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and Human Security

FACT SHEET

PUSHED TO THE LIMIT:

EVIDENCE OF CLIMATE CHANGE-RELATED
LOSS AND DAMAGE WHEN PEOPLE FACE
CONSTRAINTS AND LIMITS TO ADAPTATION



Pushed to the limit: Evidence of climate change-related loss and damage when people face constraints and limits to adaptation

What is loss and damage?

'Loss and damage' is a concept that has gained renewed interest in climate policy since the establishment of a work programme on the topic at the 16th UNFCCC Conference of the Parties in Cancun, Mexico in December 2010. The topic has gained further interest from 2012 onwards, as a mandate was given to establish institutional arrangements to address loss and damage at COP19 in Warsaw (2013). Definitions of the term vary. For this study of local level loss and damage, the research team used the following working definition of loss and damage, which includes the inability to respond adequately to climate stressors and the costs and adverse effects associated with the adaptation and coping measures themselves:

Loss and damage refers to negative effects of climate variability and climate change that people have not been able to cope with or adapt to.

Why is understanding loss and damage important now?

The IPCC's Working Group 1 Summary for Policy Makers (IPCC 5AR WG1 SPM) indicates that climate change impacts are accelerating, and most aspects of climate change will "persist for many centuries even if emissions of CO₂ are stopped. This represents a substantial multi-century climate change commitment created by past, present, and future emissions of CO₂." From the findings of the IPCC Special Report on Extreme Events (SREX) and the emerging results of the IPCC Fifth Assessment Report, it becomes evident that managing the risks associated with climate change-related loss and damage is crucial because of the irreversible threats these losses pose to sustainable development.

Current loss and damage patterns – illustrated by the evidence featured in this research from Least Developed Countries (LDCs), Small Island Developing States, and African countries – strike at the very purpose of climate policy: to avoid dangerous climate change and ensure the possibility of timely adaptation so as not to impede food production and sustainable development. Loss and damage patterns revealed in this study illustrate that people in vulnerable countries already appear to be approaching the biophysical and social boundaries of adaptation, beyond which climate change compromises sustainable development.

What is new about the findings on loss and damage at community level?

For the first time, the research presented in Volumes 1 and 2 of the UNU study offers empirical *evidence of loss and damage from the perspective of affected people in nine vulnerable countries*. The research reveals how climatic stressors affect communities, what measures households take to prevent loss and damage and what the consequences are when they are unable to adjust sufficiently.

The first set of case studies (Volume 1) reported on findings about loss and damage in Bangladesh, Bhutan, the Gambia, Kenya and Micronesia and was presented at COP18 in Doha (Warner et al., 2012b). This second set of case studies (Volume 2) presents four additional case studies (Burkina Faso, Ethiopia, Mozambique and Nepal), further insights on loss and damage and a focus on adaptation limits and non-economic losses (e.g. cultural losses). Together, the nine cases examine a broad range of extreme weather events as well as slow-onset climatic changes.

Country	District/Region	Climate-related stressor	Societal impact focus*	Sample size
Bangladesh (vol.1)	Sathkira	Salinity intrusion	Rice + drinking water	360
Bhutan (vol.1)	Punakha	Changing monsoon	Rice production	273
Burkina Faso (vol.2)	Sahel	Drought	Livestock + crops	465
Ethiopia (vol.2)	Gambella	Flooding	Habitability + livelihood	431
The Gambia (vol.1)	North Bank	Drought	Millet production	373
Kenya (vol.1)	Budalangi	Flooding	Crops, livestock + fish	400
Micronesia (vol.1)	Kosrae	Coastal erosion	Housing, livelihood	363
Mozambique (vol.2)	South & Central	Drought and flood	Staple crops	304
Nepal (vol.2)	Udayapur	Flooding	Agricultural livelihood	300

* Each case study focused on one or more particular impact sectors, but also registered impacts in other sectors. Source: Authors

Table 1: Overview of the case studies : Research area, climate threat, societal impact and sample size. Source: Authors.

¹ These case studies can be found in volume 1 and volume 2 of the following reference, as well as a special journal issue of the International Journal of Global Warming (2013): Warner, Koko, van der Geest, Kees, Kreft, Sönke, Huq, Saleemul, Harmeling, Sven, Kusters, Koen and Alex de Sherbinin (2012). Evidence from the frontlines of climate change: Loss and damage to communities despite coping and adaptation. Loss and Damage in Vulnerable Countries Initiative. Report No. 9. Bonn: United Nations University Institute for Environment and Human Security (UNU-EHS); Warner, Koko, van der Geest, Kees and Sönke Kreft (2012). Pushed to the limit: Evidence of climate change-related loss and damage when people face constraints and limits to adaptation. Loss and Damage in Vulnerable Countries Initiative. Report No. 11. Bonn: United Nations University Institute for Environment and Human Security (UNU-EHS); International Journal of Global Warming. 2013 Vol. 5 No. 4. Special Issue on Loss and Damage from Climate Change. Guest Editors: Dr. Kees van der Geest and Dr. Koko Warner.

What countries were surveyed and why?

Nine case studies were conducted in least developed and other developing countries. These countries were chosen after a call for proposals from research institutes in developing countries. The sites were selected to cover a wide range of ecosystems, geographic regions (drylands, mountains, a small island, a delta) and climatic stressors (droughts, floods, cyclones, sea-level rise, glacial melt, desertification, changing rainfall patterns) as well as dependence of livelihoods on climate conditions (e.g. rainfed agriculture, fishing, herding). Other important considerations included exploring cross-cutting issues related to climate stressors, such as food production, human and livelihood security, social justice and cohesion, and human mobility.

What was the key research question?

Each case study attempted to answer the same research question, while focusing on different climatic stressors and societal impacts (see Table 1). The central research question is:

How does the impact of [climate stressor] on [societal impact] lead to loss and damage among households in [location]?

Stressors include extreme weather events and slow-onset climatic changes. Societal impacts involve negative effects on livelihoods and physical assets and other aspects of human well-being, such as housing and health.

What was the methodology?

Research was undertaken using a combination of scientific methods, combining qualitative and quantitative research tools. In addition, meteorological data and other relevant data sources were compared to local perceptions of climatic threats. The research gathered a large volume of data (n=3,269 household surveys, and an additional 100 focus group discussions and expert interviews) on climatic stressors, societal impacts, current adaptation and coping measures and residual loss and damage affecting households. The research approach developed for the Loss and Damage in Vulnerable Countries Initiative is a *model for community-based assessments of loss and damage*.

What are the limitations of the research?

- Attribution of local climatic changes and extreme events to global warming is beyond the scope of this research;
- No attempt was made to estimate total monetary loss and damage at local, national or global scales;
- The local case studies are not necessarily representative of entire countries;
- Findings do not support or negate any particular position on loss and damage in the UNFCCC climate negotiations, but rather offer evidence that will support policymakers in their discussions about underlying needs that might inform a host of solutions;
- The study and its methods should be treated as points of departure for further research on loss and damage in vulnerable communities.

What are the most important findings of the study?

New evidence shows that loss and damage occurs when there are barriers that impede planning and implementation of adaptation, and when physical and social limits to adaptation are reached or exceeded. Across the nine research sites, 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 to adapt to slow-onset climatic changes, many incurred residual impacts that they could not adequately manage. Some of the most notable impacts were

on household food production and livelihoods, raising questions about the ability of adaptation measures to stem the negative impacts of climate change on vulnerable societies, which impede sustainable development.

Residual impacts include deepening poverty and the 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 that undermines sustainable development – health, education, resilience);
- *no measures* are adopted – or possible – at all.

The studies provide evidence that loss and damage happens simultaneously with efforts by people to adjust to climatic stressors. The evidence illustrates loss and damage around these barriers and limits to adaptation – growing food and livelihood insecurity, unreliable water supplies, deteriorating human welfare and increasing manifestation of erosive coping measures (such as eating less, investing less in assets needed for development, reducing the years of schooling for children, etc.). These negative impacts touch upon people's welfare and health, social cohesion, culture and identity – values that contribute to the functioning of society but which elude monetary valuation.

This evidence suggests that loss and damage happens concurrently with adaptation. If adaptation is insufficient to manage climatic stressors, loss and damage can undermine human well-being and adaptive capacity, rendering society unable to achieve development objectives.

Policy reflections: loss and damage discussions can drive transitions and transformation

The evidence presented in this study helps underpin policy and operational discussions. At the climate negotiations in Warsaw, Poland (Conference of the Parties (COP) 19th session – COP19) in December 2013, there is a mandate to establish institutional arrangements to address loss and damage associated with the impacts of climate change² (UNFCCC, 2012), including functions and modalities (ibid, paras 7 and 10). It is envisaged that the work on loss and damage under the UN Framework on Climate Change Convention (UNFCCC) will contribute to the formulation of the anticipated *international climate agreement at COP21* (Paris, December 2015).

- As part of loss and damage discussions, the UNFCCC process itself will have to install a reflection point that will help to transform the objectives and functions of climate policy;
- International and regional policy must facilitate a broader transformation discourse among actors shaping the risk response and management as well as among other development actors;
- Finally, the magnitude and volatility of climate-related risks is likely to overwhelm national, and in some cases regional, capacities.

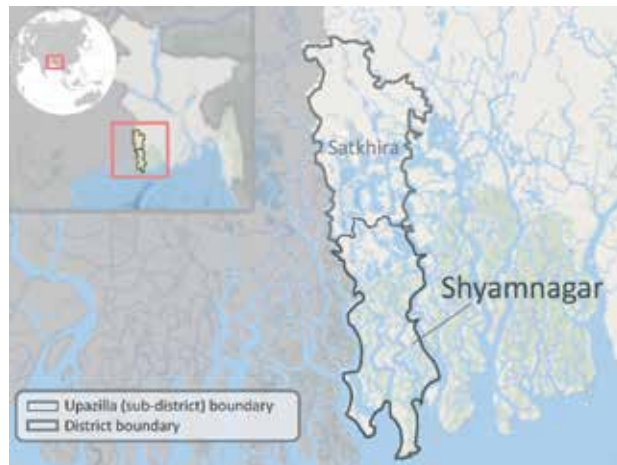
Managing the risks associated with climate change-related loss and damage is crucial because of the irreversible threats these losses pose to sustainable development. Failure to address loss and damage in ways that provide smooth transitions could leave society unprepared to manage and adjust to these negative climate change impacts. Addressing loss and damage is about capturing opportunities to ameliorate negative climate impacts on our most important goal: improving human well-being.

² Paragraph 9 of the Doha Climate Gateway decision reads: "Decides to establish, at its nineteenth session, institutional arrangements, such as an international mechanism, including functions and modalities, elaborated in accordance with the role of the Convention as defined in paragraph 5 above, to address loss and damage associated with the impacts of climate change in developing countries that are particularly vulnerable to the adverse effects of climate change."

Bangladesh: Severe cyclone undermines adaptation measures

Dr. Golam Rabbani, Research Fellow, Bangladesh Centre for Advanced Studies (BCAS)

Satkhira, a coastal district in Bangladesh, faces the threat of sea level rise and cyclones. Both result in saltwater intrusion, which severely impacts rice cultivation, the mainstay of the local economy and the principal source of food. Eighty-one per cent of respondents reported high salinity levels in their soils, compared to just 2 per cent 20 years ago. To adapt, farmers have planted new saline tolerant-rice varieties. This worked until 2009, when cyclone Aila hit and caused a sudden and drastic increase of salt content in the soil. Almost all farmers lost their complete harvest that year. Two years later, rice yields were still extremely poor. From 2009–2011 the total loss of rice harvest was US\$1.9 million for just the four villages surveyed. These findings exemplify a case where seemingly successful measures to adapt to slow-onset processes are not strong enough to avoid loss and damage when the situation is aggravated by an extreme weather event.



Household questionnaire results on loss and damage

Households interviewed	360	Adaptation measure to deal with stressor*	Salt tolerant varieties: 39% Migration: 29% 'Wash' rice field to reduce salinity: 27% Seek non-farm income: 60%
Experienced medium or high soil salinity	Yes: 99% No: 1%	Adverse effects despite adapting?	70%
Impact on household economy	Yes: 99% No: 1%	No measures adopted, why not?*	Lack knowledge/skills: 68% Lack means/resources: 30%
Impact per sector*	Rice production: 98% Drinking water: 90%		
Adopted adaptation measure?	Yes: 81% No: 19%		

* multiple responses possible

Socio-economic profile

Population, Satkhira District	265,004	Trend in crop production	
Household economic activities (%)		Decrease	75.9
Crop cultivation	98.3	Increase	22.5
Livestock keeping	94.2	Education household head (%)	
Non-farm activity	64.7	None	39.1
Main purpose of crop production (%)		Literacy	N/A
Household consumption	85.1	Primary	23.9
Sale	14.9	Secondary/Tertiary	36.7
Average annual HH income (USD)	846		

Bhutan:

The costs of adapting to changing water availability

Dr. Norbu Wangdi, Department of Water Resources, Ugyen Wangchuck Institute for Conservation and Environment

Changing monsoon patterns are affecting the livelihoods of small-scale farmers in Bhutan who depend on these rains to irrigate their rice fields. Ninety per cent of respondents indicated that the amount of rainfall has been decreasing over the last two decades. Respondents try to adapt to the changes in water availability in a variety of ways, including shifting crops, developing water-sharing mechanisms, and intensifying the maintenance of irrigation channels. However, these measures are mostly considered insufficient and come with additional monetary and non-monetary costs. For instance, water-sharing arrangements have led to increased tensions between households and villages, and shifting to non-irrigated crops can result in an income per acre up to eight times lower than rice.



Household questionnaire results on loss and damage

Households interviewed	273	Coping measure to deal with stressor*	Perform rituals: 71% Adjust water sharing: 48% Better maintenance of irrigation channels: 37% Changes in crop mix: 30%
Experienced changes in monsoon patterns	Yes: 91% No: 9%	Adverse effects despite coping?	87%
Impact on household economy	Yes: 89% No: 11%	No measures adopted, why not?*	Lack knowledge/skills: 68% Lack means/resources: 16% Not my task: 4% No priority: 12%
Impact per sector*	Crops: 97% Livestock: 12% Tree crops: 23%		
Adopted coping measure?	Yes: 88% No: 12%		* multiple responses possible

Socio-economic profile

Population, Punakha District	25,650	Trend in crop production	
Household economic activities (%)		Decrease	30.0
Crop cultivation	93.2	Increase	34.5
Livestock keeping	80.2	Education household head (%)	
Non-farm activity	60.7	None	84.1
Main purpose of crop production (%)		Literacy	1.9
Household consumption	76.9	Primary	7.4
Sale	10.9	Secondary/Tertiary	5.6
Average annual HH income (USD)	1,743		

Burkina Faso: Loss of pastoral livelihood

Seydou Traore (African Climate Policy Centre, ACPC)

Extreme droughts in the Sahel region of Burkina Faso are severely disrupting the lives of local people who depend on the land for livestock keeping and crop cultivation. In the past, the region was primarily composed of pastoralists who moved with their livestock in search of pasture. However, intense droughts, competition over natural resources and urbanization, have reduced pastoral land and forced pastoralists to decrease herd sizes. Many took up crop cultivation to diversify the risk they experienced. Instead, as livestock rely increasingly on crops for feed in lieu of grazing, households find themselves in a precarious position where drought-induced crop failure results in cascading impacts that lead to food insecurity and large scale livestock losses. Households employ many coping strategies to deal with these impacts, including migrating for work, and selling property and livestock. While offering short term relief, these strategies ultimately erode coping capacity for future droughts. Households become more vulnerable as livestock are sold and not replenished and migration of youth and heads of household weaken crucial social networks.

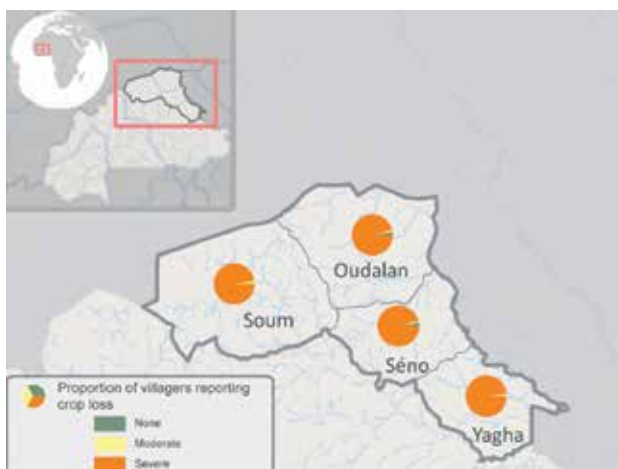


Household questionnaire results on loss and damage

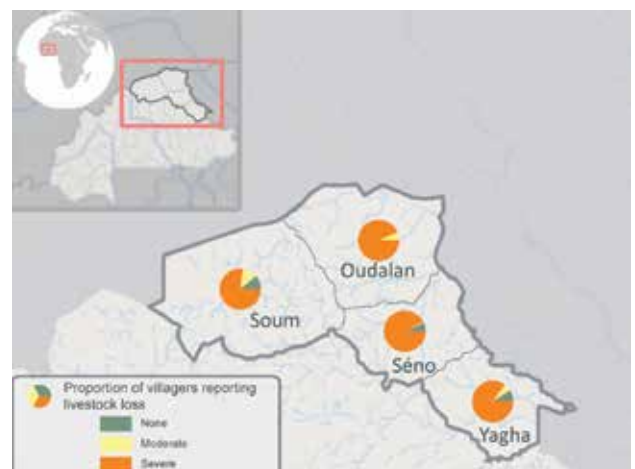
Households interviewed	465
Experienced drought	Yes: 98% No: 2%
Impact on household economy?	Yes: 99% No: 1%
Impact per sector*	Crops: 96% Food prices: 90% Livestock: 87%
Adopted coping measure?	Yes: 79% No: 21%

Coping measure to deal with stressor*	Sale of properties (livestock) to buy food: 79% Rely on aid: 51% Migration: 41% Alternative income to buy food: 33%
Adverse effects despite coping?	Still severe effects: 40% Still moderate effects: 32% No more negative effects: 16% Improved situation: 13%
No measures adopted, why not?*	Lack knowledge/skills: 79% Lack means/resources: 22% Not my task: 2% No priority: 0%

* multiple responses possible



Proportion of villagers reporting crop loss



Proportion of villagers reporting livestock loss

Ethiopia: Coping with floods erodes social capital

Dr. Alemseged Tamiru Haile (African Climate Policy Centre, ACPC)

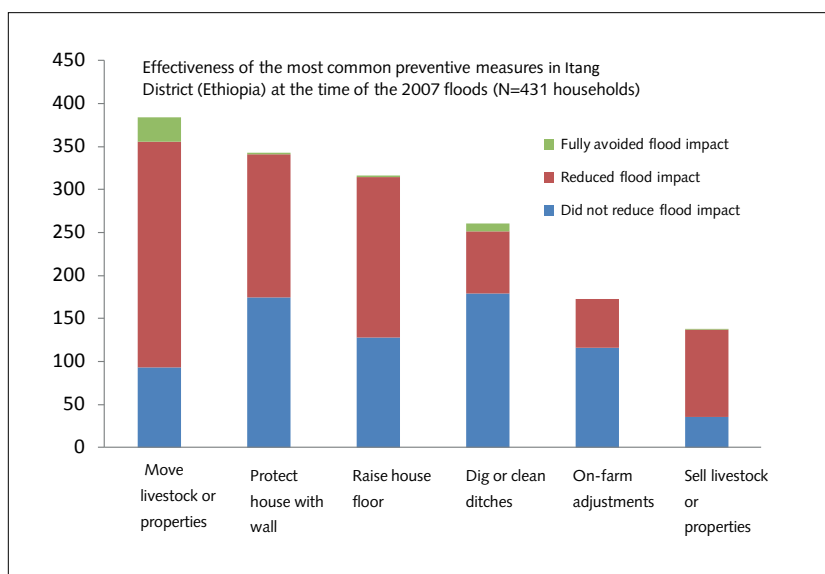
Increased frequency and severity of flooding in Ethiopia is affecting the livelihoods of small-scale agropastoralists who rely on the land for subsistence. The study conducted in the Itang District of Gambela region, found that households apply a variety of preventive measures against flooding, including digging ditches, erecting boundary walls and moving property and livestock to unaffected areas. These measures were quite effective during normal flood years; however, during the severe flood in 2007 (the study focus) households experienced severe negative impacts despite preventive measures. [see figure]. In addition to losing crops and livestock, which are relied upon for sale and consumption, large scale destruction of crops also leads to increased food prices, forcing desperate households to reduce their food consumption. Following a flood, households often rely on social networks for assistance; however, repeated floods erode this social capital as less-affected households do not have endless resources to support flood victims. By overburdening their networks, affected households find themselves in a more vulnerable position with each subsequent flood.



Household questionnaire results on loss and damage

Households interviewed	431	Coping measure to deal with stressor*	Rely on NGO support: 76% Rely on social network: 50% Sale of properties (livestock) to buy food: 42% Rely on government support: 38% Depend on savings: 38%
Experienced flood	Yes: 100% No: 0%	Adverse effects despite coping?	Still severe effects: 60% Still moderate effects: 36% No more negative effects: 4% Improved situation: 0%
Impact on household economy	Yes: 100% No: 0%	No measures adopted, why not?*	Not available
Impact per sector*	Crops: 94% House: 79% Stored food: 77% Livestock: 51%		
Adopted coping measure?	Yes: 98% No: 2%		

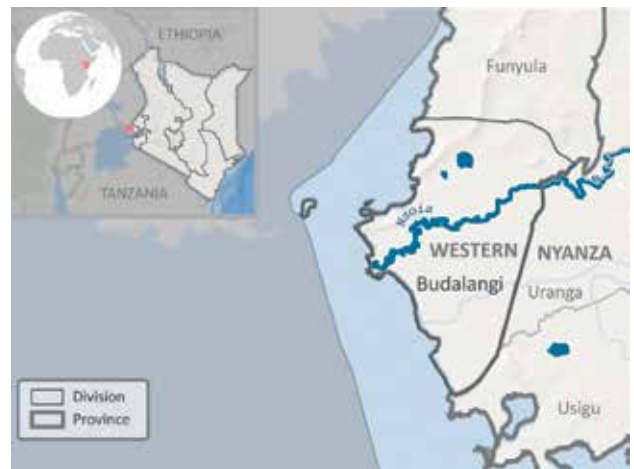
* multiple responses possible



Kenya: Erosive coping after 2011 floods

Dr. Denis Opondo Opiyo, Maseno University, Kisumu, Kenya.

In December 2011, River Nzoia in Western Kenya broke its dykes and wreaked havoc in Budalangi Division. Crops were washed away, live-stock drowned, houses were severely damaged and there was an outbreak of waterborne diseases. This low-lying area on the shores of Lake Victoria is prone to periodic flooding. However, over 96% of respondents indicated that floods have become more frequent and intense over the past decades. The case study in Kenya focused on coping strategies in the aftermath of the December 2011 floods. While the majority of respondents received relief aid, this was often not enough. To cope, many sold critical property and assets (e.g. draught animals), which had severe implications for future livelihood security.



Household questionnaire results on loss and damage

Households interviewed	400	Coping measure to deal with stressor*	Reliance on aid: 91%
Climate stressor	Flood in 2011		Migration and move to camps: 64%
Impact on household economy	Yes: 98%		Alternative income to buy food: 39%
	No: 2%		Ask relatives for assistance: 37%
			Sell assets to buy food: 22%
Impact per sector*	Crops: 98%	Adverse effects despite coping?	72%
	Food prices: 95%		
	House/properties: 66%	No measures adopted, why not?*	Lack knowledge/skills: 40%
Adopted coping measure?	Yes: 93%		Lack means/resources: 31%
	No: 7%		Not my task: 10%
			No priority: 4%

* multiple responses possible

Socio-economic profile

Population, Budalangi Division	53,356	Trend in crop production	
Household economic activities (%)		Decrease	77.7
Crop cultivation	98.3	Increase	19.1
Livestock keeping	83.0	Education household head (%)	
Non-farm activity	68.8	None	13.8
Main purpose of crop production (%)		Literacy	14.3
Household consumption	93.8	Primary	44.4
Sale	6.2	Secondary/Tertiary	26.0
Average annual HH income (USD)	1,001		

Micronesia:

Coastal erosion and the limits of autonomous adaptation

Mr. Simpson Abraham, National Coordinator, Federal States of Micronesia Pacific Adaptation to Climate Change (PACC)

As a Small Island Developing State (SIDS) the island of Kosrae in the Federated States of Micronesia are particularly vulnerable to climate change as the rising sea level is expected to exacerbate coastal erosion, storm surge, and other coastal hazards. Sea-level rise in the Federated States of Micronesia is 10mm a year, compared to the global average of 3.2mm. Communities adopt many measures against coastal erosion, such as building sea walls and planting trees along the shore. However, they are not sufficient and some have additional costs. For example, cultural values and heritage are being lost as ancient ruins are being dismantled and used to build seawalls. As individual households are largely left to their own devices to combat as pervasive a problem as coastal erosion most adopted measures are insufficient.



Household questionnaire results on loss and damage

Households interviewed	363	Adaptation measure to deal with stressor*	Build sea walls: 29%
Experienced coastal erosion	Yes: 87% No: 13%		Landfill to fortify coast: 29%
Impact on household economy	Yes: 80% No: 20%	Adverse effects despite adapting?	Plant trees along coastline: 15%
Impact per sector*	Crops: 69% Tree crops: 70% Housing: 53%	No measures adopted, why not?*	Elevate house: 11%
Adopted adaptation measure?	Yes: 60% No: 40%		Adverse effects despite adapting? 92%
			Lack knowledge/skills: 47%
			Lack means/resources: 74%
			Not my task: 3%

* multiple responses possible

Socio-economic profile

Population, Kosrae State	6,616	Trend in crop production	
Household economic activities (%)		Decrease	40.0
Crop cultivation	70.5	Increase	13.0
Livestock keeping	67.5	Education household head (%)	
Non-farm activity	68.4	None	0.0
Main purpose of crop production (%)		Literacy	0.0
Household consumption	94.9	Primary	5.0
Sale	4.7	Secondary/Tertiary	95.0
Average annual HH income (USD)	7,711		

Mozambique: The double blow of droughts and floods

Ange-Benjamin Brida (African Climate Policy Centre, ACPC)

Mozambique has a long history of suffering from both drought and flood. Following a severe flood in 2001, the government resettled vulnerable households to drier upland areas that are instead susceptible to drought and have poorer soils. This study focuses on resettled households in southern and central Mozambique. As most households in the region depend on crop cultivation, many moved their fields back to more fertile lowland areas, while living in upland areas. This adaptation leads to better crop yields, but in case of flooding there is a high risk of losing entire harvests. Valuable time and energy is also wasted commuting the large distances between upland and lowland areas. To make matters worse, food prices tend to increase following droughts and floods, leading to severe food insecurity. Households try to cope by finding alternate sources of income (e.g. petty trade), relying on government aid, and selling property, particularly livestock. The stress and uncertainty of trying to cope with and adapt to the double blow of droughts and floods pushes households to exhaustion.



Household questionnaire results on loss and damage

Households interviewed	304	Coping measure to deal with stressor*	Alternative income to buy food: 67% Rely on aid: 45% Sale of properties (livestock) to buy food: 34% Rely on social network: 31% Migration: 12%
Experienced drought or flood	Yes: 100% No: 0%	Adverse effects despite coping?	Still severe effects: 23% Still moderate effects: 46% No more negative effects: 28% Improved situation: 3%
Impact on household economy	Yes: 99% No: 1%	No measures adopted, why not?*	Lack knowledge/skills: 64% Lack means/resources: 40% Not my task: 0% No priority: 0%
Impact per sector*	Crops: 100% Food prices: 83% Livestock: 35%		
Adopted coping measure?	Yes: 93% No: 7%		

* multiple responses possible

Socio-economic profile

Population, 4 study districts	467,318	Trend in crop production	
Household economic activities (%)		Decrease	93.1
Crop cultivation	100	Increase	3.9
Livestock keeping	66.1	Education household head (%)	
Non-farm activity	63.5	None	43.1
Main purpose of crop production (%)		Literacy	1.3
Household consumption	98.7	Primary	44.1
Sale	1.3	Secondary/Tertiary	11.2
Average annual HH income (USD)	482		

Nepal: Loss and damage from floods despite coping and preventive measures

Dr. Ken Bauer (Dartmouth College) and Dinesh Devkota (IDS Nepal)

Nepal is particularly susceptible to climate-related disasters, such as floods, landslides and debris flows, due to its varied topography and geological characteristics. The current study surveyed households in the Udayapur district that are especially vulnerable to floods. Over the past 20 years households have reported that while the frequency of floods has decreased (61.2%), the severity has increased (65.6%). In the short-term severe floods critically reduce or destroy crop yields, in the long-term they reduce soil fertility by increasing topsoil erosion and sedimentation. These effects are catastrophic in a region where most households depend on crop cultivation for their livelihoods and subsistence. In addition to losing crops, many also experience food shortages as a result of rising food prices in the aftermath of a flood. Households apply both preventive (e.g. building physical barriers) and coping measures (e.g. reliance on aid, migration, selling property) to deal with the floods. While much effort is expended on such measures it has not been enough to counteract adverse effects.



Household questionnaire results on loss and damage

Households interviewed	300	Coping measure to deal with stressor*	Rely on aid: 58%
Experienced floods	Yes: 97% No: 3%		Rely on social network: 49%
Impact on household economy	Yes: 74% No: 26%		Alternative income to buy food: 43%
Impact per sector*	Crops: 86% Food prices: 61% House/properties: 33%	Adverse effects despite coping?	Sale of properties (livestock) to buy food: 31%
Adopted coping measure?	Yes: 72% No: 28%		Migration: 24%
		No measures adopted, why not?*	Still severe effects: 44%
			Still moderate effects: 34%
			No more negative effects: 8%
			Improved situation: 15%
			Lack knowledge/skills: 47%
			Lack means/resources: 88%
			Not my task: 9%
			No priority: 5%

* multiple responses possible

Socio-economic profile

Population, Udayapur District	317,532	Trend in crop production	
Household economic activities (%)		Decrease	80.9
Crop cultivation	85.7	Increase	11.9
Livestock keeping	93.0	Education household head (%)	
Non-farm activity	60.3	None	32.4
Main purpose of crop production (%)		Literacy	36.8
Household consumption	97.1	Primary	9.0
Sale	2.9	Secondary/Tertiary	21.4
Average annual HH income (USD)	933		

The Gambia:

Fewer meals following a drought despite coping measures

Ange-Benjamin Brida (African Climate Policy Centre, ACPC)

The North Bank Region of The Gambia has a history of recurrent droughts, which have been increasing in frequency. Rainfall levels in the last three decades are over 35 per cent lower than previous decades. In 2011, the region experienced a severe drought that affected 98 per cent of the respondents, many of whom lost their entire harvests. In addition to receiving food aid, people coped by looking for additional income (e.g. sale of property) to buy food. Despite this, 63 per cent still had to modify their food consumption, for example by changing from three to two meals a day. This suggests that coping measures were insufficient, as one of the most basic human needs was still compromised.



Household questionnaire results on loss and damage

Households interviewed	373	Coping measure to deal with stressor*	Alternative income to buy food: 58%
Climate stressor	Drought in 2011		Sell assets to buy food: 58%
Impact on household economy	Yes: 97%		Ask relatives for food or money for food: 57%
	No: 3%		Reliance on aid: 55%
Impact per sector*	Crops: 98.6%	Adverse effects despite coping?	66%
	Livestock: 73.6%	No measures adopted, why not?*	Lack knowledge/skills: 58%
	Food prices: 88.5%		Lack means/resources: 28%
Adopted coping measure?	Yes: 93%		
	No: 7%		

* multiple responses possible

Socio-economic profile

Population, North Bank Region	172 835	Trend in crop production	
Household economic activities (%)		Decrease	87.7
Crop cultivation	98.9	Increase	10.7
Livestock keeping	100	Education household head (%)	
Non-farm activity	66.9	None	20.4
Main purpose of crop production (%)		Literacy	59.5
Household consumption	84.3	Primary	
Sale	15.7	Secondary/Tertiary	9.3
Average annual HH income (USD)	756		

Further reading/information:

- Warner, Koko, van der Geest, Kees and Sönke Kreft (2013). Pushed to the limit: Evidence of climate change-related loss and damage when people face constraints and limits to adaptation. Loss and Damage in Vulnerable Countries Initiative. Report No. 11. Bonn: United Nations University Institute for Environment and Human Security (UNU-EHS).

Will be available for download November 2013 from:

<http://www.loss-and-damage.net/>

- Warner, Koko, van der Geest, Kees, Kreft, Sönke, Huq, Saleemul, Harmeling, Sven, Kusters, Koen and Alex de Sherbinin (2012). Evidence from the frontlines of climate change: Loss and damage to communities despite coping and adaptation. Loss and Damage in Vulnerable Countries Initiative. Report No. 9. Bonn: United Nations University Institute for Environment and Human Security (UNU-EHS).

To download the full report:

<http://www.lossanddamage.net/download/6815.pdf>

- Details of the nine case studies presented here have been published in a special issue of the International Journal of Global Warming, Vol.5, No.4. (open access).

Available online at: <http://www.inderscience.com/info/inarticletoc.php?jcode=ijgw&year=2013&vol=5&issue=4>.

- Youtube channel including short interviews with case study researchers and field work photos: <http://www.youtube.com/user/LossAndDamage>
- Official project website: <http://www.loss-and-damage.net/>
- UNU-EHS project page: <http://ehs.unu.edu/article/read/loss-and-damage>

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A woman in a red headscarf and patterned dress carries several large white plastic jugs on her head and shoulders. She is walking on a dry, rocky, and dusty path. In the background, there are more jugs scattered on the ground and a hazy, mountainous landscape under a clear sky.

LOSS AND DAMAGE

The Loss and Damage in Vulnerable Countries Initiative was initiated by the Government of Bangladesh (GoB) and motivated by the need to understand more about this emerging issue. In order to move forward the debate on loss and damage for the benefit of the least developed countries (LDCs) and other vulnerable countries, the GoB requested assistance from the Climate and Development Knowledge Network (CDKN) to help build a common understanding around loss and damage and provide insight into what it entails for vulnerable countries. CDKN has appointed the United Nations University Institute for Environment and Human Security (UNU-EHS) to carry out this work. The African Climate Policy Centre (ACPC) funded three case studies (Ethiopia, Mozambique and Burkina Faso).