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Synthesis paper: Perspectives on Loss and Damage

Summary of Presentations given at the

European Adaptation to Climate Change Conference (ECCA)

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Summary prepared by Swenja Surminski, LSE

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Introduction

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The concept of Loss and Damage (L&D) of climate change has emerged as one of the more recent work streams of the international climate change regime. While initially being promoted and debated by only a handful of experts, it gained an official status within the UNFCCC following the adoption of the Cancun Adaptation Framework (CAF), an outcome of the 16th session of the Conference of Parties (COP) in 2010. The CAF highlights the need to strengthen international cooperation and expertise to understand and reduce L&D associated with the adverse effects of climate change (UNFCCC, 2011a). This led to the initiation of a new work programme on L&D by the Subsidiary Body for Implementation (SBI). This process recently culminated in the agreement at COP 18 in Doha to develop an international framework to implement the L&D mechanism. Heralded as one of the few achievements in Doha, this has brought new attention to the topic.

At the same time researchers and practitioners struggle to frame the idea of L&D from climate change. A clear official definition of L&D is lacking. The UNFCCC provides a baseline, but still leaves room for interpretation (UNFCCC, 2012a). The topic is situated somewhere in the sphere of climate change adaptation (CCA) and disaster risk reduction (DRR), driven and dominated by a small group of actors, while the wider climate change community appears to have differing considerations about the scale and relevance of this topic.

Some observers consider L&D as a predominantly political construct, focused on the concept of compensation – aimed at transferring funds to those who are experiencing climate change loss and damages (Hyvarinen, 2012). Others seem to see it as a more targeted approach to deal with negative climate change impacts, embedded in the climate adaptation methodology, while yet other observers highlight L&D as an approach for dealing with residual risks, beyond mitigation and adaptation (Kreft, 2012).

While this academic discourse is continuing, the practical questions asked under the L&D work programme need responses. Decision makers at UNFCCC level, but also within national governments, debating institutional arrangements and deciding how to incorporate L&D into their climate policies are looking for advice.

This synthesis report aims at clarifying some of the existing positions on L&D. It is based on the output of a science-practitioner session at the European Adaptation to Climate Change Conference ECCA, in March 2013 in Hamburg. Each contributor has been asked to outline his or her individual perspective on L&D in a brief summary note below.

Statement 1: The concept of L&D within the UNFCCC

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Until today, the discourse about L&D has focused on two broad aspects: the framing of L&D in the wider context of CCA and disaster risk reduction (DRR), and the identification of technical challenges for assessing and addressing L&D, including questions of implementation.

Climate change L&D has not been properly framed and defined (see for example UNFCCC 2012a, 2012b). The Bali Action Plan referred to 'loss and damage associated with climate change impacts in developing countries that are particularly vulnerable to the adverse effects of climate change' (UNFCCC, 2008). This was then specified in more detail in the Cancun Adaptation Framework (CAF) - stating that approaches to address L&D should consider climatic impacts 'including sea level rise, increasing temperatures, ocean acidification, glacial retreat and related impacts, salinization, land and forest degradation, loss of biodiversity and desertification' (UNFCCC, 2011a). A recent UNFCCC-commissioned literature review on L&D approaches (UNFCCC, 2012b) uses the following working definition of L&D: 'the actual and/or potential manifestation of impacts associated with climate change in developing countries that negatively affect human and natural systems'. It differentiates between 'loss' (negative impacts in relation to which reparation or restoration is impossible, such as loss of freshwater resources) and 'damage' (negative impacts in relation to which reparation or restoration is possible, such as windstorm damage to the roof of a building, or damage to a coastal mangrove forest as a result of coastal surges) (UNFCCC, 2012b).

Overall we notice two different dimensions when framing L&D of climate change: the technical concept, which looks at tools and processes to assess and manage risks, and the political dimension, where boundaries to climate adaptation, the concept of compensation and equity play a role. Linked to the political concept is the legal understanding of L&D, asking for cause and liability of these impacts, which might be relevant for agreeing funding of L&D across the international community and deciding on potential compensation arrangements. This leads to the question of 'attribution' as a key differentiator between climate change and socio-economic risk drives (Warner et al., 2010). The technical dimension of L&D has its roots in the general risk management methodology, based on a terminology widely applied in DRR and more recently in CAA.

UNFCCC (2012a) explores the terminology in detail – highlighting different approaches to L&D as currently applied to DRR and CCA. Most broadly 'damage' is seen as the physical impact, and losses as monetized values, which could be direct or indirect in the form of

economic follow on effects (UNFCCC 2012a). Here the focus is on categorizing, assessing and projecting impacts of events – mainly in the context of disasters, but also in the context of climate change implications for sudden-onset and slow-onset impacts, over a range of time-scales, and including direct and indirect economic losses, loss of lives, and damage to and loss of eco-system services.

In the broader climate change context L&D is often described as the third cost element of climate change, as outlined by Klein et al. 2007 (see also van Vuren, 2011): mitigation costs, adaptation costs and residual damage. In this context L&D is seen as addressing those losses that are likely to occur despite adaptation and mitigation efforts.

This academic exercise of framing L&D is replicated amongst policy makers – where different interpretations of scope and concept are apparent amongst UNFCCC Parties, as highlighted by Kreft (2012): 'Some Parties suggest that L&D is the residual risk when mitigation is insufficient, and when the full potential of adaptation is not met (Norway) while others frame L&D as the residual loss and damage after mitigation and adaptation choices have been made (Gambia). Ghana proposes that the concept of loss and damage from the adverse effects of climate be viewed as additional to adaptation focusing on challenges of both identifying and addressing the instances when adaptation is no longer possible. However, Bolivia maintains that loss and damage from the adverse effects of climate change concept is beyond adaptation, and as such is additional to adaptation, focusing on challenges of both identifying and addressing the instances when adaptation is no longer possible'. Beyond the efforts to frame L&D most of the debate has been on tools and approaches for assessing and addressing L&D, in line with the thematic areas to be considered in the implementation of the UNFCCC's work programme (UNFCCC 2011b):

I - Assessing the risk of loss and damage associated with the adverse effects of climate change and the current knowledge on the same

II - A range of approaches to address loss and damage associated with the adverse effects of climate change, including impacts related to extreme weather events and slow onset events, taking into consideration experience at all levels

III - The role of the Convention in enhancing the implementation of approaches to address loss and damage associated with the adverse effects of climate change

(source: UNFCCC, 2011b)

The statements below highlight current knowledge and challenges for each of these three pillars.

Section I - Assessing the risk of loss and damage associated with the adverse effects of climate change and the current knowledge on the same

Statement 2: Lessons for the analysis of current and future L&D

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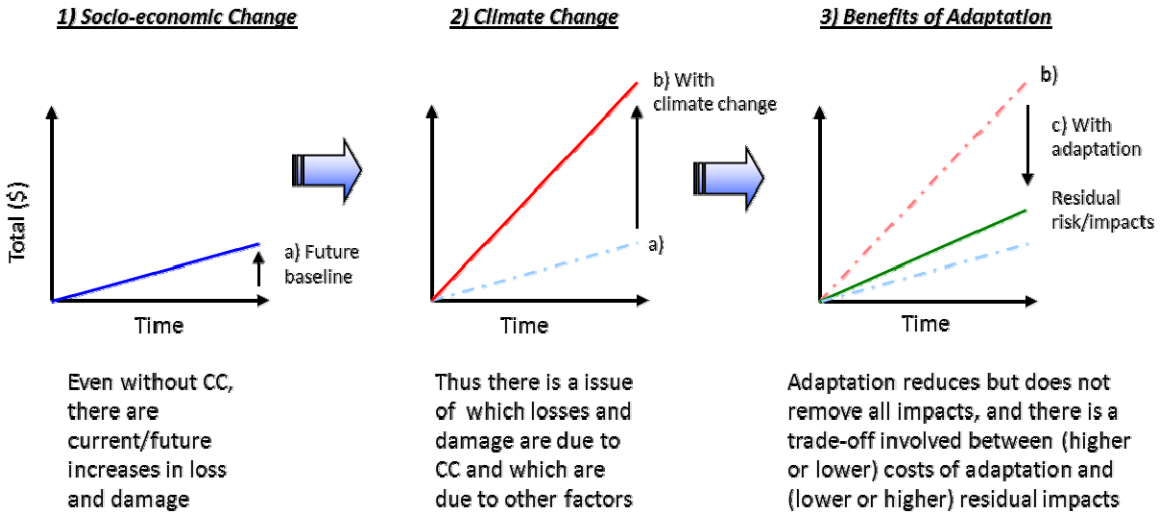
Since the Stern Review in 2007, there have been numerous national and regional studies that have assessed the economic costs of climate change in developing countries. These usually start with an assessment of the current costs of climate variability, often through a risk /disaster framework, and then look at the projected costs of future climate change, using impact assessment. These studies are highly relevant in terms of their methods and results for the loss and damage agenda. They also reveal critical issues, for the analysis of both current and future L&Ds.

First, in relation to past and current damages, the current generation of economic studies show there are serious limitations in our ability to assess even current values, let alone attribute these to recent changes in climate. In some cases, there are recent decadal trends that can be picked through observations, e.g. increases in annual temperature rise, or early sea level rise signals. In many qualitative national studies, these have then been highlighted as the cause of recent observed impacts, e.g. linking very small rises in sea level to salt-water intrusion or to coastal erosion in coastal communities. However, such studies fail to account for the other causal factors in these impact observations, for example the role of over-abstraction of groundwater on saltwater intrusion, or the removal of mangrove forests in accelerating coastal erosion. In practice, it is extremely difficult to attribute any impacts to climate without detailed ex post analysis, and without some consideration of these other factors, i.e. the counterfactual of what would have happened in the absence of climate change. This involves a step change in analysis. However, in many cases, the impacts of the current climate are associated with variability and extreme events. In most countries, the impacts of recent events are not well recorded and the observational records are short. This is a problem because these events have high natural variability, thus it is always difficult to ascribe any one event, or even series of recent events, to recent trend analysis. For example, in Ethiopia, there are thought to be inter-decadal cycles in variability, which mean that even one to two decades of observations is not sufficient to pull out robust trends. Furthermore, any changes in losses or damages over time run into the same issues of attribution and socio-economic change as above. The IPCC SREX (2012) reports that while losses from extreme events have increased over recent decades; most of this is due to socio-economic change, e.g. higher population, greater assets at risk, and increased vulnerability through, for example, developing on flood plains.

The existing science of climate attribution is still at a very early stage, and restricted to major events, but even if this moves forward, i.e. to the point where it can attribute climatic events, there is still the problem of how to attribute observed impacts between climate and other factors. From an adaptation/development perspective this does not matter much: tackling the existing issues of climate variability however they are caused makes sense now. However, in terms of the negotiation discussion on loss and damage, it makes a major difference whether climate change is actually the cause (or even the major cause).

Looking to the future, the current generation of impact studies show that there are extremely large uncertainties in projecting future climate change, and then assessing the subsequent impacts and economic costs. Even when a single future emission scenario is chosen, the range across the climate models for key parameters (e.g. rainfall) can vary in sign, leading to a range of impacts that can plausibly range from modest benefits to dramatic impacts. It is therefore impossible to project future impacts with a reasonable degree of confidence. Furthermore, while studies are starting to explore the costs and benefits of adaptation, these are at an early stage, and the quantitative information and evidence on the limits of adaptation does not yet exist beyond a few exploratory studies. There is also a further issue that has emerged. In looking to the future, the classical analysis framework looks at the costs of climate change, then the costs and benefits of adaptation, and then the residual damage after adaptation (see figure below). It is in this context that the loss and damage discussion is raising the concept of the limits of adaptation and residual impacts.



Source, updated from Watkiss et al, in UNFCCC, 2009.

However, any quantified analysis of these issues is framed by moral, ethical and economic choices. First, when assessing the costs and benefits of adaptation, the choice of how much

adaptation to do depends on the objectives, and whether one aims for the economically optimum response (which implies a large amount of residual risks), to return risks to pre-climate levels (noting that in many developing countries, residual risks are currently high) or to try and climate proof (an extremely expensive option). It is clear that there will be differences of opinion on the balance of these that is appropriate, and these will depend on whether one is experiencing risks or being asked to fund adaptation, and this does have important implications for the international finance needed. Second, for the limits of adaptation, there is rarely an absolute limit of adaptation and again a choice is involved. To illustrate, it is possible for most coastal areas (with the exception of a few island states) to adapt to even the highest possible projections of sea level rise over the next century: any limits are likely to be due to the availability of resources, or choices about the acceptability of engineered protection.

Set against these two issues – the high uncertainty in projections and the role of the objectives in framing adaptation (limits) – it is still worth undertaking such assessment to look at potential issues, and to develop iterative adaptive management frameworks to plan, learn and act to emerging risks. However, it is difficult to see how such studies or analysis can be used in a negotiation framework, while the evidence is at such an early stage.

Statement 3: A (physical) science perspective of the risk of L&D

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The characterisation of the risk underlying L&D involves an understanding of the socio-economic risk drivers including exposure and vulnerability (statements 4 and 7) and of the physical risk drivers such as the climatic hazards. To evaluate the current and changing likelihood of climatic hazards different sources of information are employed. Current climate variability is estimated using historical records of climate variables such as temperature or precipitation. Estimates of how these variables might change in the future are usually obtained from climate models. Impact models such as flood inundation models are employed to estimate how changes in the meteorological driver, rainfall intensity for instance, affect natural or human systems.

Historical records must be accurate, representative, homogeneous and of sufficient length if they are to provide useful statistics. In many regions of the world, sparse observations, lack of data or pure quality data can induce large uncertainties in the characterisation of current climate variability. Projections of changes in future climate rely on climate model simulations. Even though the physical and chemical processes in the climate system follow known scientific laws, the complexity of the system implies that many simplifications and approximations have to be made when modelling it, resulting in large uncertainties in

climate projections. In addition to these modelling uncertainties, climate models are run using emissions scenarios that represent plausible, but inherently unpredictable futures. The relative and absolute importance of different sources of uncertainty depends on the spatial scale, the lead-time of the projection, and the variable of interest. At shorter time scales, natural variability of the climate system and other non-climatic risks would have a higher impact than climate change. For example, in the near term, changes in urbanization and building on flood-prone areas could increase significantly the risk of flooding and damage, independently of climate change. Over longer time scales, it is expected that climate change might play a more significant role.

Any strategy adopted to manage climate hazards has to take into account the fact that projections of current climate models cannot simulate adequately (or at all) the small scales and physical processes important for extreme weather events (Risby 2011; Trenberth 2012). Downscaling approaches that reduce the scale of the climate model projections to local scales do not provide magical fixes to possible limitations in the data being downscaled (Kerr 2011), in practice introducing one more source of uncertainty.

When considering the total risk, the climate dimension just adds to the uncertainty derived from the wide range of socio-economic and environmental factors considered (Schneider, 1983; Henderson-Sellers, 1993). However, the large uncertainties encountered in the estimation of risk should not be used as an excuse for inaction, and different strategies to deal with this uncertain information can be used depending on the aim of the analysis.

A first objective could be to create awareness about the sensitivity of human and natural systems to climate, and the need to respond with appropriate mitigation, adaptation and disaster risk reduction policies. For this purpose, it should suffice to provide information about trends and plausible changes in current hazards (e.g., floods, droughts, and heat waves) that include estimates of the level of confidence in the forecasts as for instance provided by the most recent IPCC reports (IPCC 2007; IPCC 2012).

A second goal could be to design risk reduction and risk management strategies aimed at enhancing adaptation in order to reduce vulnerability and build resilience. In this case the most appropriate tool is a comprehensive risk management approach that starts by defining the policy or adaptation goal, for instance to reduce the risk of L&D resulting from particular extreme event to tolerable levels, and plan the management of the residual risk that cannot be minimised. Uncertain and changing information could be dealt with by decision makers by designing flexible adaptation and management pathways that can be adjusted as new information becomes available. These should include the possibility of changing to new routes when or if incremental adjustments are no longer considered sufficient according to the evidence available at the time.

Finally, a third aim for characterising changes in climatic hazards could be to inform compensation arrangements for L&D. For this to be possible the incremental fraction of loss and damage that can be attributable to anthropogenic climate change would need to be computable.

Approaches recently developed to carry out this estimation require a simulation of the counter factual world, i.e., an estimation of the likelihood of the extreme event had greenhouse gas concentrations not increased since the preindustrial period. This requires the models to be able to simulate correctly both scenarios, a debatable assumption given the significant limitations of climate models to simulate the climate at the scales relevant to characterise extreme meteorological events and the climate system tele-connections that could explain the extreme magnitude or persistence of some events (Trenberth, 2012). In addition, attribution of the underlying weather event does not imply anthropogenic climate change attribution of the total risk. Concentrating efforts into dissecting the human induced climate change part of the risk could lead to misconceptions of risk (Hulme 2011) and distract from efforts to deal with climate change in a more holistic way, that is, by adopting comprehensive risk management approaches that have recently been acknowledged (IPCC2012) as the appropriate tools to tackle this challenge.

Section II - A range of approaches to address loss and damage associated with the adverse effects of climate change, including impacts related to extreme weather events and slow onset events, taking into consideration experience at all levels

Statement 4: A framework for supporting L&D approaches based on iterative risk management

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IPCC's recent "Special report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation" (SREX) demonstrates that climate change is shaping risk from climate extremes. At the same time, it shows that, at least in the short to medium term, many non-climatic factors are fundamentally driving risk. As well, uncertainties about future projections of risk are massive and unlikely to go away soon. The report suggests that an approach grounded in a *low regrets* strategy may usefully provide for more robust adaptation strategies. Such an approach will reduce long term risk in terms of building resilience to projected future changes and at the same time provide for short term benefits in terms of reducing vulnerability and exposure today. Many of these low-regrets strategies produce co-benefits and help address other development goals. As one example, food security in West Africa is shaped by climatic extremes such as drought. This hazard has increased in terms of frequency and intensity over the last decades with medium confidence (in IPCC terminology). Yet, due to a lack of climate model runs projections future

increases are less clear, and here confidence is low. This does not mean, of course, that action can and should not be taken. It means however that adaptation action has to strongly look into current risk factors, which are rainfall variability (hazard), population growth (exposure), ecosystem degradation and poor health and education systems (vulnerability). Useful options taken from the toolbox of disaster risk management and development assistance more widely, are helping with improving water management, implementing sustainable farming practices, offering drought resistant crops and improving drought forecasting.

Example: **Drought and food security in West Africa**

Drought observations: Increase - *Medium confidence*
Drought projections: Increase- *Low confidence*
Figure: Increasing food security in West Africa

In line with the suggestion on low-regrets options, an important facet of new risk management methodologies is the emphasis on combining the qualities of both top down and bottom up as well as science- and policy-driven approaches. Higher level analyses of impacts are good at examining broader properties of human-environment system interactions. Yet, many indicators of socioeconomic vulnerability are functions of social, cultural, and institutional characteristics at smaller, national to local scales, which can be lost in the large-scale analysis of a top-down methodology. A bottom-up analysis is equipped to characterize the nuanced details of this interaction at such small resolutions, through improved understanding of the local interactions, and top-down analyses and downscaling can be introduced to improve estimates of the risks faced. Yet there is a sore lack of robust downscaled data at this level of resolution and importantly, a need for generalizations away from the dictum that impacts and risk management by necessity are entirely placed-based. Combining top-down and bottom-up methods leads into a cyclical iterative risk management process: identifying possible risks, estimating impacts, and evaluating risks based on local vulnerability and adaptive capacity. Following these steps, the next goal is to determine which adaptation options are most effective, equitable and acceptable through identification and appraisal of options. After supporting the implementation of options begins the phase of re-assessing, monitoring risks as well as learning based on the adaptation steps taken.

Figure: Framing adaptation around a notion of iterative risk management

Statement 5: Tools to address L&D: Insurance as part of the solution to manage L&D

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Insurance solutions to loss and damage have been on the political agenda since the establishment of the United Nations Framework Convention on Climate Change. Launching specific work on the issue of loss and damage, small island states in particular called for support to manage their sovereign risk through insurance. As a point in case, the Cancun Adaptation Framework, encourages countries to utilize insurance and risk transfer for their national adaptation action, but it also calls for wider international cooperation on the issue. Through the initiative of the Small Island States, specific reference to a Climate Risk Insurance Facility can be found. Following the Doha decision, which includes the decision to institutionalize responses to manage loss and damage under the UNFCCC at the climate summit end of 2013, it becomes evident that insurance approaches – and specifically those catering for sovereign risks – are an expected part of comprehensive risk management that is required to tackle the challenge of climate change loss and damage.

Emerging lessons learnt & case studies
While the concept of providing insurance, risk pooling and risk transfer for sovereign risk has been merely theoretical at the beginning of the policy discussions in 1990, through the

last years there is an emerging landscape of interesting case studies and lessons learnt. Two initiatives should be mentioned in this context. In the Caribbean, the Caribbean Catastrophic Risk Insurance Facility (CCRIF) is in operation since 2007, providing insurance cover against hurricane and earth-quake risk. Working on a parametric base, the facility circumvents some of the moral hazard issues associated with traditional indemnity insurance approaches. The CCRIF covers specifically cash liquidity constrains that exist in the aftermath of natural disasters.
In Africa, the recently launched Africa Risk Capacity (ARC) is an approach that links contingency planning with an insurance payout for drought risks. This provides an alternative against traditional ex post humanitarian aid that often comes too late to avoid loss of life and property for many people. Against these promising examples decision makers have to consider which role risk transfer should play vis-à-vis country action on adaptation and loss and damage, and more specifically if and how it can be operationalized as part of the institutional arrangement to manage loss and damage that ought to be established under the UNFCCC process

Roles of insurance: Not only about payout

Generally, insurance has different functions – not all of these are linked to the ability of providing a pay-out. Functions that could be assigned to insurance include (altered excerpt Warner et al., 2012)

1. Assessment of loss and damage: Assessment of loss and damage is a prerequisite for identifying needs and policy priorities, and it is a core function of insurance approaches. Risk assessment frequently serves to bring attention to the hazard potential, the exposure and vulnerability, and in this way can contribute to actively manage the risks. Publicly collected and open-source data and risk assessments, as well as open-source hazard modelling can contribute meaningfully risk management and investment decisions.
2. Incentivize loss reduction: Depending on design, insurance and risk transfer can incentivize risk reduction by pricing risks and rewarding risk reducing behaviour.
3. Reduce repercussion and create space of certainty for decision-making: The volatility in economies and social systems caused by weather extremes is a challenge for economic development. Insurance can help create a space of certainty within which investments and planning can be undertaken and development unlocked.
4. Provide timely finance to cover loss and damage: Insurance can provide timely compensation in the event of disasters. Index-based contracts, which require no inspections for claim settlements, can in principle provide payouts immediately following the “triggering” event, minimizing knock-on effects of disaster.

Determining the way forward

In the context of loss and damage under the UNFCCC, which at least partially is an acknowledgement that hazard level increases as part of greenhouse gas emitting activities, it is important to link insurance solutions to the emerging landscape on climate finance of an explicit norm to support climate change affected and vulnerable people. Promoting

insurance in the context of adaptation and loss and damage will mean balancing – and developing intelligent mixes of – how pricing risks for the individual can be linked to support schemes that work for vulnerable people. This is an essential challenge – but also chance – for the successful promotion of insurance as a tool for adaptation and loss and damage.

Section III - The role of the Convention in enhancing the implementation of approaches to address loss and damage associated with the adverse effects of climate change

Statement 6: Loss and Damage and the role of the UNFCCC - some legal aspects

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Loss and Damage is a new concept which has some history and context which is useful to keep in mind when working with it.

The 1992 UN Framework Convention on Climate Change (UNFCCC) historically deals with the two sides of climate change: mitigation and adaptation. While mitigation, i.e. the reduction of greenhouse gas emissions as well as emissions from land-use change and forestry have been in the focus of the climate regime for two decades, adaptation has become the almost equally important second tier of negotiations since at least COP 7 in 2001. And since the Bali Road Map, a decision taken at COP 13[1], adaptation has become more and more prominent – also given the fact that the IPCC sends out increasingly severe warning signs as to what kinds of impacts climate change holds in store across the world. The scale of climate change impacts will depend upon the timing and scale of efforts to reduce emissions over the next decades and to adapt to climate change[2], but also on other factors, which in turn depend deeply on local and national traditions and decision making, as well as availability of finance and organisational structures and abilities.

While the discussion within the UNFCCC context has been started substantively in 2013[3], there has still been some doubts whether this issue is actually covered by the FCCC's scope

[1] See the COP report FCCC/CP/2007/6/Add.1.

[2] Coumou/Schaeffer, Science Update: Loss and Damage – Climate Change Today and under Future Scenarios, November 2012, www.lossanddamage.net

3 Decision 1/CP.16, FCCC/CP/2010/7/Add.1

given lack of textual reference. Two general positions can probably be summarized, and they have been contrapositions for a long time in the climate regime:

1) Damage is the result of malfunctioning of climate regime (failure to keep within safe boundaries, breach of Art. 2 FCCC) or of breach of duty under general public international law. The result of this is[4] (or at least should be) state responsibility with a possible remedy in the form of compensation for damage incurred.

2) Damage is the result of malfunctioning of societies at large, especially of risk reduction and adaptation duties in all countries, multiple causes, no state responsibility is incurred, any damage is only a manifestation of "general risk".

The Doha Decision[5] does not necessarily take sides with any of the above. However, it clearly recognises loss and damage as an issue for and within the scope of the climate regime, and it essentially settles for a third strand in issues for the climate regime aside mitigation and adaptation, (even if officially still as part of adaptation agenda as framed in 3/CP.18). With the Doha decision on loss and damage, states accept that there is or will be some level of loss due or at least contributed to by anthropogenic climate change, some level of change "beyond" adaptation, even if this might not be the exact framing. With it, the thought process about the holistic picture of damage due to climate change is continued, including non-economic losses, gender, migration, and rehabilitation (para. 7) and by certain activities such as technical papers and expert workshops (para. 10). The Doha decision importantly also mandates the establishment of "institutional arrangements such as an international mechanism" at COP 19 (para. 9). Yet, it circumvents the issue of compensation as linked to state responsibility (opinion 1 above), even though the decision contains "a marker" in para. 7 ("understanding … approaches to rehabilitate from loss and damage").

As can be seen from the above, "loss and damage" is not the same as legal liability or state responsibility for damage and as an issue, it is not set within a certain tort-like case, but has been conceived in the much broader setting of the UN FCCC and is eventually anchored in the frame "insurance" in Art. 4.8 UNFCCC. While loss and damage are both terms that can be understood legally,[6] they are understood in the climate regime to refer to what lies beyond the limits of adaptation[7], acknowledging that such limits will not be easily determined. And while damage is a result and, therefore, lawyers think in terms of tort

[4] See on this in detail: Verheyen, Climate Change Damage in International Law, 2005.

[5] Decision 3/CP18: „Approaches to address loss and damage associated with climate change impacts in developing countries that are particularly vulnerable to the adverse effects of climate change to enhance adaptive capacity"

[6] See Verheyen, Tackling Loss & Damage - A new role for the climate regime?, December 2012, www.lossanddamage.net

[7] See for an in depth discussion of these forthcoming IPCC 5th Assessment Report, WG II, Chapter 16, "Limits of Adaptation".

concepts, within the climate regime, the major issue is one of prevention, i.e. of risk reduction, risk retention and possibly transfer.

As a practising lawyer I have often been asked if a claim seeking damages or compensation for loss/damage or injury due to climate change is possible. Yet, naturally, there is a major issue of attribution or causation. This is also the issue that is mostly "in the way" of discussing loss and damage within the climate regime, with many Parties arguing that climate may be an addition stressor, but that individual attribution can never been shown.
Causation and causality are in fact scientific (natural sciences) not legal terms. Very often, science cannot determine cause-effect relationships with 100% certainty. This is certainly the case for the climate system, which is highly non-linear. It is also true for the many cases involving toxics or drugs, where scientists find only a high likelihood that certain substances cause injury in human beings or the environment.

In this context, it is interesting to see that general causation, i.e. existence of anthropogenic climate change, has been confirmed by courts all over the world, including the German Constitutional Court and the US Supreme Court.[8] And while scientists operate on the level of probabilistic statements, the courts have found facts already. Yet it is also true that (to my understanding) no court has ruled on details of forensics or causation. The ongoing Katrina (Mississippi, USA) case could be the first to actually look at the contribution of anthropogenic climate change to a specific event (detection/attribution). And while there was an initiative to involve the International Court of Justice (ICJ) in the issue through an advisory opinion (initiative of Palau)[9] it does not seem likely that this will actually go ahead.

So what can be said in terms of the current process within the FCCC on this basis?
Firstly, the difficulty in ever attributing a single event to a certain damage is used as a "shield" even though trends and analyses show that climate change will lead to damage eventually. Evidently, there will be damage as a result of man-made climate change, yet it is unclear to what extent, where and when. This is the typical situation of a regulatory and equity gap. This regulatory gap should be closed and the institutional arrangements will have to find a way to work around "clear" attribution. It is a good sign that the climate regime is turning to this problem.

This is essential also because, at some point, normative decisions will have to be taken whether to accept some loss and damage. The climate regime can and should help developing countries prepare for these difficult decisions and support them through it. This might also lead to a more rights-based approach for people affected by impacts of climate change, i.e. help for other actors than states. It should be noted that currently, adaptation efforts are mainly based on a project or programme approach and do not foresee or allow for individual or community "claims for protection".

[8] For a more detailed analysis: Verheyen, Loss and Damage due to climate change: Attribution and Causation – Where Science and Law meet, International Journal of Global Warming 2013 (forthcoming).

[9] E&E reporter, 16 November 2012, "Island states mull risks and benefits of suing big emitters".

Also, the topic of loss and damage is clearly not a competition to adaptation or mitigation, but can act rather as a complementary strand and will inform adaptation decisions. It will also offer an opportunity to link mitigation commitments to impacts – a technique which has not been used for adaptation (finance) commitments in the past.

Section IV - Reflections on current experiences on the ground and concluding discussion

Statement 7: Reflections on L&D experience on the ground

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Evidence on the relationship between adaptation, limits to adaptation, and loss & damage

New empirical evidence from nine research sites presented in Warner et al. 2012 and Warner and van der Geest 2013 shows that adaptation and loss and damage occur as simultaneous processes, and that loss and damage is a real phenomenon with tangible consequences today. Some of the most notable current impacts were on household food production and livelihoods, raising questions about the ability of adaptation measures, both formal and informal, to stem the interacting negative impacts of climate change and vulnerable societies which impede sustainable development.

Across the nine research sites presented in (Warner et al. 2012 and Warner and van der Geest 2013), households struggle to manage climatic stressors on their household economy and their livelihoods. Despite their efforts to cope with the impacts of extreme weather events and adapt to slow-onset climatic changes, many incurred residual impacts that they could not adequately manage. Residual impacts affect key issues such as poverty deepening, erosion of household living standards and health. Residual impacts related to climate stressors happen when:

- existing coping/adaptation to the climatic, biophysical impact is not enough to avoid loss and damage;
- measures to adjust to climatic stressors have costs (economic, social, cultural, health, etc.) that are not regained;
- despite short-term merits, measures have negative effects in the longer term (erosive coping which undermines sustainable development—health, education, resilience);
- no measures are adopted – or possible – at all.

The majority of the survey respondents indicated that they adopted coping or adaptation measures to counter adverse effects of extreme weather events and slow-onset changes. Among the people who adopted such measures, most were not fully successful in avoiding residual impacts. For example, in the Bhutan study area, 87 per cent of households that adopted measures reported that they were still experiencing adverse effects of changing monsoon patterns despite these adaptation measures. Similar results were found, albeit with a variety of different coping and adaptation measures, for all the other case studies. Of the households that adopted such measures, in Micronesia 92 per cent reported they were still experiencing adverse effects of the climatic stressor and resulting impacts on household development, in Bangladesh the figure was 70 per cent, in Kenya 72 per cent and in Gambia 66 per cent.

These concepts will shape the emerging landscape of policy and practice around how society adjusts to the stresses of climate change—amongst other anthropogenic megatrends. By exploring and gaining more clarity on these relationships, a picture begins to emerge around how to frame loss and damage when societies across the world find that adjustments to climate stressors that are within the realm of known or acceptable action are no longer feasible or possible.

The evidence presented illustrates the kinds of signals that are already being registered (through empirical evidence, modeling, and other scientific tools)—growing food insecurity, difficulties with stable water supplies, deteriorating conditions of human welfare and increasing manifestation of erosive coping measures (like eating less, investing less in assets needed for development, reducing the years of school for children, etc.). The case studies provide evidence that some “soft” and “hard” limits to adaptation are being approached. The publication sheds light about what the consequences of these limits to adaptation for poor communities are today, and what the consequences could be at different scales in the future. These insights point the way towards what the options are for managing loss and damage now and in the future.

Implications of loss and damage for sustainable development

Climate change poses a moderate threat today to current sustainable development. Already research documents that many countries and communities worldwide are unable to adapt to changes in climate patterns and because of this they experience loss and damage. This includes inability to respond to climate stresses (i.e. the costs of inaction), insufficiency of responses and the costs associated with existing coping and adaptive strategies (e.g. erosive coping strategies and mal-adaptation). Such costs can be monetary or non-monetary. Loss and damage is also related to mitigation, as the potential costs of future climate change depend to a large extent on the intensity of climatic disruptions which depend on mitigation efforts globally. Climate change poses a severe threat to future sustainable development. Emerging science suggests that dangerous climate change is becoming a higher potential, and fossil fuel consumption and trends point towards a plus 4 degree world, spawning discussions of how to manage this loss and damage which may become increasingly challenging to adjust to (Warner et al 2012, Berkhout et al. 2013, Oliver-Smith et al. 2012). Loss and damage related to climate change impacts is – and will

increasingly be – the outcome of unsustainable economic activity and carbon-intensive development models.

Implications for addressing loss and damage

Multiple framings of loss and damage associated with climate change, all of which have different implications for policy (e.g. legal, development, humanitarian, economic). Loss and damage has multiple facets, and different perspectives shape how practice and policy address the many manifestations of loss and damage. There are multiple technical and scientific ways of looking at loss and damage, including: technical and implementation perspectives (hard structures like dykes, sea walls, stronger buildings; soft measures like early warning, financial risk transfer, development of drought resistant cultivars), legal perspectives (establishing norms, adjudicating in disputes), humanitarian perspectives (short-term measures with life-saving and crisis management focus like emergency food assistance), development perspectives (focus on building human welfare like longer-term investments in health, education, access to basic goods and services), financial and economic perspectives (concerned with damage to assets and monetary values, focus on trade, economic performance and growth), disaster risk management, non-economic perspectives (concerned with social values like trust, culture, identity, knowledge), and ecological perspectives (concerned with biological thresholds and the interconnectivity of human and natural systems at different stages of climate change, e.g. what a 4 degree world could mean to these systems). Each perspective has something valid to contribute – and can be considered in the architecture and functions and modalities of emerging arrangements to address loss and damage. As more is learned about loss and damage related to climate change, a broad perspective encompassing many different perspectives can enable policy to find multiple solutions that fit specific situations.

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