation – were purposefully silenced by many who argued that this would reduce pressure to deal with the root causes of climate change.

Adaptation surfaced officially at the 2007 Bali meeting of the Conference of the Parties (COP) to the UN Framework Convention on Climate Change. With that greater attention, and climate projections of up to 4°C global average temperature increases by the end of the 21<sup>st</sup> century relative to the end of the 20<sup>th</sup> century (IPCC, 2013), it has also become clear that there are likely to be limits to what adaptation can achieve. Rather than being distracting, an awareness of the limits to the capacity of social and ecological systems to adapt may act to motivate more urgent action on mitigation (Dow et al. 2013b; Adger 2009). The Bali Action Plan called for “...[r]isk management and risk reduction strategies...and for consideration of...strategies and means to address *loss and damage* associated with climate change impacts” (UNFCCC 2007).

In the most recent UNFCCC COP in Warsaw, the 'loss and damage' issue dominated negotiations between rich countries, who have historically been responsible for most greenhouse gas emissions, and poorer countries, who are seen as most vulnerable to the impacts of climate change. The outcome, which emerged 24 hours after the intended end of negotiations, established the *Warsaw International Mechanism for Loss and Damage Associated with Climate Change Impacts*. This mechanism encompasses many functions, including enhancing research on comprehensive risk management approaches, information provision and a place-holder for the thorny problem of '...addressing loss and damage' (UNFCCC 2014).

Currently, there are two problems facing the international debate about loss and damage. First, in the UNFCCC negotiations it has become stuck as a debate about the rights and responsibilities of countries, rather than of vulnerable groups, sectors and localities. Second, it has become bogged-down as a debate about rehabilitation and compensation of vulnerable countries (Klinsky and Dowlatabadi, 2009). This debate begs many difficult technical questions about the attribution of specific losses to climate change, as well as tricky legal and political questions about whether, when, and to what extent, rich countries may have become liable for the losses associated with their emissions (Dellink et al., 2009). The near-term prospects for substantial progress on these issues in the context of the UNFCCC are limited and draw attention and effort away from other ways of addressing the real and deepening problem that people are being affected by climate change and facing losses as a result.

We believe that a serious effort should be made to reframe the problem of losses faced by vulnerable groups and regions in order to be able to move forward to address emerging losses and damages. First, we believe the focus should shift from vulnerable countries to vulnerable groups, sectors and regions. Second, rather than a liability-compensation framing, we advocate a framing in terms of support and assistance of groups most at risk of losses as a result of climate change.

A more actor-centered and sustainable development framing of the problem of loss and damage appears to us more

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scientifically robust, while also creating a context for a politically-achievable international response to the urgent and growing problem of climate-related crises around the world – and not just in poorer countries. We believe that the way to do this is to focus on the limits to the capacity of groups, sectors and regions to adapt to the impacts of climate change – in the context of other social, economic and political factors shaping their vulnerability. Where there are limits in the capacity to adapt, we believe there are major and escalating losses for which new international governance arrangements need to be put in place. This will be partly as a humanitarian response to observable losses, and partly as a matter of the political and economic self-interest of other groups and countries affected by the social and economic consequences of such climate-related losses.

## Limits to Adaptation

The first challenge is to develop a workable definition of limits to adaptation and to explore the governance implications of approaching and exceeding adaptation limits. Here we draw on risk management and adaptation research to offer a risk-based definition of limits to adaptation. The broader risk approach, which emerged to inform societal risk judgments on policy questions, extends beyond probabilistic risk analysis (Hultman, Hassenzahl, and Rayner 2010). This approach engages the issues of societal choice, values, equity, communication, perception, and other non-quantitative dimensions as well as issues of governance (Hultman, Hassenzahl, and Rayner 2010). The broader risk approach is consistent with the understanding that adaptation is “fundamentally an ethical issue because the aim of adaptation is to protect that which we value” Hartzell-Nichols (2010:690) and recognizes that social values play a role in limits to adaptation (Adger et al. 2012; O'Brien 2010).

Klinke and Renn (2002; 2012; Renn and Klinke 2013) identify 3 categories of societal responses to risks that can be usefully applied to the adaptation process. As individual actors and through collective processes, perceptions of the potential frequency and severity of harm, including values associated with losses and damages, actors identify three classes of risks with different management implications.

- **Acceptable risks** are risks deemed so low that additional risk reduction efforts [adaptations] are not seen as necessary
- **Tolerable risks** relate to activities seen as worth pursuing for their benefits, but where additional efforts [adaptations] are required
- **Intolerable risks** are those which exceed a socially negotiated norm (e.g., the frequency of flooding) or a value (e.g., cultural continuity) despite adaptive action (based on Renn 2008: 149).

This simple classification of acceptable, tolerable, and intolerable highlights the role of judgment based on values and evidence that are common to all assessments of risks (Renn 2008). The diversity of views across society makes defining “what is tolerable or intolerable” very difficult (Renn 2008). Likewise, Adger (2012) argues that adaptation limits are “mutable, subjective, and socially-constructed”, as are the ‘intolerable risks’ which are defined in relation to socially negotiated norms. On the other hand, these are not new problems. At the international scale, normative objectives have been set in, for instance, the Millennium Development Goals, while others address universal human rights, and still others, such as the Montreal Protocol on ozone depletion, address issues of risk in the environment.

Applying the idea of the three classes of risk to the issue of adaptation, Dow et al. (2013:387) define a limit to adaptation as “the point at which an actor’s objectives cannot be secured from intolerable risks through adaptive actions”. The objectives valued by an actor are self-defined and may be of a huge variety, ranging from the capacity to secure a livelihood through farming to protection from the risk of flooding.

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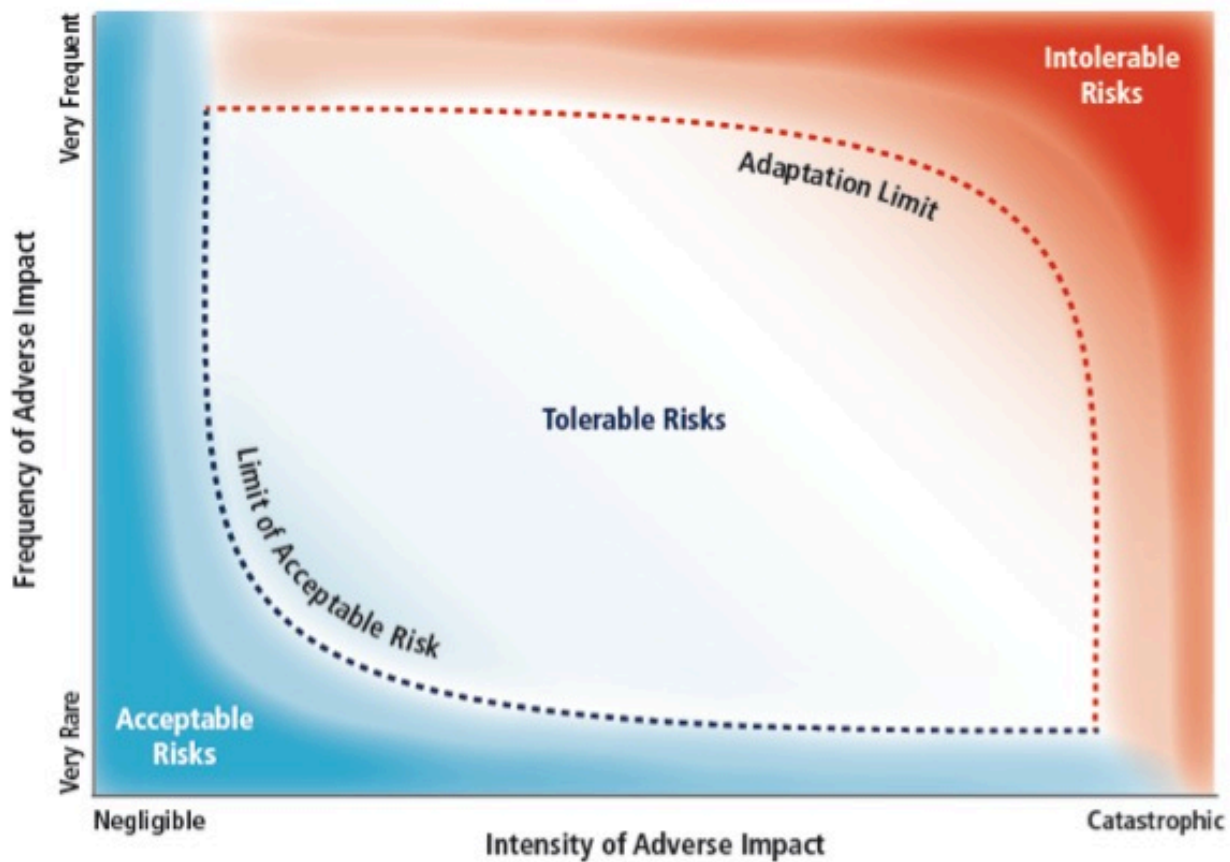


Figure 1: Acceptable, tolerable and intolerable risks (Source: Dow et al. 2013b after Klinke and Renn 2002; Renn and Klinke 2013)

Risks that cannot be managed to remain within a tolerable level exceed the limit to adaptation and become intolerable. The shading around the limits indicates that actor's views of what is acceptable, tolerable or intolerable risk may vary. The shape of the lines defining the area of the tolerable risks is conceptual and can change based on risk perceptions.

Arriving at intolerable levels of risk (an adaptation limit) marks a point when existing adaptation strategies are no longer achieving a tolerable level of security for valued objectives, when no practicable alternative adaptation options are available to the actor, and some major change in behavior (like migration) becomes inevitable. An actor may choose to relinquish the objective that kept them in harm's way (e.g. choose to give up farming or living along the coast). Broader governance responses to intolerable risks include banning the risk perhaps through prohibition or substitution (Klinke and Renn 2002; Renn 2008). In the case of climate change, laws may prohibit building in high-risk areas. Perhaps, the threat will motivate a transformative adaptation that results in fundamental changes to livelihoods or behaviors (O'Brien 2012; Kates et al. 2012; Preston et al. 2013).

If an actor has no options or is unwilling to give up an objective, they may remain in the threatening situation and face increasing losses and damages. In their comparative study of local experience with climate stressors across nine countries, Warner and van der Geest (2013) found that the number of households who did not have the knowledge, skill, means, or resources to avoid damage ranged from 2% to near 40% (N for communities range from 273 to 465). Similarly, UK Foresight report suggests that while environmentally motivated migration will pose challenges, the issues raised by people unable to leave dangerous circumstances may be more or equally significant (Foresight 2011). All of these possibilities involve some level of loss and/or damage.

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A basic dictionary distinction between loss and damage, that which is destroyed versus that which may be recovered or restored over time, is important in the context of the long period of climate commitment and the ongoing processes of adaptation. While adaptation as a process is unlikely to be able to achieve all that one might hope, with damages there is a possibility to restore what was lost. There is also the potential for changes to simultaneously bring benefits, particularly if they are facilitated and supported.

The potential to avoid some types of losses and damages and achieve some benefits through more transformative adaptation, including for instance migration, will pose challenges to governance and planning. Losses, damages and transformative change invokes questions of equity and justice in the distribution of risks and benefits over time, space, and social status; the potential for social conflict and mobilization; and the spill-over effects when symbolic losses have repercussions on other fields, such as markets, and psychological stress (Klinke and Renn 2002) or what Graham et al. (2013) refer to as "lived values". Experiences with relocation reflect some of these issues.

For example, 20 Alaskan Villages have been identified as facing imminent threats due to the coastal erosion caused by melting permafrost, loss of sea ice, and severe storms, however relocation costs are estimated at \$80-\$200 million each and there is no lead federal agency to coordinate and prioritize assistance (GAO 2009). At the local level, 3 of the 4 communities seeking to relocate all at once (rather than piecemeal) due to an imminent threat posed by coastal erosion were making slow progress as,

According to officials from these three villages, reaching consensus to relocate has been difficult. None of the decisions to relocate have been unanimous... with some residents preferring alternative locations, preferring different solutions, or preferring to remain in place (GAO 2009:32).

As Oliver-Smith (2009:124) observes with respect to past experiences with disaster-induced displacement and recovery, "In all too many cases, resettlement, particularly when done at a community level, ends up becoming a second disaster". He also comments that it is possible that the richness of a community may, in many aspects, be restored over time given careful attention to what is needed and how it is handled (Oliver-Smith 2009).

## Acting to Reduce "Loss and Damage"

The Warsaw Loss and Damage Mechanism is entrusted with the functions of investigating risk management approaches and providing information relevant to reducing the risks of loss and damage. These are pressing issues where near-term progress is promising, while the deep, coupled challenges of attribution of weather-related loss and damage to climate change, liability, and compensation are likely to be much slower to resolve. A focus on the adaptation limits facing vulnerable groups, sectors, and regions directs needed attention and effort towards anticipating, avoiding, and slowing movement to such limits.

Where limits cannot be avoided, we advocate greater attention to the prediction, planning and management required to realize opportunities in the inevitable changes to livelihoods and well-being and make these changes as positive as possible. The discussion of adaptation limits is just getting started, but it raises at least two broad research and policy questions. What types of international risk governance and management activities are needed to anticipate and, where possible, avoid adaptation limits? Where adaptation limits cannot be avoided, how can they be best negotiated in ways that minimize losses and support the rapid recovery of damages? Experience with hazards, disasters, risk management and planning provides an analogous starting point, but also a clear warning that the challenges are significant and have not always been met with success.

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