



Thematic focus: Climate change

Loss and Damage: When adaptation is not enough

The negative consequences of climate change are an increasingly prominent discussion point in global climate change negotiations. This topic has recently risen to global attention with the establishment of the "Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts". Mounting scientific evidence suggests that despite global mitigation and adaptation efforts, residual losses and damages from climate change are inevitable. More information is needed on future climate change impacts and on where the limits of adaptation lie. This will allow the creation of policies that help avoid negative impacts, where possible, and address residual loss and damage when it occurs.



Why is this issue important?

At the global level

Loss and damage is an issue of growing importance for the international community, as no country will escape the impacts of climate change (IPCC, 2014). Though there is as yet no universally agreed upon definition of loss and damage, a working definition has been proposed as, "the negative effects of climate variability and climate change that people have not been able to cope with or adapt to" (Warner et al., 2012). Loss and damage results from a spectrum of climate change impacts, from extreme events to slow onset processes (UNFCCC, 2012; Warner et al., 2012). While extreme events are difficult to attribute to climate change, the risks of some climate-related events, such as heat waves, extreme precipitation and coastal flooding are already moderate and are expected to increase as temperatures rise (IPCC, 2014). Loss and damage emanating from climate change impacts can be economic in nature, such as loss of income or damage to property and assets, and non-economic, which include the cultural, social and mental impacts of climate change, as well as the loss of biodiversity and ecosystem services, amongst others (Morrissey and Oliver-Smith, 2013).

Loss and damage is not a new concept, but rather one that has re-emerged. In fact, the reality that climate change could eventually result in loss and damage was acknowledged before the United Nations Framework Convention on Climate Change (UNFCCC) was even established. In 1991, during negotiations that resulted in the establishment of the UNFCCC, Vanuatu tabled a proposal on behalf of the Alliance of Small Island States for an insurance pool that would help small island states address the impacts of sea level rise (INC, 1991). The proposed insurance mechanism was not incorporated into the UNFCCC; instead negotiations focused on mitigation for the first decade in the life of the global climate change regime (Warner and Zakieldeen, 2011). However, with the release of the IPCC's Fourth Assessment Report in 2007, it became clear that mitigation efforts were insufficient to avoid all of the impacts of climate change (Warner and Zakieldeen, 2011). This led to the rise of adaptation in the climate change negotiations. However there was also recognition that the impacts of climate change could extend beyond the limits of adaptation. In 2007 at the thirteenth Conference of the Parties (COP), the concept of loss and damage was introduced in the Bali Action

Plan (UNFCCC, 2008). Two years later, at COP 16 in Cancun, a work programme was established to consider approaches to address loss and damage from the impacts of climate change (UNFCCC, 2011).

At COP 18 in Doha in 2012, Parties decided to establish institutional arrangements to improve understanding, strengthen coordination and enhance action and support, to be able to address loss and damage at COP 19 (UNFCCC, 2013). In addition, Parties identified national actions and further work—including research—that could help developing countries address loss and damage (UNFCCC, 2013). In 2013, institutional arrangements to address loss and damage were created with the establishment of the Warsaw International Mechanism for Loss and Damage (WIM) at COP 19 (UNFCCC, 2014). The mandate of the WIM is to enhance knowledge and understanding of approaches to address loss and damage; strengthen dialogue, coordination and coherence among relevant stakeholders and enhance action and support to address loss and damage (UNFCCC, 2014).

Loss and damage has significant implications for global climate change policies. Greater delays in enhancing mitigation and adaptation efforts will not only lead to more severe and irreversible impacts of climate change ('losses'), but also to fewer opportunities for reducing impacts that are in theory reversible ('damages') (Kreft et al., 2012). According to Verheyen (2012) there are three types of loss and damage: avoided, unavoided and unavoidable. Avoided loss and damage is used to characterize the impacts of climate change that are avoided by mitigation and adaptation. Unavoided loss and damage could have been avoided, but has not been avoided because of inadequate mitigation and adaptation efforts. Lastly, there is some loss and damage that is unavoidable no matter how ambitious mitigation and adaptation efforts are. Those impacts that are either unavoided or unavoidable—or residual loss and damage—will need to be addressed by a range of other approaches, such as risk transfer tools and insurance and risk retention measures including social safety nets and contingency funds. Ultimately, the more successful mitigation and adaptation efforts are, the less loss and damage will be incurred.

At the national level

Research suggests that the limits of adaptation are already being exceeded in many societies (Warner et al., 2012), which could result in "escalating losses or require transformational change" (Dow et al., 2013:305). This complicates the policy landscape for policymakers in developing countries, who are already grappling with both development challenges and more recently the development and implementation of adaptation strategies.

What are the findings?

Although policies are developed at the national level, losses and damages are ultimately incurred at the local level. Recent case studies in Bangladesh, Bhutan, Burkina Faso, Ethiopia, The Gambia, Kenya, Micronesia, Mozambique and Nepal show how loss and damage is being experienced by households in vulnerable communities (Warner and van der Geest, 2013). The study found that people in vulnerable countries incur loss and damage when no adaptation measures are adopted, when existing measures are not sufficient to avoid loss and damage, when measures have costs that are not recovered, and when coping measures have negative or erosive effects in the long term (Warner and van der Geest, 2013). Loss and damage can undermine food and livelihood security, social cohesion, culture and identity (Warner et al., 2012; 2013).

Country	District/Region	Extreme events	Long-term changes
Bangladesh	Sathkira	Cyclones	Sea level rise, salinity intrusion
Bhutan	Punakha	Glacial lake outburst floods	Changing monsoon
Burkina Faso	Sahel	Drought	Changing rainfall patterns
Ethiopia	Gambella	Floods	Changing rainfall patterns
Kenya	Budalangi	Floods	Changing rainfall patterns
Micronesia	Kosrae	Storm surges	Sea level rise, coastal erosion
Mozambique	South/Central	Floods/droughts	Changing rainfall patterns
Nepal	Udayapur	Floods	Changing rainfall patterns
The Gambia	North Bank	Drought	Changing rainfall patterns

Table 1: Overview of climatic stressors in the nine case study areas (Warner and van der Geest, 2013).





What are the implications for policy?

At the global level

Loss and damage is intrinsically linked to mitigation and adaptation efforts, in that the more ambitious mitigation efforts are, the fewer climate change impacts will be and the less adaptation will be needed. Thus, increased mitigation ambition is integral to avoid escalating loss and damage in the future. However, given historical emissions, a certain level of climate change impact is inevitable (IPCC, 2013), requiring the scaling up and replicating of best practices in adaptation and the development and implementation of approaches to address loss and damage that are not or cannot be avoided by adaptation efforts.

At the national level

Policymakers will need to explore, develop and implement comprehensive risk management frameworks that include risk reduction, risk transfer such as insurance, risk retention such as contingency funds and social safety nets. In addition, they need to design specific policies to target slow onset processes. This could, for example, involve the creation of policies to facilitate migration and resettlement (Nishat et al., 2013a). Research on how loss and damage is being addressed in Bangladesh has revealed several policy gaps that need to be overcome in order to enhance these efforts. Institutions to foster better collaboration and communication between ministries and stakeholders involved in the response to climate change will need to be improved, or in some cases, developed and implemented (Shamsuddoha et al., 2013a). In particular there is a need to capitalize on synergies between adaptation and risk reduction agendas. Adaptation policies have traditionally been implemented at the national level, with a tendency to focus more on slow onset processes, while risk reduction policies have tended to be implemented at the local level to reduce the risk to extreme events (Shamsuddoha et al., 2013a). As such, there is a lot the two communities could learn from one another (Shamsuddoha et al., 2013a).

The need for transformational approaches to address loss and damage has been an important theme that has emerged out of loss and damage research (Roberts et al., 2013). Evidence reviewed by the IPCC (2014) and emerging studies on climate-related loss and damage (Warner et al., 2013) show that business as usual approaches to addressing climate change are insufficient. Transformation may require "deep shifts in the way people and organizations behave and organize values and perceive their place in the world" (Pelling, 2011). One possible means of facilitating transformational change would be to scrutinize the drivers that render people vulnerable and change the way in which a state interacts with its citizens, another might be to facilitate migration.

Policymakers in developing countries also lack tools to help them develop and implement methodologies to assess loss and damage. The aim of such assessments would be to understand which groups in society are vulnerable to loss and damage; where they live; what exactly drives their vulnerability; and what can be done to make these vulnerable groups more resilient to climate-related stressors (Asaduzzaman et al., 2013). The onset of loss and damage adds an element of complexity for policymakers in developing countries, who are already struggling with the implementation of development and adaptation policies. A better understanding of people and areas at risk of future loss and damage will help policymakers implement adaptation policies where they can be avoided and a more comprehensive set of risk management tools where they cannot.

Box 1: Case Studies on loss and damage at the local level

The district of Satkhira in coastal Bangladesh is vulnerable to both sea-level rise and cyclones. Both can increase salinization, which has significant implications for rice cultivation, the mainstay of the local economy and staple of the local diet (Rabbani et al., 2013). Residents of four villages in Satkhira reported rising salinity levels on the land they farm in the last two decades (Rabbani et al., 2013). In order to adapt to salinization, many of the farmers planted new saline tolerant-rice varieties, which was successful until the onset of cyclone Aila in 2009. The cyclone caused a further and drastic increase in soil salinity and resulted in a total loss of the rice harvest for that year and very low yields in the following two years (Rabbani et al., 2013). It was estimated that from 2009 to 2011 the total loss of rice yield was USD 1.9 million (Rabbani et al., 2013).



The North Bank Region of The Gambia has a history of recurrent droughts, which have been increasing in frequency (Yaffa, 2013). In the past three decades the level of rainfall has decreased by 35 percent, compared with previous decades (Yaffa, 2013). The region experienced a severe drought in 2011 causing many villagers to lose their entire harvests (Yaffa, 2013). Almost all villagers adopted coping measures such as looking for additional income or selling assets in order to buy food. Despite this, many were forced to skip meals or reduce portion sizes (Yaffa, 2013). The study found that the coping measures adopted were often "erosive" in that they reduced the sustainability of livelihoods in the medium and long-term.



The island of Kosrae in the Federated States of Micronesia is highly vulnerable to sea level rise, which is expected to exacerbate coastal erosion, storm surges, and other coastal hazards (Monnereau and Abraham, 2013). In Micronesia, the sea level is rising at a rate of 10 mm per year, compared to the global average of 3.2 mm (Monnereau and Abraham, 2013). Coastal erosion has affected household livelihoods, damaged homes and has necessitated the adoption of a range of adaptation measures, including the building of sea walls and planting of trees along the shoreline. However, these measures have not been sufficient to prevent loss and damage. For example, cultural values and heritage are being lost as ancient ruins are dismantled to be used in the building of sea walls (Monnereau and Abraham, 2013).



At the local level

Considering loss and damage is an issue affecting local communities, it is important that the measures used to address future impacts of climate change are targeted to those in need. In order to ensure that policies meet the needs of the most vulnerable people, and to maximize success in doing so, institutions should be in place to



ensure that local households and communities can participate in the design and implementation of policies and programs (Nishat et al., 2013b). Policies and programs should be better tailored to the needs of end users. For example, early warning systems should ensure that risks are communicated in a way that is understood and leads to appropriate action (Shamsuddoha et al., 2013a). Finally, local governments need to be empowered and endowed with sufficient resources to facilitate local responses to climate change (Shamsuddoha et al., 2013a).

Farmers in disaster prone areas face incremental risks as the global temperature rises and the frequency and severity of disasters increase. Microinsurance can assist them in dealing with and recovering from adverse events and prevent them from falling into deeper poverty. Research suggests that the expansion of the microinsurance market can be facilitated by pairing large insurance providers with smaller micro-finance institutions (Khan et al., 2013). Social safety nets are also important, particularly in areas that experience frequent events (Khandker et al., 2011). However, social protection measures could be more successful if there was less 'leakage' (Ahmed, 2013) and if programs and policies benefited the most vulnerable to a greater extent (Nishat et al., 2013a). In addition, social safety nets should be accompanied by robust efforts to strengthen existing livelihoods, diversify incomes, and incorporate differential vulnerability assessments (Khandker et al., 2011). Some communities will experience both extreme events and slow onset processes and therefore it is important that strategies respond to loss and damage in the short-term do not exacerbate efforts to address loss and damage in the long-term (Shamsuddoha et al., 2013b).

The establishment of the WIM should not detract from the importance of adaptation. Rather, activities under WIM should emphasize the need to step up adaptation efforts and funding to address avoidable loss and damage. Emphasis should also be on the need to improve the effectiveness of current adaptation policy and action, and the transformation to climate-resilient societies. With limited resources with which to respond to climate change, however, there is a risk of competition between activities that aim to avoid loss and damage (mitigation and adaptation) and activities that aim to deal with unavoided and unavoidable loss and damage.

Way forward

Mitigation is the first line of defence against loss and damage and efforts on this front must be enhanced to avoid escalating loss and damage. Adaptation also plays an integral role in avoiding loss and damage. Preston et al. (2013) introduce the concept of the adaptation frontier, which represents a safe operating space for adaptation beyond which societies face limits of adaptation. The boundaries of the adaptation frontier are influenced by a number of factors including path dependence and adaptation and development deficits (Preston et al., 2013). Investing in climate-resilient development and adaptation today can reduce the amount of loss and damage incurred by future generations. Avoiding loss and damage requires action at multiple levels and on several fronts: mitigation, adaptation, comprehensive risk management and sustainable development. There are existing institutional arrangements and well-established academic traditions and communities of practice that focus on these issues separately, and need better coordination. By contrast, dealing with unavoided and unavoidable loss and damage is to a large extent 'terra incognita'. With mounting evidence that current efforts to avoid residual impacts from climate change will not be enough, there is an urgent need to prepare societies for loss and damage that are not avoided. The core task of the WIM should be to make this happen.

Acknowledgement

Writers: Erin Roberts^{a,b}, Kees van der Geest^c, Koko Warner^c and Stephanie Andrei^b

Production and Outreach Team: Anna Stabrawa^d, Arshia Chander^e, Erick Litwa^d, Charles Sebukeera^d, Kim Giese^e, Lindsey Hariman^e, Michelle Anthony^e, Reza Hussain^e, Tejaswi Giri^e, Theuri Mwangi^d and Zinta Zommers^d

Special thanks to Jacqueline McClade^e, Robert Munro^f, Anna Stabrawa^e, Jinhua Zhang^e, Peter Gilruth^e and Saleemul Huq^g for their valuable comments, input and review

(^a Department of Geography, King's College, London; ^b International Centre for Climate Change and Development, Independent University, Dhaka, Bangladesh; ^c United Nations University Institute for Environment and Human Security; ^d UNEP; ^e UNEP/GRID-Sioux Falls; ^f UNEP-WCMC; ^g International Institute for Environment and Development)

References

- Ahmed, I., 2013. Social Safety Nets in Bangladesh. ISAS Insights No. 197. Institute of South Asian Studies (ISAS), National University of Singapore. www.isas.nus.edu.sg (accessed 29.04.14).
- Asaduzzaman, M., Haque, E., Islam, N., Munir, Q., Roddick, S., Roberts, E., Hasemann, A., 2013. Assessing the Risk of Loss and Damage Associated with the Adverse Effects of Climate Change in Bangladesh. Sustainable Development Networking Foundation. International Centre for Climate Change and Development (ICCCAD), Dhaka. <http://www.lossanddamage.net> (accessed 29.04.14).
- Dow, K., Berkhout, F., Preston, B., Klein, R.J.T., Midley, G., Shaw, R., 2013. Commentary: Limits to adaptation. *Nature Climate Change* 3, 305–307.
- INC, 1991. Vanuatu: Draft annex relating to Article 23 (Insurance) for inclusion in the revised single text on elements relating to mechanisms (A/AC.237/WG.II/Misc.13) submitted by the Co-Chairmen of Working Group II. Intergovernmental Negotiating Committee for a Framework Convention on Climate Change, Working Group II, Fourth Session, Geneva, 9-20 December 1991. 9pp. <http://unfccc.int/resource/docs/a/wg2crp08.pdf> (accessed

29.04.14)

IPCC, 2014. Climate Change 2014: Impacts, Adaptation and Vulnerability. IPCC Working Group II Contribution to AR5. Summary for Policy makers. Intergovernmental Panel for Climate Change. <http://www.ipcc.ch/> (accessed 12.04.14).

IPCC, 2013. Climate Change 2013: The Physical Science Basis. Summary for Policy makers. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. <https://www.ipcc.ch/report/ar5/wg1/> (accessed 12.04.14).

Khan, R., Roddick, S., Roberts, E., 2013. Loss and Damage: Assessing Microinsurance as a Tool to Address Loss and Damage in the National Context of Bangladesh. International Centre for Climate Change and Development (ICCCAD), Dhaka, Bangladesh. <http://www.lossanddamage.net> (accessed 12.04.14).

Khandker, S., Khaleque, M. A., and Samad A., 2011. Can social safety nets alleviate seasonal deprivation? Evidence from northwest Bangladesh. Policy Research Working Paper Series 5865. The World Bank Group, Washington, D.C..

Krefit, S., Warner, K., Harmeling, S., 2012. Framing the Loss and Damage Debate: A Conversation Starter by the Loss and Damage in Vulnerable Countries Initiative. Germanwatch, Bonn.

Monnereau, I., Abraham, S., 2013. Limits to autonomous adaptation in response to coastal erosion in Kosrae, Micronesia. International Journal of Global Warming 5(4), 416-432.

Morrissey, J., Oliver-Smith, A., 2013. Perspective on Non-economic Loss and Damage: Understanding values at risk from climate change. International Centre for Climate Change and Development (ICCCAD), Dhaka, Bangladesh. <http://www.lossanddamage.net> (accessed 29.04.14)

Nishat, A., Mukherjee, N., Hasemann, A., Roberts, E., 2013a. A Range of Approaches to Address Loss and Damage Impacts from Climate Change in Bangladesh. International Centre for Climate Change and Development (ICCCAD), Dhaka.

Nishat, A., Mukherjee, N., Roberts, E., Hasemann, A., 2013b. Loss and Damage from a Local Perspective in the Context of a Slow Onset Process: The Case of Sea Level Rise in Bangladesh. International Centre for Climate Change and Development (ICCCAD), Dhaka.

Pelling, M., 2011. Adaptation to climate change: From resilience to transformation. Routledge, London and New York.

Preston, L., Dow, K., Berkhout, F., 2013. The climate adaptation frontier. Sustainability 5, 1011–1035.

Rabbani, G., Rahman, A., Mainuddin, K., 2013. Salinity induced loss and damage to farming households in coastal Bangladesh. International Journal of Global Warming 5(4), 400-415.

Roberts, E., Huq, S., Hasemann, A., Roddick, S., 2013. Early Lessons from the Process to Enhance Understanding of Loss and Damage in Bangladesh. International Centre for Climate Change and Development (ICCCAD), Dhaka, Bangladesh. <http://www.lossanddamage.net> (accessed 12.04.14).

Shamsuddoha, M., Roberts, E., Hasemann, A., Roddick, S., 2013a. Establishing Links Between Disaster Risk Reduction and Climate Change Adaptation in the Context of Loss and Damage: Policies and Approaches in Bangladesh. International Centre for Climate Change and Development (ICCCAD), Dhaka, Bangladesh. <http://www.lossanddamage.net/> (accessed 12.04.14).

Shamsuddoha, M., Islam, M., Haque, A., Rahman, F., Roberts, E., Hasemann, A., Roddick, S., 2013b. Local Perspective on Loss and Damage in the Context of Extreme Events: Insights from Cyclone-affected Communities in Coastal Bangladesh. International Centre for Climate Change and Development (ICCCAD), Dhaka, Bangladesh. <http://www.lossanddamage.net> (accessed 12.04.14).

UNFCCC, 2008. Report of Conference of the Parties, on its thirteenth session, held in Bali from 3 to 15 December 2007. Addendum. United Nations Framework Convention on Climate Change (UNFCCC). FCCC/CP/2007/6/Add.1.

UNFCCC, 2011. Report of Conference of the Parties, on its sixteenth session, held in Cancun from 29 November to 10 December 2010, Addendum. United Nations Framework Convention on Climate Change (UNFCCC). FCCC/CP/2010/7/Add.1

UNFCCC, 2012. A Literature Review on the Topics in the Context of Thematic Area 2 of the Work Programme on Loss and Damage: A Range of Approaches to Address Loss and Damage Associated with the Adverse Effects of Climate Change. United Nations Framework Convention on Climate Change (UNFCCC). FCCC/SBI/2012/INF.14.

UNFCCC, 2013. Report of the Conference of the Parties, on its eighteenth session, held in Doha from 27 November to 7 December 2012, Addendum. United Nations Framework Convention on Climate Change (UNFCCC). FCCC/CP/2012/7/Add.1.

UNFCCC, 2014. Report of the Conference of the Parties, on its nineteenth session, held in Warsaw from 11 to 23 November 2013, Addendum, Part Two: Action Taken by the Conference of the Parties at its nineteenth session. United Nations Framework Convention on Climate Change (UNFCCC). FCCC/CP/2013/10/Add.1.

Verheyen, R., 2012. Tackling loss and damage: A new role for the climate regime? Germanwatch, Bonn. <http://www.lossanddamage.net> (accessed 12.04.14).

Warner, K., Zakieldeen, A., 2011. Loss and damage due to climate change: An overview of the UNFCCC negotiations. European Capacity Building Initiative (ECBI). www.eurocapacity.org (accessed 13.04.14).

Warner, K., van der Geest, K., Krefit, S., Huq, S., Harmeling, S., Kusters, K., De Sherbinin, A., 2012. Evidence from the frontlines of climate change: Loss and damage to communities despite coping and adaptation Loss and Damage in Vulnerable Countries Initiative. Policy Report. Report No. 9. United Nations University Institute for Environment and Human Security (UNU-EHS), Bonn. <http://www.ehs.unu.edu/> (accessed 12.04.14).

Warner, K., and van der Geest, K., 2013. Loss and damage from climate change: Local-level evidence from nine vulnerable countries. International Journal of Global Warming 5(4), 1-20.

Warner, K., van der Geest, K., Krefit, S., 2013. Pushed to the limits: Evidence of climate change-related loss and damage when people face constraints and limits to adaptation Report No. 11. United Nations University Institute of Environment and Human Security (UNU-EHS), Bonn. (accessed 12.04.14).

If you no longer wish to receive this bulletin you can [unsubscribe](#) anytime. Information is regularly scanned, screened, filtered, carefully edited, and published for educational purposes. UNEP does not accept any liability or responsibility for the accuracy, completeness, or any other quality of information and data published or linked to the site. Please read our [privacy policy](#) and [disclaimer](#) for further information.