# Addressing loss and damage

## Practical insights for tackling multidimensional risks in LDCs and SIDS

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This paper presents a detailed overview of the nature of loss and damage risks affecting low-income countries, marginalised groups and people living in poverty in the global South, and how they might be addressed. Based upon a structured review of existing literature, and a series of deliberative dialogues, key informant interviews and consultations with representatives of affected communities and countries in LDCs and SIDS, we assess the current evidence on the key features of loss and damage risks. We then propose recommendations for policymakers and practitioners responsible for designing and delivering practical action to address loss and damage, especially those working at national and sub-national levels in LDCs and SIDS, and their international partners.

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# Acronyms

| | |
|---|---|
| **AOSIS** | Alliance of Small Island States |
| **ARC** | African Risk Capacity |
| **CAN** | Climate Action Network |
| **CAT-DDO** | Catastrophe-Deferred Drawdown Option |
| **CBDR-RC** | Common but differentiated responsibilities and respective capacities |
| **CBFEWS** | Community-based flood early warning system |
| **CBO** | Community-based organisations |
| **CCRIF** | Caribbean Catastrophe Risk Insurance Facility |
| **CDD** | Community-driven development |
| **CERF** | Central Emergency Response Fund |
| **CJRF** | Climate Justice Resilience Fund |
| **COP** | Conference of Parties |
| **CPP** | Cyclone Preparedness Programme |
| **CRA** | Climate risk assessments |
| **CSA** | Climate-smart agriculture |
| **CSO** | Civil society organisations |
| **DRR** | Disaster risk reduction |
| **DSSI** | Debt Service Suspension Initiative |
| **DSWD** | Department of Social Welfare and Development |
| **EDA** | Enhanced direct access |
| **EWS** | Early warning systems |
| **FbF** | Forecast-based financing |
| **FCDO** | Foreign Commonwealth and Development Office |
| **G77** | Group of 77 countries at the UN climate negotiations |
| **GCF** | Green Climate Fund |
| **GDP** | Gross domestic product |
| **GHGE** | Greenhouse gas emissions |
| **GIS** | Geographic information system |
| **GNI** | Gross national income |
| **ICCCAD** | International Centre for Climate Change and Development |
| **ICIMOD** | International Centre for Integrated Mountain Development |

| | |
|---|---|
| **IDP** | Internally displaced persons |
| **ILRI** | International Livestock Research Institute |
| **IPCC** | Intergovernmental Panel on Climate Change |
| **KDI** | Kounkuey Design Initiative |
| **L&DC** | Loss and Damage Collaboration |
| **LDCs** | Least Developed Countries |
| **LLA** | Locally led adaptation |
| **MDB** | Multilateral development bank |
| **MGNREGS** | Mahatma Gandhi National Rural Employment Guarantee Scheme |
| **NELD** | Non-economic forms of loss and damage |
| **ODA** | Official Development Assistance |
| **OECD-DAC** | Organisation for Economic Co-operation and Development's Development Assistance Committee |
| **PCRAFI** | Pacific Catastrophe Risk Assessment and Financing Initiative |
| **PSNP** | Productive Safety Net Programme |
| **REAP** | Risk-Informed Early Action Partnership |
| **SBI** | Subsidiary Body for Implementation |
| **SDG** | Sustainable Development Goals |
| **SDI** | Shack Dwellers International |
| **SIDS** | Small Island Developing States |
| **SNLD** | Santiago Network on Loss and Damage |
| **UNDP** | United Nations Development Programme |
| **UNDRR** | United Nations Office for Disaster Risk Reduction |
| **UNEP** | United Nations Environment Programme |
| **UNFCCC** | United Nations Framework Convention on Climate Change |
| **UNOCHA** | UN Office for the Coordination of Humanitarian Affairs |
| **VHF** | Very high frequency |
| **WIM** | Warsaw International Mechanism for Loss and Damage |

# Executive summary

## Background

Loss and damage is a growing challenge for communities and governments around the world (IPCC 2022). This is especially true for low-income countries of the global South that cannot borrow billions of dollars on equitable terms to recover from each new disaster, and who are unable to access the finance needed to adapt before shocks occur (IMF 2020; UNEP 2021). As global heating escalates, loss and damage will become increasingly severe for these countries, causing a vicious cascade of climate impacts (IPCC 2022). This will push them to amass spiralling debts as they struggle to recover from compounding shocks, and will have increasingly negative impacts on their credit ratings, the costs of borrowing money, and their long-term development prospects.

While adaptation and mitigation must accelerate to minimise and avert climate impacts, they are not sufficient to deal with losses and damages that cannot or will not be adapted to. Loss and damage therefore requires tailored action to address climate impacts that are unavoidable or that will be unavoided. But despite recognition of loss and damage by the Paris Agreement and recent progress by the Warsaw International Mechanism and Santiago Network on Loss and Damage, we lack collective understanding of what loss and damage means and how it can be dealt with practically at national and local levels.

Some Least Developed Countries (LDCs) and Small Island Developing States (SIDS) are already experimenting with practical interventions to support households, communities and ecosystems to cope with the impacts of climate change (Bharadwaj and Shakya 2021). Their experiences provide valuable insights into how governments and non-state actors can address loss and damage by tailoring tools they already use to manage climate and disaster risks and support people on the move.

## Approach and methodology

In 2021, IIED and the International Centre for Climate Change and Development (ICCCAD) launched an initiative to understand how developing countries at high-risk of loss and damage might design and deliver practical actions to address loss and damage. The initiative aimed to bring together a community of stakeholders and provide evidence-based recommendations for action and further research. This paper presents the results of that work.

The paper draws on a structured review of available literature, and a series of deliberative dialogues (Bharadwaj et al. 2021a,b,c,d) and key informant interviews with the representatives of affected and at-risk communities and countries across the LDCs and SIDS, and a wide range of stakeholders working on climate risk and loss and damage in those countries. It summarises available evidence on the nature of loss and damage risks as they affect high-risk countries and communities of the global South and provides detailed suggestions for how practical approaches to address those risks might be designed and delivered.

We hope that researchers, policymakers and practitioners who are looking for detailed analysis and practical advice on how to design and deliver actions that address loss and damage at national and sub-national levels will find our findings and recommendations useful to inform their own work. Following publication of this working paper, IIED will publish a number of shorter documents that distil and expand upon the key findings and recommendations for other audiences.

# Key findings

**Actions to address loss and damage must be implemented urgently and at scale, alongside adaptation actions.** The adverse impacts of climate change are already occurring and will only grow in frequency and intensity with every increment of global heating (IPCC 2022). Increasingly consecutive and compounding in their impacts, climate change related hazards are also more likely to be 'fat-tail' events that, despite having very low levels of statistical probability, are increasingly likely to have catastrophic impacts for people and places, especially among those that are most vulnerable, Given the slow pace and unequal reach of adaptation action (UNEP 2021; Shakya and Barnes 2022), it is inevitable that many of the most at-risk countries and people will not be able to adapt in time to overcome the loss and damage risks they now face as a result of climate change.

As temperatures rise and climate shocks intensify, those who have not been able to adapt will experience increasingly severe losses and damages, no matter what adaptation action has been taken at national or local levels. This has several significant implications:

1. In high-risk communities and countries, actions to address the varied forms of losses and damages that are likely to occur over the short, medium and long term (from heatwaves, storms and floods to desertification and sea-level rise) must be implemented at the same time, in tandem with adaptation actions.
2. Loss and damage risks are highly varied across populations. The risk posed by a single hazard may be acceptable for some members of a community but catastrophic for others, depending upon their particular risk profile. This means that loss and damage is likely to occur for some people even where adaptation actions are effective in addressing risks for others. Actions to address the loss and damage risks of the most vulnerable people must therefore be implemented alongside adaptation actions.
3. Given the escalating risk of intensifying, compounding climate impacts and of 'fat-tail' climate hazards that have low probability but catastrophic consequences, it is increasingly likely that the limits to adaptation will be reached and breached in at-risk communities. Adaptation actions that may be effective today will not be effective in the future, producing residual risks of loss and damage occurring. Adaptation actions must therefore be planned and delivered taking the risk of compounding climate impacts into account by integrating measures to address losses and damages.
4. Action to address loss and damage includes a spectrum of measures. While adaptation aims to shift development pathways towards climate-resilient outcomes, action to address loss and damage is simultaneously vital to address the residual risks that result from adaptation that is inadequate, ineffective or too late.

**Loss and damage risks are multidimensional and demand a comprehensive approach.** Loss and damage risks affect people differently depending upon complex factors that are intersectional, are context-specific and evolve over time. The multidimensional nature of loss and damage risks therefore means that they can only be addressed effectively if the highly varied forms of exposure, vulnerability and adaptive capacity of different people in particular places are taken fully into account.

Vulnerabilities to losses and damages vary widely between social groups and species, locations and ecosystems, infrastructures and services, regions and countries, depending upon the specific characteristics of their environmental, social, political and economic context. They also differ depending on the types of climate hazards different people and places will encounter over the short, medium and long term.

These vulnerabilities will vary dramatically over time depending upon how the interactions between climatic, environmental and socioeconomic conditions evolve under different scenarios of climatic and social change and depending on how climate impacts interact and compound one another to undermine coping capacity, increase vulnerability and erode the marginal utility of every dollar spent on climate adaptation.

This complexity can only be addressed effectively by using comprehensive approaches that tackle the different forms of risk that different people, communities, ecosystems, enterprises and countries are likely to experience from different types of climate hazards over time.

**The losses and damages that disproportionately impact marginalised groups and people living in poverty must be prioritised.** Loss and damage risks pool at the lowest levels of society and disproportionately impact the poorest and most marginalised people who are being affected first and worst by the impact of climate change, including women and children, people living with disabilities, elderly people, LGBTQI+ people, ethnic and linguistic minorities and Indigenous Peoples.

Marginalised groups and people living in poverty are more severely impacted by climate shocks and stresses for reasons that stem from their experiences of social exclusion, and from the inequitable distribution of power and resources in society. These factors result in these groups having lower levels of asset ownership and access to resources, lower levels of access to public services and support from government, civil society organisations (CSOs) and the private sector, and lower levels of access to information and training, and to decision-making processes, relative to other members of society. Furthermore marginalised groups and people living in poverty in the global South are more likely to make their living in the informal sector of the economy, to rely upon ecosystem services and natural resources for their livelihoods, to lack formal ownership of assets such as land and housing, and to live in marginal locations that are more highly exposed to hazards

These factors mean that marginalised people tend to have higher levels of exposure and vulnerability to climate shocks and stresses, and lower levels of adaptive and coping capacity. In turn, they are often more badly impacted by climate hazards compared to more affluent or privileged segments of the population. Low asset and capability levels mean that even relatively small shocks can devastate their livelihoods and wellbeing, while a lack of access to support and opportunities to cope and adapt mean that they are often unable to recover, precipitating a downward spiral that can trap households in poverty and vulnerability across generations.

The intersection of poverty and marginalisation across the global South with intensifying climate risks means that billions of people are at disproportionate risk of experiencing catastrophic losses and damages. But the forms of loss and damage that they will incur are not currently captured by orthodox approaches to estimating losses and damages and climate risks, which focus on economic forms of loss and damage that are easily quantifiable in monetary terms and are of greatest concern to governments, businesses and elites. Given the imperatives of climate justice, this bias must be tackled decisively, and the non-economic and informal forms of loss and damage must be recognised and factored into the design and delivery of actions to address loss and damage risks.

**Addressing loss and damage effectively requires a layering of measures.** The complexity, variety and emergent nature of loss and damage risks necessitate the layering of different measures to address the various forms of risk that may impact a country or community over different time scales.

Many communities in LDCs and SIDS have already passed their limits to adaptation for certain types of climate hazards. Many of the same communities will be impacted by a variety of other climate impacts over the short, medium and long term, from cyclones, floods, heatwaves and droughts to sea-level rise, biodiversity loss and desertification. Due to the compounding nature of shocks, the event that tips these communities beyond the limits to adaptation may not even be extreme. In many cases, these countries will not be able to recover with resilience from the losses and damages they have already incurred, and will not be able to adapt fast enough to cope with future impacts. They will soon exceed their limits to adaptation, if they have not done so already.

Thus, any strategy to address loss and damage must not focus simply on disaster response and recovery after climate shocks, but must factor in the residual risks that different communities, ecosystems and locations will face from increasingly frequent, intensifying and compounding events or fat-tail extremes, once the limits to adaptation have been breached. This means that strategies to address loss and damage must layer different types of intervention, from those designed to tackle short-term shocks, such as disaster response and recovery, forecast-based financing, anticipatory action and insurance, to those that are designed to address risks that will occur over the longer term, such as disaster risk reduction, social protection, community resilience building, nature-based solutions, planned relocation or incentivised migration.

By layering interventions to address different forms of risk over time, households and communities can get access to a wide range of services that can enable them to cope with and overcome the impacts of climate change that might affect them. For instance, disaster responses and recovery processes that embed resilience building, adaptation and climate-resilient development strategies can support households not only to overcome the unavoided impacts of climate shocks, but to build back better, move towards opportunity in new places or develop new livelihoods, and so address the underlying drivers of their vulnerability.

On the other hand, efforts to address long-term risks posed by slow-onset processes, such as planned relocation or incentivising migration to deal with unavoidable sea-level rise, can also integrate measures to address other forms of loss and damage, such as loss of cultural identity, access to livelihood resources or risks from extreme weather events.

**Addressing loss and damage requires a locally led, whole-of-society approach.** The disproportionate impact of climate shocks and stress on poor and marginalised groups means that actions to address loss and damage must focus on the priorities and preferences of the people and places that are most at risk, and should do so in ways that are relevant to their understandings of what forms of loss and damage risk are tolerable and intolerable to them.

This demands the use of a locally led approach to the design and delivery of actions to address loss and damage; one that includes affected and at-risk communities, including hyper-marginalised people (women, girls, people with disabilities, elderly people, ethnic and religious minorities, Indigenous Peoples and so on), and that supports them to lead, participate in and monitor the design and delivery of risk management and response measures. Delivering locally led actions also means that local actors, such as local authorities, CSOs and community groups, should be supported through the provision of resources and improved skills, to analyse loss and damage risks, and to deliver risk management and response operations using their own capabilities and on their own terms.

Loss and damage will impact all sectors and levels of society, so actions to address losses and damages must also be designed and delivered using a whole-of-government and whole-of-society approach. Communities, local actors and authorities will be affected differently and will have different priorities from national-level actors and elites. Different ministries and departments across government will also be affected differently by loss and damage and must be supported to consider and integrate loss and damage risk management into their strategies and action plans.

All actors must play different but complementary roles in effectively addressing loss and damage. Governments, donors, civil society actors and communities must work collaboratively to identify and prioritise risks and solutions and design and implement the delivery mechanisms that will most effectively reduce the negative impacts of climate shocks on those most at risk.

**Layered interventions require layered forms of finance.** No single source of finance will be suitable to channel the right kinds of funding to the different measures that are required to address varied forms of loss and damage risk over time, and the various forms of finance that are appropriate can not be readily substituted. For instance, index-linked insurance may be suitable to protect certain types of communities from certain kinds of climate impact, but it is not universally appropriate to address all loss and damage risks. Similarly, finance that is designed to respond effectively to short-term climate shocks will not be appropriate to address the impacts of slow-onset events that will occur over the course of decades.

This requires national governments and civil society actors (including communities) to be able to access and mobilise diverse forms of finance to address the various loss and damage risks that they face. The need for a comprehensive and layered approach to addressing loss and damage also means that diverse financial instruments should be layered and efficiently coordinated to ensure that investment has the right characteristics to meet the specific needs of vulnerable countries and communities, is delivered in a timely manner to be effective and is flexible enough to respond to the evolving nature of climate risks.

This requires governments, finance providers and other actors to work closely together to orchestrate the delivery of multiple sources and flows of finance by layering financial instruments and delivery mechanisms. One possible means to achieve this could be through a national solidarity fund, which we describe in Chapter 5.

## Recommendations

**Act now to address loss and damage risks** using available approaches and sources of finance. National and sub-national actors and their international partners should begin to develop strategies and action plans to address loss and damage risks so that action can be taken as soon as possible. International donors and financial institutions must follow the lead of the governments of Scotland and Wallonia to allocate finance explicitly to concrete actions that address loss and damage risks in the most vulnerable countries. They should also support LDCs and SIDS to begin conducting detailed assessments of the loss and damage risks that they face and to develop comprehensive multi-sectoral strategies to address them.

**Take a pragmatic approach** that is grounded in the multidimensional and intersectional risks of the marginalised groups and people living in poverty who are most at risk from climate impacts in the global South. Such an approach should focus on the particular requirements, preferences and priorities of these populations, based on a robust analysis of their values and vulnerabilities.

**Prioritise the losses and damages that affect those who are most at risk.** Marginalised groups and people living in poverty have the most to lose from climate change, and billions of such people are at increasing risk from the adverse impacts of climate change across the global South. They are at risk not only of losing their lives, homes and livelihoods but also their cultures, social networks and sense of identity. Any effort to address loss and damage must begin from a robust assessment of the non-economic and informal losses and damages that matter most to marginalised groups and people living in poverty. It must also deliver actions that support these populations to address the risks they face in ways that are appropriate to their preferences and priorities.

**Recognise the multidimensional, intersectional and dynamic nature of loss and damage risks.** Climate impacts affect different people differently depending upon their particular circumstances and the social, political, environmental and economic context in which they live. The dynamic, intensifying nature of climate change, and the compounding nature of loss and damage impacts and risks, also mean that the particular risks that different people are likely to be exposed to in different places will differ markedly over time under different scenarios. Actions to address loss and damage risks must therefore take multidimensional risks into account and must consider the intersectional lines along which vulnerability to climate impacts are distributed. They must also be agile and adaptive enough to respond to the evolving nature of loss and damage risks over time for different groups of people in different places.

**Support highly vulnerable countries and communities to assess their loss and damage risks using robust approaches.** Methods, tools and guidelines to assess multidimensional loss and damage risks in disaggregated ways that take the evolving climate and other scenarios into account do not exist and must therefore be developed. Such approaches must ensure that they integrate robust data on the multidimensional and intersectional vulnerabilities and exposure of marginalised groups and people living in poverty. They must integrate an assessment of the likelihood that avoidable loss and damage risks will transform into unavoidable residual risks and identify the triggers or warning signs that indicate when the limits to adaptation are being reached or breached. Developing such tools must be a priority for the international community and research institutions.

**Develop comprehensive strategies and action plans to address loss and damage risks that layer complementary measures.** There is no magic bullet to addressing loss and damage, and no single approach will be effective all forms of loss and damage risk. Stakeholders from local to national and international levels should develop comprehensive strategies and action plans to address loss and damage risks that identify the most appropriate measures to address specific loss and damage risks in a particular context, based upon a robust assessment of those risks using climate scenarios that cover a wide range of possible futures, and to layer those measures in a complementary manner that delivers the right kinds of support to the right people in the right place at the right time. They should also be integrated into other planning and strategy development processes that aim to deliver climate-resilient development; take an inclusive, whole-of-society approach that is focused on delivering locally led action to address loss and damage, based on the principle of integrated subsidiarity, and that prioritises the participation of marginalised groups and people living in poverty who have been affected by or who are at risk of loss and damage; and take a whole-of-government approach that uses the issue of loss and damage to bring together the various sectors and levels of government that will be affected by adverse climate impacts to develop a coherent strategy in which each arm of government adopts appropriate measures to tackle the forms of loss and damage that will impact them.

**Layer diverse sources and flows of finance.** No single source of finance will be appropriate or sufficient to address the range of finance characteristics needed for an effective and comprehensive response to loss and damage risks that a vulnerable community or country will face. National governments and other stakeholders must therefore aggregate and layer different sources and types of finance to address the different forms of loss and damage risk that marginalised groups and people living in poverty are most likely to face. Various existing forms of finance can be harnessed to achieve this, but institutional arrangements and financial architecture are required to layer them effectively. National solidarity funds offer one means by which this financial layering might be tested and delivered.

# 1

# Introduction

Simon Addison and Ritu Bharadwaj

Communities and ecosystems around the world are experiencing the deadly impacts of unprecedented extreme weather events caused by climate change. If action is not taken urgently, effectively and at scale to address the losses and damages resulting from these shocks, billions of people will become exposed to catastrophic risks. While the United Nations Framework Convention on Climate Change (UNFCCC) Conference of Parties' (COP) negotiations on loss and damage will continue over the coming years, there is much that can be done now to address the impacts and risks that vulnerable countries and communities face, at both national and local levels.

Limiting global heating to 1.5°C this century is one of the central aims of the Paris Agreement, but recent research suggests that the world may be way off course to achieving that goal. With an atmospheric temperature that is now 1.1°C above pre-industrial levels, not only has human action caused the Earth to be the hottest it has been for 12,000 years, but international climate policy puts us on track for a temperature rise of at least 3°C by 2100 (Bova et al. 2021; Bathiany et al. 2018; Pattyn 2018; Hall 2019; Yumashev 2019). If these trends continue, they will have devastating consequences for the communities and countries most vulnerable to the impacts of climate change — especially the poorest and most excluded people of the global South.

The latest report of the Intergovernmental Panel on Climate Change (IPCC) has revealed that we already live in the era of loss and damage. Nearly half of humanity lives in places that are highly vulnerable to climate impacts (IPCC 2022), and in 2021 alone, extreme weather events around the world shattered records, displaced millions and killed thousands (Shumaker and Januta, 2021). While the research for this paper was being conducted: a record-breaking, once-in-a-thousand-year heatwave melted power lines, buckled roads, and killed more than 180 people in the US and Canadian Pacific Northwest; calamitous flooding struck Central China's Henan province causing direct economic losses of US$18 million and killing more than 300 people and one million farm animals; Northern Kenya experienced its worst short rain season in decades (receiving less than 30% of its normal rainfall), wiping out pastures, killing countless livestock, and causing 2.4 million people to become food-insecure (Pietromarchi 2021); South Sudan went into its third record-breaking rainy season causing catastrophic flooding; super Typhoon Rai made landfall in the Philippines, killing hundreds and causing disastrous losses and damages; and Malaysia experienced torrential downpours causing major once-in-a-century flooding — killing at least 27 people and displacing 70,000 (Eckstein, Künzel and Schäfer 2021).

Recorded observations of climate impacts show that ecosystems, communities and countries worldwide are experiencing extreme weather events that are more frequent and more intense than anything they have experienced in the past, and those affected do not have the knowledge, resources or capabilities they need to cope. These shocks will only escalate with every degree of global heating, and if they are not addressed effectively, they will result not only in the loss of many thousands of lives but will impose upon developing countries massive social and economic costs, which they cannot afford, derailing their progress towards achieving the sustainable development goals (SDGs).

To tackle these immense challenges, the countries most affected by and vulnerable to losses and damages require significant financial and technical support from their international partners. The estimated scale of losses and damages is vast. Estimates of the financial damages caused by climate impacts in non-Annex-1 countries (Markandya and González-Equino 2018) range from US$116–435 billion in 2020 to US$1,132–1,741 billion per year by 2050. Estimates of the financing that will be needed to address loss and damage in 2030 range from US$290 billion to US$580 billion, if global heating follows a trajectory towards warming of 2.5–3.5°C (Markandya and González-Equino 2018).

These estimates do not include the non-economic forms of loss and damage (NELDs) that will be most devastating for the inhabitants of poor and excluded communities and social groups, particularly women and children, Indigenous Peoples, elderly people and people living with disabilities (IPCC 2022). Many are already experiencing the physical, social, emotional and mental health challenges associated with extreme weather events, such as displacement and forced migration, eroded life chances and the loss of social cohesion, cultural heritage and identity.

The international community must act to safeguard the development prospects of the poorest and most climate-vulnerable countries and must show solidarity with them by rapidly mobilising the trillions of dollars in financial and technical support they are demanding to build the institutions, capabilities and delivery mechanisms to respond, recover and become more resilient to climate impacts over the short, medium and long term.

## 1.1 Loss and damage: where are we now?

**Important progress has been made.** Climate-vulnerable countries have set out their expectations for what international support on loss and damage should cover, including:

1. Development of policies and approaches to address loss and damage
2. Delivery of technical support to address loss and damage at national and sub-national levels
3. Dedicated financial support to address loss and damage in vulnerable countries in the form of a loss and damage financing facility.

There has been important progress towards these goals during the past decade. In 2013, the Warsaw International Mechanism for Loss and Damage (WIM) was established to address the first point at COP19. In 2019 the Santiago Network on Loss and Damage (SNLD) was set up to address technical issues at COP25. But the international community remains a long way away from delivering the large-scale technical and financial support that countries and communities impacted by climate desperately require.

In 2021 we saw modest but meaningful wins on loss and damage at COP26. The issue made it onto the conference agenda and emerged as a central topic of debate; the Glasgow Pact (UNFCCC 2021b) decided that funds would be provided to support the operationalisation of the SNLD and that the Glasgow Dialogue would be set up to discuss the issue of loss and damage financing over the three years leading to COP29. The governments of Scotland and Wallonia and a group of pioneering philanthropies made groundbreaking financial commitments of over US$6 million to support concrete action on loss and damage (Schalatek and Roberts 2021).

**Obstacles remain.** Despite these important developments, the rate of progress is still too slow to help affected countries address the mounting climate impacts they are experiencing today, much less the impacts that will affect them in the future.

Though the Glasgow Pact decided on the functions of the SNLD, and that funds would be provided to support delivery of technical assistance to particularly vulnerable developing countries via the network, it also decided that detailed discussions on the modalities for the operations of the network, and on arrangements for funding its activities would be pushed into 2022 and beyond. And with the Glasgow Dialogue not scheduled to conclude until June 2024, many climate-vulnerable developing countries left Glasgow bitterly disappointed (Evans et al. 2021), feeling that the Glasgow Pact kicked the most important questions on loss and damage down the road (O'Donnell 2022).

More recently, at the 56th sessions of the UNFCCC Subsidiary Body for Implementation (SBI) the Group of 77 countries (G77) reaffirmed their demand that the Glasgow Dialogue should lead to the establishment of a finance facility for loss and damage at COP27, and stressed the need to prioritise addressing over averting and minimising loss and damage. However after three days of negotiations the dialogue ended with no clear way forward or outcome on financing. Similarly, 21 hours of negotiations on the SNLD were hampered by divergent views on the structure the network should adopt, and ended with conclusions that lacked real substance.

While the obstacles to progress relate largely to the opposed political interests of Parties to the UNFCCC — such as concerns around liability and compensation on the part of historical polluters — they are also informed by divergent understandings of what loss and damage is and how it should be addressed in policy and practice. For instance, many loss and damage activists argue that loss and damage is an issue that must be separated from mitigation, adaptation and humanitarian responses and should be addressed through a dedicated loss and damage financing facility. On the other hand, most developed country governments argue that loss and damage can be addressed through financial and operational mechanisms that already exist to deliver mitigation, adaptation and disaster response.

Such differences in perspective continue to stall progress in mobilising the finance and technical support that the most at-risk countries and communities require to deal with the loss and damage risks they face today. Action must be taken now to address loss and damage, but while the Glasgow Dialogue and debates on the SNLD will keep the issue of loss and damage alive at the COP, such processes will likely take time to deliver meaningful results that can help the most at-risk communities in LDCs and SIDS.

**A need for practical action.** National and sub-national stakeholders in affected countries across the global South are beginning to address losses and damages in practice with the resources that are available to them, and will need to significantly increase such action in the coming years. This is a significant challenge, and there remain significant gaps in our collective understanding of how loss and damage can be addressed effectively through policy and practice at national and local levels.

This is why LDCs and SIDS, and members of the Climate Action Network (CAN) and the Loss and Damage Collaboration (L&DC) have all identified an urgent need for more robust evidence and pragmatic ideas to:

1. Support the design and operationalisation of the SNLD so that it will be fit for purpose to meet the priorities and preferences of the most vulnerable developing countries
2. Help vulnerable developing countries to understand the loss and damage risks they face using robust methods, identify their requirements for technical support and formulate their demands for support from the SNLD
3. Design the national and sub-national delivery mechanisms required to channel finance and technical support to the people and places that require it most urgently.

Similarly, contributing authors to the latest IPCC report (Mechler et al. 2020) have noted that significant gaps remain in our collective understanding of:

1. The wide range of loss and damage risks that the most vulnerable countries, communities and ecosystems face and how these are likely to evolve over time
2. What countries and communities require to respond to, recover from and build resilience to compounding loss and damage impacts and evolving loss and damage risks
3. Which technical approaches will be most effective at addressing losses and damages in different contexts over different time frames, including the institutional, financial and governance mechanisms that are required to allow such action to happen effectively and at scale.

Such calls for evidence, innovation and action indicate that the time is ripe for developing a nuanced, pragmatic approach that can support affected and vulnerable countries to take action to address losses and damages now and in the near future. Such an approach must be rooted in the concrete realities of climate impacts and risks on the ground and should focus on helping affected and highly vulnerable countries and communities to take practical action as soon as possible, while also supporting the LDCs and SIDS to secure climate justice via UNFCCC processes.

Developing such an approach, based on robust evidence, the articulated priorities and preferences of vulnerable countries and communities, and a shared understanding of what loss and damage action means in practice, could also support LDCs and SIDS to secure climate justice via UNFCCC processes by helping them to develop negotiating positions on how to design an effective global architecture for COP-related processes, and so help shape consensus by COP29, when the Glasgow Dialogue comes to an end.

## 1.2 Background to this paper

In this paper we outline our view on how such an approach can be taken. The paper does not focus on the politically contested questions of how loss and damage should be approached in COP negotiations, but upon the practical question of how national and sub-national actors and communities in the most at-risk countries of the global South can tackle the escalating risks that threaten them today, and on how international actors (governments, financial institutions, NGOs, research institutions) can support them to do so effectively.

The paper is therefore designed primarily to act as a resource that can be used by affected populations, policymakers and practitioners in affected and at-risk countries, and by their international partners, to design and deliver projects and programmes to address different forms of loss and damage risk.

The paper draws upon the results of a year-long process to understand better how loss and damage can be addressed in low-income countries. In 2021 IIED collaborated with the International Centre for Climate Change and Development (ICCCAD) to conduct research and to convene multi-stakeholder dialogues on loss and damage in the run-up to COP26. This initiative sought to understand more clearly how a pragmatic approach to understanding and addressing losses and damages in LDCs and SIDS might be developed, and to catalyse a community of engaged stakeholders committed to mobilising practical action at national and sub-national levels in the most vulnerable countries. This work revolved around four pillars:

1. **Retrospective analysis:** In collaboration with Southern partners, we conducted analysis to understand: a) the loss and damage impacts and risks that vulnerable communities in LDCs and SIDS face and how they have been affected; b) how their governments, communities and civil society organisations (CSOs) are attempting to address loss and damage in practice; and c) which practical approaches show promise and offer lessons for other countries. We also conducted a wide-ranging review of the literature on loss and damage from various technical perspectives.
2. **Deliberative dialogues and interviews:** We convened a diverse range of stakeholders (national government, CSOs, community representatives, academia, donor governments, finance institutions) to participate in a series of online deliberative dialogues, which explored the practical challenges posed by loss and damage for vulnerable countries and communities, and in which representatives from those countries shared practical approaches and innovations to address loss and damage that they were testing at national and sub-national levels. In addition, we conducted 30 key informant interviews with experts on loss and damage from governments, academic institutions, CSOs and international agencies.
3. **Conceptual framework development:** Drawing upon the results of the retrospective analysis, the deliberative dialogues and the key informant interviews, we mapped out a preliminary conceptual framework to guide governments and other stakeholders in deciding what types of action might be taken to address loss and damage in different contexts, what types of support (technical and financial) might be needed to implement practical solutions and how they might be delivered. The framework is now presented in the form of this report.
4. **Communications:** This work informed the publication of a series of communications products and events, including:
   - Four deliberative dialogue reports, which presented the outcomes of the dialogues in the run-up to COP26 (Bharadwaj et al. 2021a, 2021b, 2021c, 2021d)
   - Presentations to the Glasgow Climate Dialogues hosted by the Scottish government and Stop Climate Chaos Scotland in September 2021 (Glasgow Climate Dialogues 2021)
   - A briefing paper on the lessons that can be learnt from practical approaches to addressing loss and damage being tested by LDCs and SIDS (Addison, Bharadwaj and Carthy 2021)
   - A compendium of case studies on how loss and damage is affecting countries and communities and how they are responding (Bharadwaj and Shakya 2021)
   - Webinars related to loss and damage during the COP26 Development and Climate Days, and
   - A set of blogs related to loss and damage published around COP26 (Addison and Barrett 2021; Gallagher and Huq 2021; Huq and Norton 2021).

This working paper summarises the findings from this initiative. It provides recommendations that we hope will be used by other researchers, policymakers and practitioners — especially those working at national and local levels in low-income countries affected by losses and damages — to design and deliver locally led actions to address loss and damage that are appropriate to the contexts, priorities and preferences of the most affected and at-risk populations, based on their risk perceptions, values and lived experiences.

The results presented here are informed by the approach we have taken to conduct the research, which had three key characteristics.

**Focus on practical action.** In recent years, a great deal of important work has been conducted on loss and damage, especially to support the negotiating positions of LDCs and SIDS, or from the perspective of justice-based activism. Our initiative has chosen to focus on *how* vulnerable countries and communities can address loss and damage impacts and risks in practical terms, and how international partners can support them in doing so. We made this choice because we feel that pragmatism can enable the design and delivery of practical responses, which are urgently required, and because focusing on practical solutions can create a space around which diverse stakeholders might move towards consensus. We also believe that a pragmatic approach focused on local and national solutions is complementary to, and supportive of, the critical work being carried out by climate activists and negotiators in and around the UNFCCC to secure long-term concessions on loss and damage from developed countries and to hold them to account.

**Consensus building.** Convening diverse stakeholders to share their varied perspectives offers the opportunity for peer-to-peer learning and finding areas of consensus. We have aimed to foster a greater shared understanding of loss and damage as a practical challenge among stakeholders — even if they hold divergent positions on loss and damage — and to find windows of opportunity for collaboration, support and action on what must be done at national and local levels.

**Bottom-up evidence generation.** We have endeavoured to take a collaborative and deliberative approach to generating evidence by developing bottom-up case studies and by using deliberative dialogues to surface learning and evidence from diverse stakeholders in affected countries. As noted above, this approach has resulted in a number of reports, which outlined some of the ways that climate change creates losses and damages in affected communities, and identified some of the different ways they are being addressed. This approach grounded our understanding of loss and damage in the experiences and insights of affected and vulnerable countries and communities, provided space for their representatives to articulate concerns and lessons, and helped build some trust across stakeholder groups.

## 1.3 Paper outline

Despite the important progress that has been made to raise loss and damage up the political agenda in recent years, there is an urgent need to clarify the conceptual and practical frameworks, policies and actions that can be used to deliver a comprehensive loss and damage response that meets the demands of those who are most at risk. There is also a gap that must be bridged in translating our evolving collective knowledge on loss and damage into practical action by policymakers, practitioners and communities in affected and highly vulnerable countries.

Most importantly, governments in climate-vulnerable countries are demanding technical and financial support so that they can acquire the capabilities to assess their loss and damage risks, and to design effective, equitable and appropriate policies, programmes and financing mechanisms to tackle those risks, and build strong coalitions between stakeholders — from vulnerable communities, civil society, humanitarian actors, finance providers and others — who can deliver practical loss and damage actions grounded in local experiences and priorities.

While these are core aims and functions of the SNLD, taking action now can support LDCs and SIDS to access evidence and technical advice while the SNLD is being established, and to be in a strong position to take full advantage of the SNLD, and any finance that may come on stream in the future, so that they can mobilise action quickly and effectively.

In this working paper, we present the findings of IIED and ICCCAD's research on how stakeholders and communities in LDCs and SIDS might address loss and damage practically at national and sub-national levels. In keeping with our key finding on the need for a locally led approach to addressing loss and damage that includes the whole of society, the recommendations in this paper are presented from the perspective that any and all actions that are taken by stakeholders at international and national levels must be designed and delivered in ways that enable people who are affected by or at high risk of losses and damages to address the risks they face themselves on their own terms.

In Chapter 2, we review the various ways different stakeholders have conceptualised loss and damage over the past thirty years. We argue that the tendency for discussions on loss and damage to revolve around the divergent perspectives of UNFCCC negotiating blocs has not afforded the space to develop technical guidance that can be used by national and sub-national actors in high-risk countries to design and deliver practical measures to address the losses and damages that are likely to occur as the climate changes. We also argue that, based on our analysis of the nature of loss and damage risks, there is an urgent need to address not only the unavoidable and unavoided adverse impacts of climate change, but also the residual risks of loss and damage that will result from the deadly combination of escalating, compounding climate hazards and the inevitable failure of the international regime to mobilise effective adaptation in time. We therefore suggest that a pragmatic approach to addressing loss and damage must be developed, taking into account the full range of loss and damage risks that the most at-risk communities and countries now face, both now and into a highly uncertain future.

In Chapter 3, the paper takes a deep dive into the nature of loss and damage risks and reviews the ways in which loss and damage risks differ from historical forms of climate risk due to the unprecedented, intensifying and compounding nature of losses and damages that result from climate change, and due to the limits to adaptation that are already undermining the ability of populations across developing countries to cope with climate shocks and adapt to climate change. In this chapter, we highlight the importance of understanding the multidimensional nature of loss and damage risks, and of the intersectional nature of vulnerabilities to loss and damage, which are shaped by unequal relations of power and marginalisation that are rooted in colonial and post-colonial processes of exclusion and exploitation. We also explore the importance of understanding how loss and damage risks evolve over time, due both to the evolving nature of climate change and to the dynamic evolution of environmental, social and economic conditions in developing country societies.

In Chapter 4, we deepen our analysis of the nature of loss and damage risks by providing a detailed description of seven key features that we believe need to be considered when designing and delivering measures to address the loss and damage risks of the most vulnerable communities and countries. In this section we highlight the importance of considering the risk perceptions of affected and at-risk populations. In particular we emphasise the need to design and deliver actions to address loss and damage based upon the preferences of affected and at-risk people, taking into account the ways in which they value different forms of loss and damage, and the extent to which they find different types of risk either tolerable or intolerable. In particular we note the importance of factoring non-economic and informal forms of loss and damage into risk analyses and of prioritising the losses and damages that will be incurred by highly vulnerable populations over the formal, economic forms of loss and damage that primarily impact elites and formal institutions.

In Chapter 5, we shift focus to explore the practical measures that national and sub-national actors can use to address loss and damage in practice, taking the seven key features of loss and damage risk into account. Based on a review of good practices emerging from LDCs and SIDS that are tackling the challenge of loss and damage, and from the fields of humanitarian and disaster response, climate change adaptation and sustainable development, we suggest that there are a wide range of methods and measures that can be applied to address different forms of loss and damage risk in affected and at-risk communities over the short, medium and long term. We also present a detailed description of ten attributes of good practice that we believe can be used to inform the design and delivery of measures to address loss and damage. Each attribute of good practice is illustrated by a selection of brief case studies, which are available in Annex 1.

In Chapter 6, we examine the issue of how to finance actions to address loss and damage. In this section, we do not comment on whether or how a loss and damage financing facility should be established to support LDCs and SIDS, as this is the primary question under consideration in the Glasgow Dialogue. Rather we focus on the more basic question of how finance, generally speaking, can be harnessed and allocated by affected and vulnerable countries to effectively respond to, cope with, recover from and manage loss and damage impacts and risks over different time horizons. We argue that the diverse measures required to address loss and damage effectively require the use of diverse forms of finance, that can be layered and coordinated with one another to deliver a response that is timely, effective, efficient, and appropriate. We review a selection of sources and flows of finance and delivery mechanisms that can be tailored to address loss and damage, but argue that no single source or delivery mechanism will be appropriate or sufficient to deliver the finance that is needed to address the varied forms of loss and damage that at-risk countries and communities face. Rather, we argue that by layering different types of finance in a coordinated and complementary manner, the right ones can be channelled to the right places at the right time to meet the evolving needs of the people who are most at risk.

The paper concludes with some general reflections on our research findings and makes some recommendations for action.

# 2

# Conceptualising loss and damage

Camilla More and Simon Addison

For decades, climate-vulnerable countries have argued that the international community must urgently address loss and damage. But the issue has been hotly contested: there is no official definition of loss and damage, and stakeholders diverge widely on how to frame discussions and design appropriate policy responses. Conceptualising loss and damage clearly in pragmatic terms could be a useful step in moving towards effective collective action.

The issue of loss and damage is closely tied to several highly contentious political issues. The most important of these is whether or not polluting countries are liable to pay compensation for the losses and damages that have been and will be incurred by the developing countries that have done the least to cause climate change. This political context has important implications for how loss and damage has been conceptualised and how it has been addressed to date in both policy and practice.

## 2.1 The challenge of constructive ambiguity

Negotiations on how loss and damage should be addressed are pursued under the auspices of the UNFCCC as part of the Conference of Parties to the Convention. UNFCCC decisions are taken by consensus, and on contentious matters this often results in 'constructive ambiguity', where decision texts leave room to reflect conflicting viewpoints. This has contributed to significant ambiguity, and often contradiction, in how different governments, negotiating groups and civil society advocates understand loss and damage (Vanhala and Hestbaek 2016; Mechler et al. 2020).

There is no formal definition of loss and damage. A working definition used by the UNFCCC defines loss and damage as, "the actual and/or potential manifestation of impacts associated with climate change in developing countries that negatively affect human and natural systems" (UNFCCC 2012). This definition recognises that, "loss and damage can arise from a spectrum of negative impacts of climate change, ranging from extreme weather events to slow-onset events" (UNFCCC 2012).

While seemingly simple, this definition leaves space for Parties to the UNFCCC to take very different positions when they talk about loss and damage. For instance, different stakeholders may consider approaches for tackling loss and damage to include:

1. Addressing loss and damage by responding solely to the actual impacts of climate change, through disaster response and recovery
2. Averting and minimising the risks of potential loss and damage in the future, through actions to mitigate and adapt to climate change
3. Addressing the potential impacts of climate hazards that can, in theory, be avoided through mitigation and adaptation actions, but which depend upon the efficacy of those actions, or

4. Addressing the residual risks of potential future climate impacts — losses and damages that become increasingly likely to happen due to the failures of mitigation and adaptation to avert or minimise loss and damage risks.

In line with the UNFCCC's working definition, the Paris Agreement recognises the importance of, "averting, minimizing and addressing loss and damage associated with the adverse effects of climate change". Here the terms 'averting' and 'minimizing' are generally considered to refer to mitigation and adaptation, respectively (UNFCCC 2015a). The term 'addressing', on the other hand, refers to actions designed to deal specifically with climate impacts that have not been or will not be avoided.

This perspective has enabled some Parties to the UNFCCC to focus on the need to avoid the potential manifestation of loss and damage in the future by minimising and averting climate impacts. This view frames loss and damage as a sub-component of mitigation and adaptation. Others, in particular the LDCs and SIDS, believe that loss and damage should be a separate 'third pillar' of the Paris Agreement, and argue that distinct mechanisms need to be established to address the actual manifestation of negative impacts associated with climate change in developing countries that have not been, cannot be or will not be avoided (G77 and China 2021; Pierre 2021; Cadet 2021; Briceno 2021; Natano 2021).

These divergent understandings of how loss and damage should be understood and tackled have hampered progress on the issue in UNFCCC negotiations, especially with regard to finance. The establishment of the WIM in 2013, the inclusion of loss and damage in the Paris Agreement in 2015, and the agreement to set up the SNLD in 2019 all marked important milestones on the road towards a comprehensive response to loss and damage, but there is still a long way to go. COP26 saw continued disagreement and obstruction of calls from LDCs and SIDS for the delivery of meaningful finance to tackle loss and damage as a distinct issue in its own right, and for establishing a dedicated loss and damage Finance Facility (Schalatek and Roberts 2021).

The Glasgow Dialogue may offer the potential for a breakthrough on finance, as there now seems to be broad agreement for the first time that there is a need to address loss and damage collectively and that gaps do exist in the current financing system. But the proceedings at the Glasgow Dialogue meetings at the 56th session of the SBI in Bonn in June 2022 indicated that divergent understandings of how loss and damage should be addressed continue to impede progress. Achieving a shared conceptualisation of loss and damage would ensure that policymakers from developing and developed countries are talking about the same thing and may help to progress discussions on how to develop concrete mechanisms to mobilise action and support to affected countries rapidly and at scale (Calliari, Surminksi and Mysiak 2019).

## 2.2 The limits to adaptation

The relationship between mitigation, adaptation and loss and damage is undeniable. Mitigating climate change by reducing global greenhouse gas emissions (GHGEs) will limit atmospheric heating and reduce the impacts of climate change. Effective climate change adaptation will limit the harm those impacts will have on ecosystems, people, communities and countries. But mitigation and adaptation have their limits. Mitigation alone is not enough to deal with the possible impacts of climate change. The IPCC's sixth assessment report on impacts, adaptation and vulnerability report found with very high confidence that while limiting heating to 1.5°C will "substantially reduce" losses and damages, it "cannot eliminate them all" (IPCC 2022).

Adaptation also has its limits. In 2014, countries welcomed the Summary for Policymakers of the IPCC's report on impacts, adaptation and vulnerability. This report explained that "limits to adaptation occur when adaptive actions to avoid intolerable risks for an actor's objectives or for the needs of a system are not possible or are not currently available" (IPCC 2014a). It also found, with very high confidence, that "under all assessed scenarios for adaptation and mitigation, some risk from adverse impacts remains". The latest IPCC report on impacts confirms that "the rise in weather and climate extremes has led to some irreversible impacts as natural and human systems are pushed beyond their ability to adapt" (IPCC 2022).

**Hard versus soft limits to adaptation.** The IPCC classifies the limits of adaptation as either hard or soft (see Table 1). Hard adaptation limits are physical limitations where no adaptative actions can avoid certain types of intolerable risk (IPCC 2022). For example, many species, including humans, key food crops and livestock, have thermal limits to their survival, meaning that heating resulting in temperatures above that threshold will exceed the limits of adaptation (IPCC 2014b). These losses and damages are 'unavoidable' because they "could not be avoided through any form of mitigation and/or adaptation" measures (Verheyen 2012).

Table 1. Hard and soft limits to adaptation

| | | | |
|---|---|---|---|
| Hard | Limits to adaptation imposed by **physical constraints** of species, ecosystems or infrastructure | Unavoidable | Certain losses and damages cannot be avoided no matter what adaptation or mitigation actions are attempted (eg sea-level rise)<br>Ex-ante measures are necessary to address the multiple realities of losses and damages that are inevitable in the future |
| Soft | Limits to adaptation imposed by **social, economic and political constraints** on coping and adaptation | Avoidable | Certain losses and damages may be avoidable, but only if effective actions and reforms are taken within the appropriate period of time before a particular type of climate hazard occurs<br>Ex-ante measures will be needed to prepare for losses and damages that may be caused by extreme or slow-onset events in the future if the limits to adaptation are exceeded<br>Ex-post measures will be needed to respond to the impacts of climate shocks that exceed the limits to adaptation |
| | | Avoided | Losses and damages are avoided if adequate and effective adaptation actions are taken in time to enable affected people and places to avoid the impacts of a particular type of climate hazard<br>Measures not required |
| | | Unavoided | If effective adaptation actions are not taken in time, there will be a residual risk that certain climate impacts will occur, resulting in unavoided loss and damage<br>Ex-post measures are required to address the multiple realities of losses and damages that are incurred following a climate impact |

Soft adaptation limits refer to situations where, "options may exist but are currently not available to avoid intolerable risks through adaptive actions" (IPCC 2022). Such limits relate to the constraints imposed by social, economic, technical and political factors that could, in theory, be shifted by changing socioeconomic or political conditions, increased allocation of resources and technological innovation.

As the IPCC explains, "given rising incomes and advances in knowledge and technology, a greater number of adaptation options may become available to a greater number of actors over time. In contrast, impediments to development, constraints on investments in adaptation, or rapid escalations in risk may increase the likelihood of experiencing a limit" (IPCC 2014b). So soft limits can be avoided — but only if the right types of action are taken at the right time.

Within soft limits, we can distinguish between different types of losses and damages:

- **'Avoidable'** losses and damages are negative climate impacts that are likely to happen in the future under different climate change scenarios, but which can be avoided if effective mitigation and adaptation actions are taken within the required time period.
- **'Avoided'** losses and damages are negative climate impacts that were possible but were avoided due to society taking effective action to avert or minimise harms.
- **'Unavoided'** losses and damages occur "where the avoidance of further damage was possible through adequate mitigation and/or adaptation, but where adaptation measures were not implemented due to financial or technical constraints" (Chen et al. 2017).

Where they can be anticipated in time, avoidable losses and damages are best addressed ex-ante by increasing the allocation of resources and abilities to enable the people and places that are at risk to avoid them. But no matter what action is taken to avoid such losses and damages, it is highly likely that some level of risk will remain for some people and places — especially those who are most vulnerable. The levels of loss and damage risk that remain despite actions taken to avert or minimise losses and damages are referred to as **residual risks** (Mechler et al. 2020; IPCC 2022).

The uncertainty inherent in predicting the future under climate change means that is difficult to define precisely where the limits to adaptation lie. This adds to the challenge of conceptualising losses and damages that occur beyond the limits of adaptation (Preston et al., 2013). The more you can shift the soft adaptation limits by taking effective action to avert and minimise loss and damage ex-ante, the less actual loss and damage will occur and the lower the residual risks of loss and damage will be. The more you fail to take appropriate and timely action to avert and minimise climate risks, the higher the residual risks you will be left with, and the greater the losses and damages that will occur.

While it may not be possible to pinpoint exactly where the limits to adaptation lie in advance, the acknowledgement that such limits exist, and that residual risks are inevitable, especially for those most vulnerable to climate shocks in the developing world, provides a clear basis for conceptualising loss and damage as an issue that must be distinguished from adaptation and mitigation.

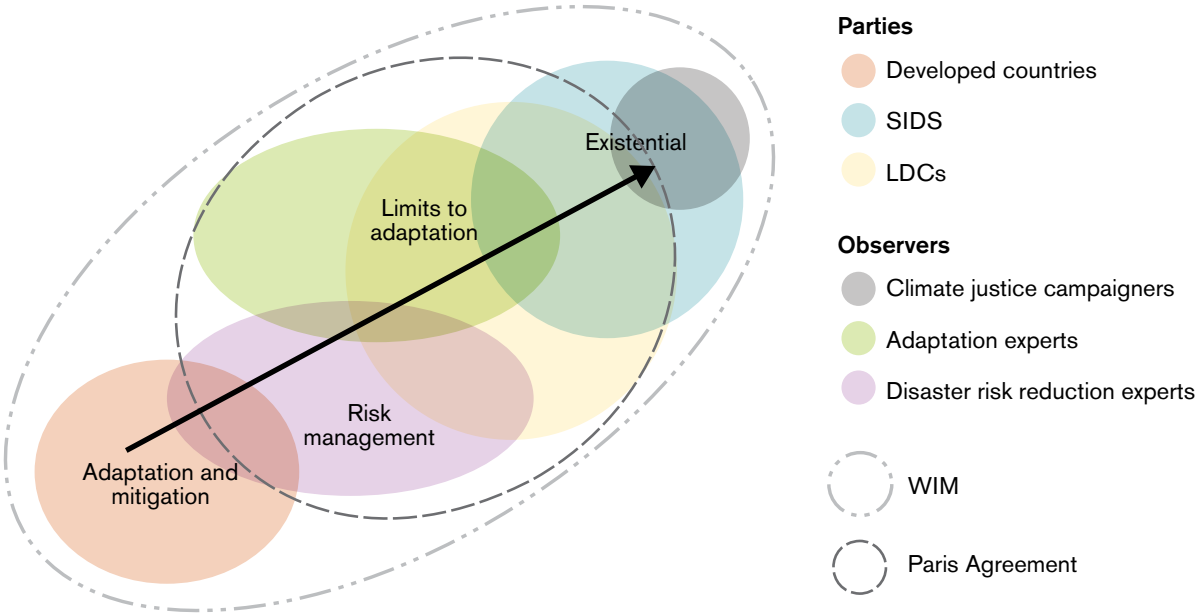
## 2.3 A spectrum of perspectives

The different perspectives held by different stakeholders on loss and damage have been mapped into a typology by Boyd et al. (2017) (see Figure 1). They range from a narrow 'adaptation and mitigation' position, which serves to justify business-as-usual, to an 'existential' position, which argues for urgent and transformative action to address climate risks in highly vulnerable countries.

**Adaptation and mitigation perspective.** Developed countries tend to articulate an adaptation and mitigation perspective on loss and damage. This perspective implies that existing efforts to reduce GHGEs or support climate adaptation are sufficient to tackle loss and damage (Boyd et al., 2017). For instance, in a 2018 submission to the UNFCCC, Romania and the European Commission argued that, "the surest way of averting and minimizing loss and damage is by reducing greenhouse gas emissions…" (Romania and the European Commission on Behalf of the European Union and its member states 2018).

While that submission recognised that, "some disasters will overwhelm even the best-prepared local capacity," it also suggested that, "in such cases, international humanitarian assistance should be provided...". While it is true that humanitarian assistance can play an important role in addressing losses and damages, this logic justifies the position that there is no need for additional dedicated finance to address loss and damage, arguing that "the existing climate finance landscape alongside national budgets and other development and humanitarian finance can all help to support the effective implementation of efforts to avert, minimize and address loss and damage."

Figure 1. Illustration of 'A typology of loss and damage perspectives' (Boyd et al. 2017)




Source: used with permission from Boyd, E, James, RA, Jones, RG, Young, HR and Otto, FEL (2017) A typology of loss and damage perspectives. *Nature Climate Change* 7, 723–729 (copyright © 2017, Nature Publishing Group)

**Existential perspectives.** By contrast, vulnerable developing countries, including the LDCs and SIDS, take positions at the other end of the spectrum. For these countries loss and damage "represents a means to highlight the importance of addressing the inevitable harm which climate change will impose" upon them, despite the fact that they have done little to contribute to the problem (Boyd et al. 2017). They highlight the limits of adaptation, emphasising that loss and damage is happening now and will become increasingly unavoidable, no matter what efforts are made to mitigate or adapt to climate change. They also insist that, from their perspective, loss and damage represents an 'existential' threat to the survival of their people, their territories and even their nation states.

While Boyd et al.'s analysis was carried out prior to the progress made at recent COPs, these divergent perspectives persist. At COP26, only two speakers from developed country Parties (the EU and the Umbrella Group at the UNFCCC) mentioned loss and damage in their opening statements, and only in the context of, "averting, minimising and addressing loss and damage" (European Union 2021). In contrast, at least 25 Parties and groups of Parties from developing countries emphasised the need to address loss and damage urgently and for donors to provide dedicated loss and damage finance for them to do so. The G77 and China said, "COP26 should deliver on addressing the loss and damage related needs of developing countries, especially for enhanced action and support…" (G77 and China, 2021).

Vulnerable countries also emphasised that the issue should be dealt with distinctly from adaptation, with Saint Lucia saying, "we must … raise the profile of, and mainstream loss and damage as a distinct pillar of climate action and support," (Pierre 2021) and Haiti saying that there is a need for, "recognition of loss and damage as a pillar of action separate from adaptation" (Cadet 2021).

Highlighting the importance of distinguishing between 'averting and minimising' and 'addressing' loss and damage, Belize said that "talk of reducing and averting loss and damage must give way to dedicated financial, technical, and capacity-building support to address actual loss and damage in developing countries" (Briceno 2021). The Alliance of Small Island States (AOSIS) also underscored that loss and damage needs attention "as a distinct issue in its own right, not just on the margins of adaptation" (AOSIS 2021).

Further emphasising the importance of acknowledging the limits of adaptation, Tuvalu said, "however we adapt to cope with the increasing devastation of climate change and sea-level rise, for some of us, the capacity to adapt is waning, for technical and financial reasons. Consequently, we will bear the burden of significant costs due to loss and damage even at safer temperature levels" (Natano 2021).

## 2.4 Loss and damage at the UNFCCC: slow progress

**An early proposal for action.** During the process for developing the UNFCCC in 1991, Vanuatu submitted a proposal on behalf of AOSIS that there should be, "a separate International Insurance Pool … to compensate the most vulnerable small island and low-lying coastal developing countries for loss and damage resulting from sea level rise," and suggested that "the financial burden of loss and damage… shall be distributed in an equitable manner amongst the industrialised developed countries." While that submission related specifically to loss and damage from sea-level rise, the explanatory notes added that, "it might serve as a model for a parallel insurance scheme for those developing countries most vulnerable to desertification and drought" (Vanuatu 1991).

The AOSIS submission helped to establish an early impression that vulnerable developing countries understood loss and damage as an issue for which developed countries should be held liable, requiring them to pay compensation for the harms that developing nations would suffer due to climate change. This notion was rejected strongly by developed nations, and the Convention itself made no mention of loss and damage. It did state, however, that "the Parties shall give full consideration to what actions are necessary under the Convention, including actions related to funding, insurance and the transfer of technology, to meet the specific needs and concerns of developing country Parties arising from the adverse effects of climate change…" (UN 1992, Art. 4.8).

**The Warsaw International Mechanism.** It was not until 2010 (see Table 2) that the COP decided to establish a work programme to consider 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" (UNFCCC 2011). This led to the establishment in 2013 of the WIM, "to address loss and damage associated with impacts of climate change, including extreme events and slow-onset events, in developing countries that are particularly vulnerable to the adverse effects of climate change" (UNFCCC 2014a).

Table 2. Timeline of loss and damage at the UNFCCC

| | |
|---|---|
| 1991 | AOSIS table proposal for international insurance pool to compensate vulnerable developing countries for loss and damage from sea-level rise |
| 2010 | COP establishes a work programme to consider approaches to address loss and damage |
| 2013 | COP establishes the Warsaw International Mechanism for Loss and Damage (WIM) to address loss and damage |
| 2015 | The Paris Agreement includes a dedicated article recognising the importance of averting, minimising and addressing loss and damage, and setting out that Parties should enhance understanding, action and support with respect to loss and damage. The accompanying decision is explicit in stating that this article does not involve or provide a basis for any liability or compensation. |
| 2018 | The Suva Expert Dialogue is held to explore a wide range of information, inputs and views on ways for facilitating the mobilisation and securing of expertise, and enhancement of support, including finance, technology and capacity building, for averting, minimising and addressing loss and damage, leading to a report. |
| 2019 | The Santiago Network for averting, minimising and addressing loss and damage (SNLD) is established to catalyse the technical assistance of relevant organisations, bodies, networks and experts for the implementation of relevant approaches |
| 2021 | The Glasgow Dialogue is established for Parties, relevant organisations, and stakeholders to discuss the arrangements for the funding of activities to avert, minimise and address loss and damage. The three-year dialogue will conclude at the 60th session of the subsidiary bodies in June 2024.<br><br>During COP26, but outside of the negotiations process, Scotland, Wallonia and a group of philanthropies announced total contributions of US$6.7 million to address loss and damage. |

In the preamble to the decision that established the WIM, the COP acknowledged "that loss and damage…includes, and in some cases involves more than, that which can be reduced by adaptation" (UNFCCC 2014b). Parties to the UNFCCC thereby acknowledged that some loss and damage is unavoidable, that adaptation alone is not sufficient to deal with the impacts of climate change, and that losses and damages cannot be dealt with wholly as a sub-issue of adaptation.

**The Paris Agreement.** In 2015, the Paris Agreement included loss and damage in a distinct article separate from the those dealing with mitigation (Articles 4–6) and adaptation (Article 7). In Article 8 of the Agreement, "Parties recognise the importance of averting, minimizing and addressing loss and damage associated with the adverse effects of climate change," and "Parties should enhance understanding, action and support… with respect to loss and damage associated with the adverse effects of climate change" (UNFCCC 2015a).

While Article 8 was generally considered a win for developing countries, as it gave loss and damage a stronger standing in the negotiations (Andrijevic and Ware 2021), it maintained the broad focus on 'averting, minimising and addressing' loss and damage, allowing space for the full spectrum of perspectives on loss and damage, including those of the developed countries.

The developed country perspective was reinforced by the decision that accompanied the Paris Agreement, which stated that, "Article 8 of the Agreement does not involve or provide a basis for any liability or compensation" (UNFCCC 2015b). This confirmed once again that notions of liability are a major red line for developed countries, who wish neither to admit their culpability for climate change, nor to assume responsibility for covering the immense financial cost that addressing loss and damage will entail (Markandya and González-Equino 2018).

The same position was reinforced in Madrid in 2019, where the US circulated a proposal to extend Article 8's liability waiver to all mentions of loss and damage under the UNFCCC, not just the Paris Agreement. This proposal was a 'no go' for vulnerable countries who feared, "the position could make it easier for rich countries to refuse to provide funding to help vulnerable countries recover from climate impacts" (Farand 2019).

Thus, developed countries tend to frame loss and damage as a sub-component of adaptation or as an issue to be addressed through a combination of adaptation, disaster risk reduction (DRR) or humanitarian action (Byrnes and Surminski 2019; Calliari, Serdeczny and Vanhala 2020). The emphasis they continue to put on 'averting, minimising and

addressing' loss and damage supports this framing, and enables them to avoid focused discussions on 'addressing' loss and damage that could raise issues of fault-based compensation or liability for historic GHGEs that have caused climate change.

**Slow progress on loss and damage finance.** Since it was first tabled in 1991, the issue of how particularly vulnerable developing countries can secure the financial support they need to address loss and damage has remained a significant obstacle to progress at the COP. From their initial suggestion of an international insurance pool, vulnerable countries have evolved and broadened their ideas on finance. They have moved from calling upon developed countries to provide finance to tackle loss and damage on the basis of liability, to calling upon them to do so in 'solidarity' with those bearing the brunt of climate change, and have proposed the establishment of a dedicated loss and damage 'financing facility' to provide dedicated, additional, large-scale finance to help them tackle the challenges they face in decades to come.

These ideas came out clearly at COP26 when the G77 and China, representing 80% of the world's population, tabled a joint proposal for a dedicated financial mechanism. However by the end of the conference, this proposal had been rejected, and the idea of a financing facility was not included in the final decision text. Instead, the Glasgow Pact set up the three-year Glasgow Dialogue to discuss the most suitable arrangements for funding activities to avert, minimise and address loss and damage in vulnerable countries (UNFCCC 2021a).

Many developing countries were disappointed by this decision, interpreting the Glasgow Dialogue as a delaying tactic by developed countries to enable them to avoid taking concrete action. They are also haunted by past experience: in 2018, the Suva Expert Dialogue was held, "to explore a wide range of information, inputs and views on ways for facilitating the mobilization and securing of expertise, and enhancement of support, including finance, technology and capacity building, for averting, minimizing and addressing loss and damage" (UNFCCC 2017). That dialogue resulted in little more than a report.

On the margins of COP26, however, the governments of Scotland and Wallonia and a group of progressive philanthropies announced financial contributions of more than US$6 million to address loss and damage in developing countries — the first such announcement in the history of the conference (Scottish Government 2021). Significantly, Scottish First Minister Nicola Sturgeon emphasised that loss and damage, "is an issue of reparation not charity, and developed nations must step up" (Sturgeon 2021).

These contributions sent a powerful signal to developed country Parties and changed perceptions on what might be possible if loss and damage is considered separately as an issue needful of dedicated finance and action. They also set a precedent to guide future action on loss and damage, for the funds committed are intended not simply as a reparative gesture of good will, but are designed to finance concrete actions to address loss and damage risks by supporting vulnerable communities to prepare for and recover from climate-induced loss and damage (Scottish Government 2022).

Unfortunately, the first meeting of the Glasgow Dialogue at the 56th session of the SBI in Bonn did not result in further progress, as the negotiations ended without clear conclusions. The G77 did however reaffirm its demand for a financing facility on loss and damage, and has pushed for the issue to be included as a sub-agenda item at COP27

## 2.5 Towards a pragmatic approach

Though small, the financial commitments that were made in Glasgow by Scotland, Wallonia and the philanthropies raised the important question of how losses and damages might be addressed in practice. What kinds of actions should the money they have pledged fund? Who should implement those actions, and how? How should those actions be designed and delivered, and what financing mechanisms are most appropriate for allocating and disbursing the funds effectively? Should those actions address only losses and damages that have already been incurred, or can they address risks that are likely to be unavoidable in the future even if adaptation action takes place? If they can address future risks, how can those actions be distinguished from adaptation — and indeed should they be?

Ideas about how losses and damages should be tackled are strongly shaped by stakeholders' concepts of what loss and damage encompasses. As we have seen, at one end of the spectrum, developed countries argue that losses and damages can be 'averted, minimized and addressed' through a combination of business-as-usual mitigation, adaptation and humanitarian action. At the other end, highly climate-vulnerable developing countries and their civil society allies argue that a clear distinction must be drawn between mitigation and adaptation and the actions that must be taken to address losses and damages, and that separate systems, approaches and finance are needed to do so, with a focus on delivering responses to and recovery from the adverse impacts of climatic shocks and slow-onset events.

Informed as they are by the contested political imperatives of COP negotiations these perspectives do not take sufficiently into account the complex nature of loss and damage risks that the people most at-risk from climate hazards face in particularly vulnerable communities, and how those risks relate to longer term processes of adaptation and development that will determine their levels of residual risk. Nor do they consider sufficiently the immediate technical needs of the wide range of stakeholders (government, civil society, private sector, community members) who are under increasing pressure to develop policies, design programmes and implement measures that can address different forms of loss and damage risk effectively in high-risk communities.

Addressing loss and damage in practice requires stakeholders to adopt a pragmatic approach that prioritises the need to understand the complex and multidimensional nature of loss and damage risks that vulnerable people and places will face over time as climate change intensifies. It also requires an approach that actively considers the wide variety of technical approaches and financial instruments that might be needed to address those varied risks over time, without falling into the trap of separating different forms of action into artificial silos.

Such an approach needs to consider the following factors:

1. The hard and soft limits to adaptation mean there will always remain a level of residual loss and damage risk that is unavoidable in the future — no matter what action is taken to avert, minimise or address loss and damage through mitigation, adaptation, disaster response or recovery.
2. Those residual risks must be factored into all climate risk analyses, loss and damage action plans, and adaptation and sustainable development strategies.
3. Business-as-usual approaches to adaptation, mitigation and disaster management are not suitable for dealing with the nature of these residual risks, nor will they be adequate for dealing with the scale of losses and damages that will unavoidably occur beyond the limits to adaptation.
4. Actions to address loss and damage effectively must therefore combine a variety of measures to address the different forms of loss and damage that a country or community may experience over different time frames (past, present, short-, medium- and long-range), including:
    a. Loss and damage impacts: the unavoided adverse impacts of climate change
    b. Loss and damage risks: the range of potential losses and damages that are likely to occur in the future under different scenarios — including unavoidable and residual risks — the probability of which depends upon whether or not society acts effectively to avert or minimise loss and damage in the future.

There are indications that support for a pragmatic approach such as this is now growing. For instance, in the loss and damage dialogue series convened by IIED and ICCCAD in 2021, participants from LDCs and SIDS noted the need not only to respond to the unavoided impacts of climate shocks, but to put in place the means for managing residual risks (Bharadwaj et al. 2021a-d), and described measures that they were using to do so.

In other fora, such as meetings of the Climate Action Network (CAN) and the L&DC, members of civil society and academia (for example, L&DC 2022) have noted the need to better understand practical matters, such as:

- How to take practical action at scale at national and international levels, applying a spectrum of actions from response and recovery to transformational action
- How planning systems at national and local levels can be developed to address risks over the short to long term, taking into account the various roles of different stakeholders and including the priorities of communities
- How communities and local authorities can be supported to understand loss and damage risks and how to address them
- How to develop effective mechanisms to disburse money to the local level to address different forms of loss and damage
- That action to address loss and damage cannot be compartmentalised from development, resilience building and adaptation, and that loss and damage can be integrated into approaches to deliver climate-resilient development (Harjeet Singh from CAN).

These concerns were reinforced by interviewees consulted for this research. As one stated, "the question of how to confront and deal with loss and damage is so much more than how to compensate it, how to fund recovery, or who is going to pay for it" (Anonymous Interviewee 4 2021). Another emphasised the need, "to evolve the conversation conceptually from 'your fault, you pay' to 'how are we going to navigate this?'" (Anonymous Interviewee 3 2021).

Amongst others, Byrnes and Surminski (2019) have also suggested that discussions on loss and damage can be depoliticised, "by highlighting the need for urgent action on loss and damage and finding common ground on which to undertake that action."

At COP26 many representatives of LDCs and SIDS also highlighted not only the urgent need for action to be taken to address both loss and damage impacts and future loss and damage risks, but also showcased a wide range of practical examples of how they are already attempting to do so.

This pragmatic approach offers a view in which loss and damage can be understood from a perspective that does not hinge on the politically sensitive issues of fault-based liability and compensation, but which emphasises the collective need to respond urgently and practically to the loss and damage impacts and risks that lie beyond the limits to adaptation in the communities and countries that are most disproportionately at risk from climate change.

But pursuing a pragmatic approach requires all stakeholders to acknowledge that the adverse impacts of climate change cannot be avoided completely through mitigation and adaptation. They must also heed the fact that many communities and countries across the global South have already crossed some limits to adaptation and are incurring losses and damages that not only take a severe toll upon their lives, livelihoods and cultures, but undermine their ability to recover, to adapt to future climate risks and to achieve sustainable development (IPCC 2022).

These facts should no longer be in question: the IPCC has explained the limits to adaptation in reports that have been accepted unanimously by all Parties to the Convention, and it has elaborated in detail the forms and likely scale of losses and damages that have been, are being, and will be incurred by developing countries in the coming decades (IPCC 2022). As such, it is now important that a pragmatic perspective on loss and damage is given a more central position in the debate at both national and international levels.

With global GHGEs trajectories on course to heat the world well beyond safe levels and adaptation efforts lagging, some limits to adaptation are already being crossed, resulting in losses and damages that are escalating and compounding in developing countries. The global community must now place their focus on how actions to address loss and damage impacts and residual risks can be delivered quickly and at scale in the most affected and at-risk communities, while also ensuring that discussions about practical action at national and sub-national levels take global processes into account, and are aligned with and do not undermine the demands of the most vulnerable countries at the UNFCCC.

On one hand this is a clear issue of climate justice, in which those most affected by but least responsible for climate change are supported to overcome its adverse impacts. On the other, it is also an issue of common concern and mutual self-interest. As Calliari, Surminski and Mysiak (2019) have highlighted, addressing loss and damage through collective action can deliver a range of positive outcomes that will deliver shared benefits to both developing and developed countries alike, such as more resilient global supply chains, fewer potential climate migrants or refugees, reduced budgets for disaster response and humanitarian relief, and improvements in international security.

## 2.6 Conclusion

In this chapter we have outlined the various ways loss and damage has been conceptualised by different stakeholders in the climate change policy arena and provided a brief history of how the idea of loss and damage has evolved as a negotiating issue under the UNFCCC. We have also described the varied, often divergent perspectives of different stakeholders on loss and damage and have explained how opposing understandings of the issue have made it challenging to agree on how practically to address loss and damage in affected and highly vulnerable countries.

Given that many of the most at-risk countries and communities are already incurring losses and damages due to climate change, we have argued that it is imperative to adopt a pragmatic perspective on loss and damage, one that prioritises the need for all stakeholders to work collectively to respond to the loss and damage impacts and risks that climate change poses to those most at-risk from the adverse consequences of climate change, both now and over the short, medium and long term.

We believe that this perspective can offer the basis upon which national governments and their partners in civil society and the international community can work together to design and deliver effective interventions to address loss and damage impacts and risks today, and into an uncertain future, while also informing international negotiations on the global response to climate change and supporting calls for climate justice.

In the following chapters, we outline our findings on how a pragmatic approach to addressing loss and damage might be developed and delivered, with a focus on the actions that national and sub-national actors and communities might be supported to take to tackle the escalating loss and damage impacts and risks they face on their own terms. Our hope is that this pragmatic approach offers a pathway that can help affected and climate-vulnerable countries and communities to address loss and damage impacts and risks in a way that is timely, realistic and effective, and that can act as a guide to action for policymakers and practitioners in LDCs and SIDS and beyond.

# 3

# The nature of loss and damage risks

Anna Carthy and Simon Addison

Loss and damage risks affect people in different ways depending upon context-dependent, multidimensional factors that are shaped by historical and ongoing inequities that marginalise particular groups, leaving them disproportionately at-risk from climate impacts. The unprecedented, intensifying and compounding nature of climate shocks means that loss and damage risks are highly dynamic, uncertain and likely to produce unpredictable cascades of losses and damages over time. The resulting impacts are felt most severely by groups who are already marginalised or excluded.

The risks that people, places, species and ecosystems face due to extreme weather events or slow-onset processes associated with climate change are understood as a function of the nature of the specific hazard that might affect them over a particular time frame, including a consideration of the hazard's particular magnitude and intensity, and of their exposure and their vulnerability to that type of hazard (UNISDR 2015a). In the field of disaster risk management, this complex calculus is often summarised with the aid of a simple equation, which states:

> Risk (R) = Hazard (H) x Exposure (E) x Vulnerability (V)

In some versions of this equation, the factor of resilience is added as a denominator to the factor V, emphasising that the level of risk depends as much on the capacity of a person, community or country to absorb, adapt and bounce back from a shock as it does on the relative deficits in resources and capabilities that they possess compared to others.

In the case of loss and damage, the particular importance of the hard and soft limits to adaptation in determining whether or not losses and damages might be incurred under a given hazard scenario mean that these limits must be factored into the equation. This was recently demonstrated in the IPCC's Special Report on the Ocean and Cryosphere in a Changing Climate, which included limits to adaptation in a diagram representing risk (IPCC 2019). This variation can be represented using the following equation:

> Risk (R) = [Hazard (H) x Exposure (E) x Vulnerability (V)] + *Limits to Adaptation (L)*

By incorporating the limits to adaptation this equation can help us determine more exactly who and where is at risk of losses and damages from different types and magnitudes of hazard over time. Because the four elements of this updated equation are all dynamic and multidimensional, the loss and damage risks that people and places, species and ecosystems face are also dynamic and differentiated over space and time.

Furthermore, loss and damage risks differ from previous experiences of disaster risk in important ways, because losses and damages are incurred due to hazards that have been caused or exacerbated by climate change to the extent that they are unprecedented and exceed the known parameters of disaster resilience.

## 3.1 Hazards

As in the standard disaster risk equation, the hazard component of the loss and damage equation refers to the shocks and/or stressors that will result in a negative impact for a particular person, community, settlement or ecosystem, region or country.

As noted above, these might include unprecedented extreme weather events, such as tropical storms, floods, heatwaves, wildfires and droughts, or slow-onset processes, such as sea-level rise, glacier melt, desertification, and species extinction. Table 3 below outlines a range of climate hazards and potential losses and damages they can generate.

Table 3. Climate hazards and types of loss and damage, based on Bharadwaj and Shakya (2021), Schäfer et al (2021), Morrissey and Oliver-Smith (2013), Singh et al. (2021), Regan and Young (2022), Maystadt and Ecker (2014), Nett and Rüttinger (2016), Bharadwaj et al. (2021) and Bharadwaj et al. (2022).

| CLIMATE HAZARDS | TYPES OF LOSS AND DAMAGE | | |
|---|---|---|---|
| **Extreme weather events** | **Potential ecological impacts** | **Potential non-economic impacts** | **Potential economic impacts** |
| Floods | Loss of biodiversity | Loss of life | Loss of building and housing stock |
| Heatwaves | Species extinction | Infectious disease | Loss of assets |
| Storms | Ecosystem degradation | Malnutrition | Loss of productive land |
| Cyclones | Ecosystem migration | Negative toll on mental and physical health | Loss of income |
| Hurricanes | Ecosystem collapse | Access to services such as education and healthcare | Loss of savings |
| Storm surges | Loss of ice caps/ ice shelfs | Loss of territory | Increased poverty |
| Droughts | Glacier loss | Loss of homeland | Loss of infrastructure |
| Wildfires | Avalanches | Regions become uninhabitable | Loss of essential services |
| **Slow-onset events** | Landslides | Displacement/migration | Loss of crops and livestock |
| Sea-level rise | Habitat loss | Loss of Indigenous knowledge | Loss of access to markets |
| Rising temperatures | Coral bleaching | Loss of cultural heritage | Damage to value chains |
| Changes in precipitation | Loss of forests | Loss of societal/ cultural identity | Reduced agricultural productivity |
| Ocean acidification | Loss of surface water | Loss of livelihoods | Crops lost or damaged |
| Glacier retreat | | Loss of long-term life chances | Livestock lost |
| Salinisation | | Loss of hope for future | Reduced livestock health |
| Land degradation | | Gender-based violence | Fisheries lost or damaged |
| Permafrost melt | | Child exploitation | Food insecurity |
| Desertification | | Modern slavery | Water insecurity |
| | | Erosion of social cohesion | Regions become uninhabitable |
| | | Inter-communal conflict | Loss of ecosystem services |
| | | Organised crime | Loss of social safety nets |
| | | Terrorism | Increased social welfare costs |
| | | Violent extremism | Increased debt (national, household) |
| | | | Reduced gross national income and gross domestic product |
| | | | Loss of trade |
| | | | Loss of stock market value |

The 2022 report of the IPCC's Working Group II (IPCC 2022) shows that such hazards are increasing in frequency and intensity and are already causing diverse forms of loss and damage (IPCC 2022). Hazards are occurring in new locations and at different times than have ever been observed before, and are increasingly likely to affect people, ecosystems and communities consecutively or simultaneously, with compounding impacts that are increasingly difficult to recover from (IPCC 2021).

Most importantly, the IPCC's report determines not only that it is an "established fact" that human-produced GHGEs have, "led to an increased frequency and/or intensity of some weather and climate extremes since pre-industrial times", but that there is now a very high degree of likelihood (90–100%) that the observed changes in extreme weather events we are now seeing across the globe can be attributed with confidence to human-caused atmospheric heating (IPCC 2022). The implication of this finding is stark, as from now on, there will be few instances of extreme weather events that are not linked to climate change and that will follow patterns we have encountered in the past.

While the issue of sea-level rise has had a high profile since it was first raised by AOSIS in 1991, more emphasis is often placed upon rapid-onset extreme events than slow-onset processes. This is for several reasons. First, the observed impacts of extreme events prompt countries and agencies to take emergency action to save lives and rebuild affected communities, and many actors already engage to respond to these forms of loss and damage through humanitarian relief, disaster risk reduction and climate adaptation (Roberts and Zakieldeen 2018).

Second, there is a tendency for countries and international agencies to discount the future and to focus on near and present risks — even though in many parts of the world slow-onset processes are likely to cause losses and damages that are far more devastating, and final, than extreme events. Third, there is optimism that if mitigation and adaptation are implemented the potential impacts caused by slow-onset events can be minimised or averted. This is despite the fact that people around the world are already experiencing losses and damages from slow-onset events.

However, the nature of climate-related losses and damages means it is necessary to understand that rapid-onset events and slow-onset processes are interlinked. For example, the process of glacial retreat can lead to glacial lake outburst floods and the process of sea-level rise can exacerbate the impacts of storm surges, tidal floods and tropical cyclones (Schäfer et al. 2021; Van Der Geest and Schindler 2017). Loss and damage is therefore occurring from combinations of both slow-onset processes and rapid-onset events, demonstrating the consecutive and compounding nature of hazards in a climate change context.

In addition, experiencing an extreme weather event influences people's ability to adapt to slow-onset processes, and vice versa. Slow-onset processes are underway and their full impact will be seen over a period of years, while extreme events are increasing in intensity and frequency. If the risks posed by extreme events are not addressed effectively, their impacts will undermine the abilities of people, communities and countries to adapt to slow-onset processes and may make adaptation impossible. Similarly, as slow-onset processes gather pace, they may undermine people's abilities to cope with shocks, either by triggering other harmful processes such as coastal erosion and salinisation, or by catalysing other extreme events, such as storm surges and cyclones (Schäfer et al. 2021).

## 3.2 Exposure

Exposure refers to the characteristic of being located in an area that is likely to be disaster-prone or that could be adversely affected by a specific hazard (IPCC 2014c). It can be used to describe the exposure of people, species, communities, ecosystems, landscapes, places, assets, infrastructure, cities, countries and so on. It is normally measured in terms of the number of people/things located in a hazard-prone area.

As with hazards, exposure is dynamic and changes over time. Exposure changes as geographic patterns of climate hazards shift. For instance, the past four decades have seen a northward shift in the landfall locations of tropical cyclones in the Western North Pacific (Chen et al. 2022). Exposure will also change as uncertain and unequal development processes lead to more or fewer people being located in areas where they may be at risk of being impacted by hazards of particular types, magnitudes and frequencies. For example, rapid and unplanned urbanisation and growth of cities often expands into floodplains and coastal strips (IPCC 2012), and contributes to the growth of marginalised urban communities living in informal settlements in such hazard-prone areas. The process of urbanisation also alters local environments, often making them more prone to hazards that are exacerbated by climate change, for example the urban heat island effect and flooding (IPCC 2014c, Chapter 8).

The impact of drought on agriculture, or land grabbing by rich minorities, may also push people to move to urban areas, similarly resulting in the expansion of slums into hazard-prone areas. Environmental mismanagement can mean that measures designed ostensibly to reduce flood risk, such as physically altering a floodplain by building embankments or channel modification,

actually serve to put people at higher flood risk as they encourage more floodplain encroachment by people with limited alternatives (IPCC 2012 p77). Gender norms may mean that certain women (for example, widows) have to live in marginal areas on the edges of villages prone to flooding or erosion (IPCC 2012).

These examples show how exposure is closely related to socioeconomic and political factors that determine who lives in the areas most likely to be impacted by climate shocks. People's varied levels of exposure are often determined by the same intersectional factors that account for their vulnerability, such as their gender, race, caste, physical abilities, and so on, which are often shaped by unequal power relations and processes of marginalisation or exclusion. In Nepal, for example, poverty and discrimination often result in poorer people living in areas that are prone to disasters such as landslides, because better-off households have built their homes on the land that is at lowest risk (Anonymous Interviewee 11 2021).

## 3.3 Vulnerability

Vulnerability is the human dimension of disaster risk. It refers to the predisposition that a person, community or place has to being impacted negatively by a shock. It includes both their sensitivity to harm from a particular hazard, and their levels of capacity to cope with and adapt to the adverse conditions that hazard creates (IPCC 2014c). Vulnerability thus depends upon the wide array of social, economic, political, cultural, and institutional factors that shape people's lives and their living environments. And that, in turn, determine the extent to which they are able to access and make use of the resources and capabilities they require to be resilient to different types of hazard.

**Resources and capabilities.** The ability to access and use resources and capabilities is a key determinant of vulnerability. The more people lack agency, access and opportunity to use resources and capabilities, the more susceptible they will be to the impacts of hazards they experience. Not everyone who may be exposed to a hazard is equally vulnerable to it. Those who live in a hazard-prone region but who have access to the resources and capabilities needed to cope, recover and adapt, may end up no worse off than they were before the shock occurred. Others who have no such resources may lose everything, including their lives.

The capacity of people, communities, places and countries to cope, recover and adapt to the adverse impacts of hazards is thus a critical element of vulnerability to loss and damage (Birkmann and Welle 2015; Van Der Geest and Schindler 2017). Those with higher levels of capacity to cope, recover and adapt to hazards will enjoy lower levels of loss and damage risk than other people living in similarly exposed areas. But these capacities are distributed highly unequally, along the intersectional lines that determine vulnerability. Marginalised or excluded groups, such as women, children, people with disabilities, Indigenous communities and ethnic minorities, tend to have lower levels of coping and adaptive capacity to deal with climate shocks and stress. In many cases, they are already experiencing losses and damages (Fekete and Sakdapolrak 2014).

Similarly, there are significant differences in adaptive capacity between countries. These differences are becoming increasingly clear as both high- and low-income countries are experiencing new, more frequent or more severe climate hazards, but have very different levels of capacity to cope and recover (Anonymous Interviewee 13 2021). For instance, in 2017, consecutive hurricanes devastated the Caribbean, causing billions of dollars' worth of losses and damages. Dominica and Barbuda were particularly badly affected. The hurricanes damaged 60% of Dominica's housing and infrastructure and destroyed over 90% of Barbuda's buildings, leaving over US$1.3 billion and US$200 million of economic losses and damages in each case.

These impacts decimated decades of development gains, exceeded the national gross domestic product (GDP) of each country and reduced their national growth rates by 1.1% for that year, forcing them to take recovery loans worth hundreds of millions of dollars (Charles 2017). In addition to the overwhelming scale of this crisis, the governments of these countries did not have the resources to disburse support immediately and were forced to rely on international assistance, particularly loans, which increased the national debt burden. By contrast, when unprecedented floods hit Germany in 2021, the German government was able to commit €300 million immediately from its own budget for emergency relief and recovery for flood victims (DW 2021).

**Multidimensional and intersectional vulnerability.** Vulnerability is perhaps the most important factor in the risk equation for understanding the different levels of loss and damage risk that individuals, households, communities, regions and social groups face due to climate change. Unfortunately, in climate disaster policy and practice there is often a tendency to focus upon hazards and how they are likely to evolve under different climate change scenarios, or on the exposure of particular populations in particular places to those hazards (Addison, Barrett and Steinbach 2021; Anonymous Interviewee 7 2021).

This tendency often results in a failure to factor a detailed understanding of the differentiated vulnerability that households, communities and countries experience into risk analyses, despite the fact that in many cases, vulnerability is a stronger determinant of climate risk than the hazard itself (Mikulewicz 2017; Thomas et al. 2018). This has far-reaching consequences because loss and damage is a multidimensional phenomenon. Different people living in the same place but with different vulnerability characteristics will be affected very differently by the same hazard. If the full complexity of the different forms of loss and damage that different people may experience is not taken into account, then responses to address losses and damages will be ineffective.

In many cases, disaster risk assessments, including those designed to measure types of loss and damage risk — such as disaster displacement risk — use simple proxy indicators to estimate vulnerability (Addison, Barrett and Steinbach 2021). Proxy indicators are indirect measures that are used to approximate or be representative of a phenomenon without measuring that phenomenon directly. In the case of disaster displacement risk, for example, shelter type is often used as proxy for vulnerability to extreme weather events. Such narrow approaches tend to consider people who may be vulnerable to loss and damage as a homogenous group, ignoring the fact that vulnerability is "the product of intersecting social processes that result in inequalities" (IPCC 2014a) and is differentiated among people along intersectional lines.

Intersectionality describes how multiple and different axes for oppression interact to jointly shape human experience (Crenshaw 1989). The axes that can cause marginalisation include gender, race, caste, age, sexual orientation, gender identity and expression or sex characteristics and disability.

**Root causes of vulnerability.** Long-term structural conditions produce vulnerability to loss and damage along intersectional lines, making it crucial to address the systemic root causes of vulnerability (Owen 2020). Vulnerability is therefore linked fundamentally to the structurally unequal power dynamics that exist between groups of people in society (Scoville-Simonds, Jamali and Hufty 2020). Simply describing the socioeconomic characteristics that are associated with vulnerability (such as poverty) is insufficient for understanding and tackling vulnerability to loss and damage (Mikulewicz 2017). It is more important to understand why vulnerability exists and how it is produced.

For example, lack of land tenure is considered an important determinant of vulnerability to climate stress in agricultural communities. Thus, to understand climate vulnerability one must also examine the causes of insecure land tenure among vulnerable households (Mikulewicz 2017). Conducting such analysis requires us to consider the historical processes and social relations that have created the power imbalances that produce inequality in access to land, which put certain people (for example, women, minorities, Indigenous Peoples) in the position of being landless (or living in a disaster-prone area or in poverty), and render them poorer and more vulnerable to climate shocks.

**Exclusion and marginalisation.** Vulnerability, therefore, results as much from practices of political exclusion or marginalisation as it does from the socioeconomic characteristics of individuals, households or communities. As one key informant noted, "The groups who are politically marginalised, socially and economically deprived, are left behind in decision-making processes. Indigenous People are one of the groups who are politically marginalised, socially economically culturally left behind and not recognised" (Anonymous Interviewee 14 2021).

For example, in Nepal the customary land tenure of Indigenous Peoples (*Janajatis*) is not recognised by the government, and they are among those most likely to be poor, landless or lacking citizenship or land tenure documentation (Fitzpatrick 2016). In the event of a disaster, if Indigenous Peoples lose their homes or assets or land, their lack of formal land tenure means that they are not entitled to access government support to recover and rebuild (Anonymous Interviewee 14 2021). This often precipitates a vicious cycle in which those most affected by a disaster may become even more vulnerable to disasters in the future.

More generally, women, women-headed households and gender minorities tend to be more vulnerable to losses and damages because of the social, cultural, political and economic forms of marginalisation and exclusion that cause them to have limited access to economic resources, assets, decision-making power and political influence. Importantly, these groups are not homogenous, and particular subsets may be more vulnerable than others in their community due to their specific experiences of marginalisation and exclusion.

For instance, Indigenous women, racialised women, women with disabilities, widows, elderly women, child mothers, migrant women, or women accused of witchcraft (Federici 2010; Spence 2017), often experience particular forms of marginalisation and discrimination that increase their vulnerability to climate shocks and stressors. For people with minimal economic buffers, which is often the case for the women mentioned above, the losses and damages incurred during a disaster may push them into a downward spiral of poverty and vulnerability (Anderson 2021).

**Colonial legacies.** Finally, it is extremely important to acknowledge that the disproportionate vulnerabilities experienced by poor and marginalised communities across the global South, and of women, Indigenous Peoples, other racialised communities and gender minorities in particular, are the product of unequal power structures that have their origin in colonialism (Abimbola et al. 2021) — a point that was made for the first time in a formal IPCC report in 2022 (IPCC 2022).

In the global North, Black, Indigenous and People of Colour (BIPOC) still experience forms of exclusion and marginalisation that are a continuation of colonial legacies of power and inequality and that make them more vulnerable to losses and damages caused by climate change (Abimbola et al. 2021). This tends to be overlooked in discussions of loss and damage, which risks excluding the marginalised groups facing environmental racism in the global North (McNamara and Jackson 2018). As such, vulnerability to losses and damages is an important issue of climate justice that can only be addressed fully by tackling the root causes of social, economic and political exclusion and marginalisation.

## 3.4 The limits to adaptation

As noted in Chapter 2, losses and damages occur when the impacts of climate change are beyond the limits of adaptation. Hard limits are those imposed by the physical limitations of a species, ecosystem, location, or piece of infrastructure. They represent the point where no action is possible to avoid intolerable risk. Soft limits represent the point where no options are currently available to avoid intolerable risk (Van der Geest and Warner 2015a). Soft limits are imposed by ever-changing social, economic, political or cultural constraints and can be shifted by applying knowledge, technology and resources or by transforming social, economic and political systems that (re)produce vulnerability. But if measures are not implemented effectively and in time the soft limits to adaptation will be reached and losses and damages will occur.

Thus if donors fail to meet their commitments to deliver adaptation finance to the people and places that need it most, or if adaptation actions are not designed and implemented effectively or if adaptation actions have unplanned maladaptive outcomes, losses and damages will occur despite (or because of) the adaptation action that has been undertaken (UNEP 2021). Furthermore, geographically and socially inequitable investments into adaptation will produce a highly uneven distribution of loss and damage outcomes, as those communities/groups who receive the most investment become increasingly resilient to climate shocks, while those who miss out become increasingly vulnerable (IPCC 2022).

Soft limits can become less significant over time if the right forms of finance and technology are invested and if the necessary changes in norms, attitudes and governance practices are adopted in time to minimise loss and damage (Van Der Geest and Warner 2015a). New adaptation options may become available due to changes in social attitudes, political will, research and innovation or new finance. While soft limits may gradually diminish in theory, there is no guarantee that the necessary actions will be taken in time. Political and economic interests, lack of information or knowledge, or entrenched cultural, social or religious norms may impede action, reinforcing existing limits to adaptation.

### CONSTRAINTS VERSUS LIMITS TO ADAPTATION

Adaptation **constraints** are any factors (biophysical, institutional, financial, social, cultural and technological) that make the planning and delivery of adaptation actions difficult (IPCC 2014c). They are synonymous with 'adaptation obstacles' or 'adaptation barriers' (Van Der Geest and Schindler 2017). They include inadequate governance systems, rigid gender and cultural norms, lack of political will lack of information/knowledge or technical skills and inadequate finance (Thomas et al. 2021).

Adaptation **limits** are more restrictive. They represent the point where no adaptation options can be implemented over a certain time horizon to achieve an actor's given objectives (IPCC 2014c). They are also explained as the point where adaptation can no longer protect from intolerable risks (Van Der Geest and Schindler 2017), or the point where adaptation no longer protects things that people value (Tschakert et al. 2017). Research from 2015 showed that adaptation limits were already being reached for many people living in highly exposed locations who did not have the capacity to adapt (Van Der Geest and Warner 2017)

The limits and constraints to adaptation lie along **a 'dynamic continuum'** (IPCC 2014c). Both constraints and soft limits may strengthen or weaken over time. This means constraints may pose limits to adaptation (IPCC 2014c; Thomas et al. 2021). Adaptation constraints can act as (soft) limits to adaptation over a certain time, a certain place, or in the presence of multiple constraints simultaneously. Navigating multiple, concurrent and interacting adaptation constraints can pose fundamental limits to adaptation (IPCC 2014c; Mechler et al. 2020; Thomas et al. 2021).

Furthermore, it is important to acknowledge that the factors that determine the soft limits to adaptation are often the same (economic, political, financial, social, cultural) factors that produce multidimensional and intersectional vulnerabilities to adverse climate impacts for marginalised people (IPCC 2014c). Calls for financial support and political will to help vulnerable people avoid reaching the limits of adaptation are similar to those that call for action to reduce structural vulnerability (Kreienkamp and Vanhala 2017). This suggests that taking action to deal with the constraints and soft limits to adaptation that cause loss and damage also requires us to address the root causes of the multidimensional vulnerabilities that different groups of people and countries have to the adverse impacts of climate change.

It also suggests that addressing loss and damage effectively does not require the precise identification of where the limits to adaptation might lie under different hazard scenarios, but does demand that we are able to understand when the limits to adaptation are being approached by different people in particular contexts, and to take a holistic approach to addressing the root causes of the vulnerabilities that different people have to different forms of loss and damage under different scenarios.

**Whose responsibility is it?** There is a common theme in the way rich countries of the global North frame responsibility for climate-related disasters that occur in the global South. Rather than accepting their responsibility for causing climate change through their historical GHGEs, or for creating and reproducing vulnerability in global South countries through processes of colonisation, imperialism, resource exploitation, structural adjustment and debt, they often shift responsibility to global South countries themselves, by suggesting that the underlying vulnerabilities of their populations, and the losses and damages they incur, result from the institutions they have in place, the decisions that they make and the development pathways that they choose (Calliari, Serdeczny and Vanhala 2020).

This discourse is a form of victim-blaming that suggests the governments and people of affected countries are responsible for the adverse impacts of climate change, despite the fact that they have done very little to cause the unprecedented hazards they are now experiencing. It also serves to justify rich countries' avoidance of the question of liability and allows them to continue providing a fraction of the financial support that affected countries require to address loss and damage, and it reinforces climate injustice.

But loss and damage is clearly an issue of climate justice, and any approach that we take to addressing the adverse impacts of climate change must recognise the role that the rich countries of the global North have played in creating and (re)producing the disproportionate vulnerabilities of the countries and populations of the global South to losses and damages. This requires us to consider both the root causes and factors that perpetuate the multidimensional vulnerabilities to losses and damages that are experienced by the poorest communities and countries of the global South, and to acknowledge that they are intimately linked to:

1. The triple injustice of climate impacts: those countries and people who have least responsibility for creating climate change are affected first and worst by climate impacts, while having the least capacity to cope and adapt.
2. Historical exploitation and colonisation: global North nations drove and benefitted from exploiting colonised territories for resources to fuel industrialisation (which then caused climate change). This process of destruction and exploitation, violent dominion, land grabbing, political and economic domination, decimation of cultures and systems, and environmental degradation, heightened the vulnerability of those territories to loss and damage from climate change.
3. Ongoing colonial legacies: these legacies shape the global economy, whereby certain regions are home to a concentration of power, resources and capital, while others are marginalised — exploited for resources and labour, denied access to capital, forced to face climate impacts, and refused refuge and safe passage when needed. Colonial powers still dominate the 'global development agenda' and the international climate policy arena.

These factors mean that, while this paper focuses on what affected and at-risk countries of the global South can do to address loss and damage in practice using the tools available to them today, this does not imply that the responsibility for dealing with loss and damage is theirs. Loss and damage is fundamentally an issue of climate injustice, and there is an urgent need for the rich countries that have caused climate change to accept collectively and to act upon their responsibility to support the countries and communities of the global South that are affected by, or at risk of, the adverse impacts of climate change. They must do this by providing developing countries with the technical and financial support that they need both to respond to and recover from unavoided climate impacts, while also addressing the residual and increasingly unavoidable risks of climate shocks that may occur in the future.

## 3.5 Conclusions

In this chapter, we have examined the nature of loss and damage risks that affect the most at-risk countries and communities of the global South. We have argued that the risks of loss and damage occurring due to climate change are qualitatively different to the weather-related risks experienced under previously 'normal' climatic conditions.

We have also highlighted the fact that loss and damage risks are multidimensional, and must take into account the varied ways in which different social groups will be affected by the same hazards. In particular, we have noted that loss and damage disproportionately affects people and communities who are already poor and/or marginalised or excluded. Such 'hyper-marginalised people and communities' (Seglah and Blanchard 2022) are also more likely to have experienced the cumulative negative legacies of colonial and post-colonial processes of domination and exploitation.

As a result, we have argued that loss and damage risks are a matter of justice and equity, and have emphasised the need for the industrialised countries of the global North, and their populations, to take collective responsibility by supporting developing countries and at-risk communities to address loss and damage risks and impacts urgently and at scale.

Given that the loss and damage risks that different people and places face are multidimensional, an intersectional perspective must be taken to assess them. Not everyone is equally at risk to particular climate impacts, and actions to address loss and damage must take into account how loss and damage risks are shaped by unequal power relations that produce inequalities along lines of gender, age, caste, physical abilities, ethnicity, language, sexuality and socioeconomic class. Those who are most at risk of losses and damages are generally those who are most marginalised and who have least access to the resources and capabilities needed to cope with shocks and adapt to climate change.

These factors mean that any actions taken to address loss and damage must focus upon those people and places most at risk and least able to cope or recover from particular types of hazards, and who are located closest to, or who have already moved beyond, the limits to adaptation.

In the next chapter we take this argument forward to consider seven key features of loss and damage risks that we believe must be considered by policymakers and practitioners in designing approaches to address loss and damage, and provide some suggestions of how they can do so.

# 4

# Key features of loss and damage risk

Anna Carthy and Simon Addison

An understanding of the nature of loss and damage risks provides a valuable starting point for considering how to address losses and damages in policy and practice. In this chapter we identify seven key features of the loss and damage risks that affect those communities most vulnerable to loss and damage in the global South, and suggest ways in which they can inform practical action based upon concrete examples from LDCs and SIDS. We further highlight the importance of taking multidimensional vulnerabilities, non-economic and informal forms of loss and damage into account and argue that to do so requires policymakers and practitioners to engage deeply with the values, vulnerabilities and lived experiences of marginalised groups, and to understand the socially constructed risk perceptions of different people.

Based on our analysis of the nature of loss and damage risks we have identified seven key features that have important implications for how policymakers and practitioners might take action to address loss and damage at national and sub-national levels. These are summarised in Table 4 and described in detail in the narrative below.

## 4.1 Hazards caused by climate change are unprecedented

As atmospheric heating increases, the global climate is changing and delivering climate-related shocks and impacts that are unprecedented. Around the world, communities and countries are experiencing climatic events unlike any they have lived through before, which they are unprepared to cope with, and which are having increasingly severe and compounding impacts. Importantly, climate change is increasing the likelihood of extreme weather events occurring that have very low levels of probability but catastrophic consequences, known as 'fat-tail' events (Gillingham et al. 2015).

The IPCC's AR6 Working Group I report (IPCC 2021) has described how climate change is causing extreme weather events to be unprecedented in five different ways: magnitude, frequency, location, timing, and with more probable or more severe compound events. Below we present illustrative examples of how climate hazards are evolving, with increasingly severe consequences.

**Unprecedented magnitude.** Hazards occur with increasing severity or intensity. For example, the rising magnitude (and frequency) of cyclones in the Pacific is creating devastating loss and damage. Cyclone Yasa hit Fiji in December 2020, and six weeks later, in January 2021, Fiji was hit by Cyclone Ana. In April 2020,

category 5 Tropical Cyclone Harold hit Vanuatu, Fiji, Tonga and the Solomon Islands. In Vanuatu, economic loss and damage was estimated to be more than US$440 million (Heinrich Böll Stiftung 2021a). Decision makers in Vanuatu are bringing a case to the International Court of Justice to demand compensation for the loss and damage incurred. This follows Cyclone Pam hitting Vanuatu in 2015, one of the most powerful cyclones ever recorded in the Pacific (Esswein and Zernack 2020). Trends indicate the increasing intensity of tropical cyclones in the Pacific will continue (Bhatia et al. 2019).

Table 4. Key features of loss and damage risk and their implications for action

| | KEY FEATURES | IMPLICATIONS FOR ACTION |
|---|---|---|
| 1 | Extreme weather events and slow-onset processes caused by climate change are unprecedented in intensity, frequency, location, timing and with compound events being more probable or severe. | Losses and damages cannot be addressed solely on the basis of our knowledge of past trends and patterns of disaster impact.<br>Action must be based on robust assessments of potential climate risks across a range of possible futures, considering the effects of compounding impacts and the increasing likelihood of low-probability but high-impact events. |
| 2 | Loss and damage risks are dynamic, highly uncertain and will increase unpredictably over time. | Uncertainty cannot be an excuse for inaction.<br>Effective action must be based on regular risk assessments that involve vulnerable communities, the layering of interventions to address diverse risks over time, and new approaches to decision making. |
| 3 | Consecutive and compounding climate impacts produce unpredictable cascades of losses and damages. | Loss and damage risks cannot be viewed in isolation from each other.<br>Actions to address losses and damages must be ratcheted up over time to tackle the compounding risks that consecutive and compounding events will cause. |
| 4 | Losses and damages disproportionately impact marginalised groups and people living in poverty. | Action to address loss and damage must prioritise marginalised people in the global South and ensure that support and protection are delivered in a manner that is appropriate, equitable and guarantees their rights. |
| 5 | Estimations of loss and damage exclude forms of loss and damage incurred by marginalised groups and disregard the impact of non-economic losses and damages on those groups, particularly Indigenous Peoples. | The multidimensional losses and damages of marginalised groups, who are most at risk from climate impacts, must be accounted for adequately, including non-economic and 'informal' losses and damages.<br>Actions to address losses and damages must prioritise the losses of life and wellbeing faced by excluded and vulnerable groups and must assess losses and damages in terms that matter to poor and marginalised people. |
| 6 | Loss and damage risks depend upon people's values and lived experiences and are highly differentiated. | Efforts to assess loss and damage risks must seek to understand the varied risk perceptions of different people and groups.<br>Actions to address losses and damages should use bottom-up approaches grounded in people's values and lived experiences and account for the power relations that determine whose voices are prioritised in decision making. |
| 7 | Loss and damage risks and impacts are highly context-specific. | Actions to address loss and damage must devolve resources, authority and agency to the local level. Investment in loss and damage responses is needed at all levels, however it must prioritise local leadership, by those who understand and have experienced loss and damage. |

**Unprecedented frequency.** Hazards happen more often than ever before. We look at the example of hurricanes in the Caribbean. While the Caribbean is used to living with hurricanes, the Caribbean Climate Centre is concerned about more frequent and severe hurricanes and tropical storms (Edmonds 2013), and increasing losses are overwhelming entire countries' GDP (Anonymous Interviewee 19 2021). For instance, Hurricane Maria is estimated to have cost Dominica 225% of its GDP, while the hurricane damage for Grenada in 2004 was 200% of GDP (Ötker and Srinivasan 2018). There are pronounced trends of increasing frequency of hurricanes in the Atlantic basin (Murakami et al. 2020). The 2017 Atlantic hurricane season was 'hyperactive', with four category 4 or 5 hurricanes (Harvey, Irma, Jose and Maria) (Balaguru, Foltz and Leung 2018). The 2020 Atlantic hurricane season was record-breaking, with 30 named storms (NOAA 2020), including hurricanes Eta and Iota, which caused significant loss and damage in Central America. This was the fifth year in a row with above-normal hurricane activity.

**Unprecedented locations.** The geographical distribution of hazards shifts, exposing places and people to forms of hazard that they are not used to. For example, hazards are changing location in Nepal and Bangladesh. An interviewee from Nepal (Anonymous Interviewee 12 2021) reported that flooding in the southern plains used to be the primary concern, but now landslides and floods in the hills are the major cause of disasters. An interviewee from Bangladesh (Anonymous Interviewee 10 2021) also explained that hazards such as mudslides are now occurring in areas that were previously unaffected, causing significant losses and damages.

**Unprecedented timing.** Hazards occur at unexpected times. For example, hydrological events are occurring at different times in the western US. While there is less data on changed timing of extreme weather events, there is more evidence (Nature Climate Change 2018) of changing phenology (timing of seasonal events), and this, in turn, could trigger altered extreme weather event timing. Evidence does show an observed shift in the timing of spring peak flows in snowmelt-fed rivers in northern latitudes. As spring temperatures increase, spring peak flows occur earlier in rivers that are fed by snowmelt or glaciers, for example, in Colorado (Seneviratne et al. 2012).

**Compound hazards.** Multiple hazards occur simultaneously or in quick succession. For example, multiple hazards are occurring in Uganda. An interviewee from Uganda (Anonymous Interviewee 30 2022) explained how heavy rains have created recurring flooding and mudslides in recent years. Excessive rainfall has led to multiple extreme events: flooding, mudslides and landslides (Barford et al. 2021), creating significant loss and damage. This is combined with falling lake and river levels, more frequent and severe droughts (Barford et al. 2021), land degradation and soil erosion (World Bank Group 2021), as well as desert locust swarms and the impacts of COVID-19. In the Horn of Africa, climate change is driving severe impacts from droughts and floods that increasingly follow and compound one another, with disastrous impacts for rural households and communities in countries such as Somalia (Perry 2019a, 2019b).

The unprecedented, dynamic and compounding nature of extreme weather events and slow-onset processes that cause losses and damages mean they cannot be planned for solely using data based on past experience. Using past data, particularly the knowledge held by local communities, is an important component of climate action; but unprecedented climatic conditions require a wider, holistic response, including new methods for robust climate risk assessment that use modelling, scenario planning and dynamic adaptive pathways.

**Action to address losses and damages must be based on robust assessments of potential loss and damage risks across a range of possible futures, considering the effects of compounding shocks and the increasing likelihood of low-probability, high-impact events.**

## 4.2 Loss and damage risks are dynamic, uncertain and highly unpredictable

The IPCC's Sixth Assessment Report on impacts, adaptation and vulnerability shows that loss and damage has already happened and will only increase over time (IPCC 2022). This makes it clear that action to address losses and damages must account for both historic and present climate impacts, and the range of future risks that may occur over the short, medium and long term (Kreft et al. 2013; McNamara and Jackson 2018).

**Loss and damage is happening now and must be addressed urgently.** Considerations of loss and damage must not focus only on losses and damages that will unfold over the long term. Loss and damage is not just a future risk but a "harsh present-day reality" (Van Der Geest and Warner 2015a). It is therefore important to ground our thinking on loss and damage in examples of what has already occurred in affected countries and communities, and to emphasise the need to mobilise urgent action today to support the recovery of communities and countries that have already incurred devastating impacts, and to provide effective emergency responses to those that will be impacted in the immediate future.

**Loss and damage risks are dynamic.** Each component of the loss and damage risk equation will change over time. Hazards are evolving in magnitude, frequency, location and timing. Exposure changes due to rapidly evolving development pathways, demographic change, migration and urbanisation. Vulnerability changes due to the evolving nature of society, economy and politics and the unequal distribution of power, resources and capabilities. Finally, the limits to adaptation will evolve due to changes in the availability of resources, technology and innovation, and to changes in cultural norms, attitudes to risk, political will and adaptive capacity. Given that each risk component is fluctuating and shifting, loss and damage risks will vary significantly between contexts, over different time frames and between different people.

Further, loss and damage risks will change over time as each new climate impact, and the response to it, affects the risks that a community or country will face in the future. If efforts to respond, recover and build resilience are ineffective or maladaptive, then loss and damage risks will compound over time. The risk of future losses and damages will increase with every impact unless concerted action is taken to address residual risk effectively and in proportion to the impact already experienced.

**Future loss and damage risks are highly uncertain.** Climate hazards will certainly intensify over the next century, no matter what action is taken to reduce GHGEs and mitigate climate change (McNamara and Jackson 2018). While future losses and damages will potentially be of an "inconceivable magnitude" (Kreft et al. 2013), exactly how the climate will change, the extent to which climate hazards will intensify, and the impacts they might have, remain uncertain. This depends on many factors, for instance:

- The scale and pace of mitigation will have a material impact on the scale and rate of atmospheric heating. If GHGEs are reduced rapidly, there remains a chance that heating could be curtailed between 1.5–2°C, but current trends suggest that the world remains on track for heating of over 3°C by 2100.
- The effect of feedback loops caused by secondary factors such as permafrost thaw, cloud cover increases and the loss of ice caps are extremely difficult to predict and could rapidly accelerate heating despite action taken to reduce GHGEs.
- As climate change accelerates, the nature of losses and damages will change as communities and countries are impacted by increasingly diverse, consecutive and compounding climate shocks, and as extreme weather events interact with slow-onset processes. As heating increases, the likelihood of low-probability but very-high-severity 'fat-tail' climate events will increase.
- The future nature and pace of social, economic, political, demographic and environmental change that will govern patterns of exposure, vulnerability and resilience to climate shocks are almost impossible to predict.
- The capacities of communities, countries and human society as a whole to adapt to, cope with and recover from climate impacts depend upon the amount and distribution of money, resources, technology and energy invested into climate adaptation and to address losses and damages. If timely and adequate investments are made, the impacts of climate change may be minimised. But if current trends continue, many people, particularly the most marginalised and poorest people and places, will likely become more exposed and vulnerable to increasingly severe and compounding shocks.

**Multidimensional, adaptive risk analysis is necessary.** The context-specific, multidimensional and dynamic nature of loss and damage risks means that they can only be addressed effectively if countries, communities, households and social groups understand the particular types and levels of risks they will face under different scenarios of climatic, environmental and social change. They can improve their understanding of these risks by conducting regular multidimensional, adaptive risk assessments that examine, over different time frames:

1. **Climate change projections:** How the climate is changing and how those changes might affect the weather and environment of the country or community in question (for example, changes in precipitation patterns, temperatures, wind speed and direction, atmospheric humidity, cloud cover and so on under different heating scenarios).
2. **Climate hazard projections:** How climate change is likely to influence climate-related hazards that could impact the country or community (for example, the likelihood, frequency and intensity of extreme weather events or slow-onset processes under different heating scenarios).
3. **Vulnerability projections:** How the vulnerability and resilience characteristics of the country or community (including their demography, settlement patterns, and social, economic, political, cultural and environmental characteristics) are likely to shape the level of exposure and the specific vulnerabilities of different people to different climate hazards under different scenarios of climatic, environmental and social change. This should consider factors such as gender, age, ability, ethnicity, sexuality, language group, wealth rank, social class and so on.
4. **Impact projections:** How the range of climate hazards that might occur under different scenarios are likely to impact the country or community, in both economic terms (for example, damage to

infrastructure, loss of productive assets, loss of GDP, and increased national and household debt) and non-economic terms (such as loss of life, loss of livelihoods, disease, mental health, loss of social capital, loss of cultural heritage and loss of homeland). In addition, how those different impacts are likely to affect one another — for instance, non-economic losses and damages often have long-term secondary economic impacts and vice versa.

These different types of analysis must be integrated to inform a robust assessment of loss and damage risks. Hazard projections alone are of little use for identifying the varied ways in which vulnerable people will be affected by climate impacts and are inadequate for designing good-quality programmes to address multidimensional risks effectively.

Because loss and damage risk is dynamic, risk assessments must be updated regularly to reflect changes in the climatic context and the exposure, vulnerability and risk perception of people, places and ecosystems. Revising these risk assessments continuously — and especially following extreme events — is crucial to ensure that they remain relevant to communities' lived experiences. Such assessments must also be developed using inclusive, participatory processes that enable the participation of marginalised groups, for example, Action Aid's community-led approach to assessing loss and damage (Anderson, Hossain and Singh 2019).

Current losses and damages and uncertainty about future risks imply a need both to address current impacts of climate change and to plan for losses and damages that will arise in the short and medium term, and those associated with long-term shifts in climate patterns and slow-onset processes (Kreft et al. 2013). This requires layering interventions to address evolving loss and damage risks over time.

Making decisions to address loss and damage both now and under uncertain futures also requires new approaches to decision making. This includes conducting robust analysis of a range of futures, retaining sufficient redundancy to protect core services, and being agile and flexible in planning and action to deal with evolving risks. One method for integrating agility and flexibility into planning and action is to adopt the dynamic pathway decision-making approach; this allows decision makers to evolve plans over time based on new experiences and insights (Haasnoot et al. 2013; Lawrence and Haasnoot 2017) and keeps options open until future realities are clearer.

**Uncertainty cannot be an excuse for inaction. Effective action must be based on regular risk assessments that involve vulnerable communities, the layering of interventions to address diverse risks over time, and new approaches to decision making.**

## 4.3 Consecutive and compounding climate hazards produce cascades of losses and damages

Increasingly, extreme weather events and slow-onset processes occur simultaneously or in close succession. This includes overlapping slow-onset processes, interconnections between slow- and rapid-onset events, and multiple extreme weather events of varying magnitudes and of similar or different types, occurring simultaneously or consecutively in the same place (IPCC 2021). These compounding and consecutive impacts can result in cascading losses and damages, as recovery from one shock may not be complete before the next hazard hits.

**Consider hazards with low *and* high impacts.** The extreme weather events that cause loss and damage include both 'fat-tail' extreme events and small-medium crises. 'Fat-tail' events are low-probability events that have catastrophic impacts. While their low probability means they are often overlooked in risk analyses, climate change makes them increasingly likely to occur (Gillingham et al. 2015; Spratt and Dunlop 2018). On the other hand, lower-impact events (or small-medium crises) that occur at a higher frequency often go under the radar (Burt 2019) with underfunded responses. However, the compounding impacts of such small-medium size events are important. As one key informant explained:

> *"In loss and damage, we tend to look at either extreme events or slow-onset events. But in between them are those high frequency, low impact, localised events which often go unnoticed and don't ever make it to the headlines… the accumulated impact of the high frequency low impact events is often more than extreme events and mega disasters."* (Anonymous Interviewee 7 2021)

It is therefore important to consider all types of climate hazards that might cause losses and damages and how they might compound one another over time.

**Non-climatic factors.** It is equally important to consider how they might also interact with non-climatic 'stress multipliers' such as conflicts, pollution, geophysical hazards (earthquakes and volcanic activity), pest swarms and disease outbreaks. For example, Cyclone Amphan hit India and Bangladesh in May 2020, at a time when they were experiencing the economic fallout of the COVID-19 pandemic. In Bangladesh, the loss and damage from the cyclone to infrastructure alone was calculated to be US$13 billion, which was compounded by the economic toll of the pandemic (which had severe impacts on the garment industry in particular) (Heinrich Böll Stiftung 2021a). More recently, the conflict in Ukraine has severely

affected the availability of basic commodities in Africa, exacerbating the loss and damage risks faced by people affected by drought conditions in the Horn of Africa (Save the Children 2022).

**Vicious cycles.** A vicious cycle may emerge where compounding and cascading losses and damages deepen pre-existing vulnerabilities and undermine adaptive and coping capacity. The impacts of consecutive and compounding crises make it increasingly difficult to recover from any one event. If efforts to address losses and damages after an individual event are insufficient, even smaller subsequent hazards can cause devastating losses and damages, and push people into conditions of acute humanitarian need (Anonymous Interviewee 28 2022; Schäfer et al. 2021). Losses and damages can therefore create a negative feedback loop of escalating pressures that continuously deepen the vulnerabilities of affected people, driving them closer to or further beyond the limits to adaptation.

In other terms, prior or current experience of losses and damages that are not adequately addressed erode resilience, coping and adaptive capacities and increase vulnerabilities to further losses and damages (Fekete and Sakdapolrak 2014; Van Der Geest and Schindler 2017). For example, in 2020 the environmental damage caused by Cyclone Harold in Vanuatu undermined the food security of people living on the island's west coast, leaving them more vulnerable to the drought that followed (Bharadwaj and Shakya 2021). As one dialogue participant put it:

> *"What if we're just preparing for loss and damage from big events and not preparing for consistent loss and damage caused by seasonal cyclical climate events becoming more severe and happening every year — chipping away every year at resilience and development gains?"* (Bharadwaj et al. 2021b)

This is the case at individual, community and national levels. After a climate shock, many LDCs and SIDS suffer major economic losses and damages and face huge financial burdens to pay for response and recovery. This precipitates a vicious cycle of indebtedness, as international donors and financial institutions offer loans to support their recovery, rather than concessional finance (Thomas and Theokritoff 2021). They are unable to access concessional finance to fund recovery and they often cannot afford to repay the loans they might take out to recover (Dupar 2021). With each additional disaster, their fiscal capacity to respond is diminished.

Losses and damages are not arising from standalone climate shocks but from an intensifying, cumulative and compounding series of risks and impacts (Wrathall et al. 2015). Regularly updated risk assessments should inform a 'ratcheted' response, where actions to address subsequent climate risks are ratcheted up with each compounding event. This would increase the level of support for every additional shock that occurs (simultaneously or consecutively) before a reasonable recovery period has elapsed. For example, if a cash transfer gives a household US$100 for shock one, they should receive US$150 after shock two and US$300 after shock three.

**Loss and damage risks cannot be viewed in isolation from each other. Responses should be ratcheted up over time to address the compounding risks that consecutive and intersecting events will cause.**

## 4.4 Losses and damages disproportionately impact marginalised groups and people living in poverty in the global South

Some countries, communities and social groups are more vulnerable to climate impacts than others. Action to address losses and damages must prioritise the needs of those groups with the least capacity to prepare, cope, recover or overcome the risks they face.

**Macro-level vulnerabilities.** Not all countries are equally vulnerable to climate-related losses and damages. Generally speaking, low-income countries face a significantly higher risk of major loss and damage, with 90% being highly or very highly at risk of loss and damage. In comparison, less than 10% of high-income countries face this risk level (Birkmann and Welle 2015). The LDCs (Roberts 2012) and the SIDS are disproportionately vulnerable compared to other nations. SIDS have particular vulnerabilities, despite some being classified as 'high income', which relate to their size, remoteness, limited resource base, exposure to hazards, indebtedness and ineligibility to access concessional finance (Sachs et al. 2021; Steele, Patel and Volz 2021; UN 2021; Thomas and Theokritoff 2021).

**Marginalisation and poverty.** As discussed in section 3.3, marginalised/excluded groups and people living in poverty in the global South are most at risk of loss and damage because they have the lowest levels of capacity to cope with and adapt to climate impacts, and should therefore be treated as a priority (Schäfer et al. 2021). These groups may have fewer assets, their consumption may be close to subsistence levels, or they may not be able to rely on savings or social protection to buffer impacts. They often depend on nature for their livelihood and face indirect risks from the negative impacts of climate change on biodiversity and the environment. Fisherfolk who depend on marine resources, pastoralists

who rely on surface water and rain-fed pastures, small-scale farmers who depend on seasonal rains and favourable temperatures, or Indigenous Peoples who depend upon wild foods all have livelihoods that are compromised by climate change. In most cases, such communities have low access to assets, information and support to help them cope with new climatic conditions and often lack viable livelihood alternatives.

**Intersectionality.** Because the vulnerability of poor and marginalised/excluded people is linked to structurally unequal power dynamics between groups (shaped by gender, race, ethnicity, age, disability and so on), the power relations that create privilege and security for some while creating marginalisation and vulnerability for others must be tackled when addressing loss and damage risks (Scoville-Simmonds, Jamali and Hufty 2020). For example, in Tikapur municipality in Nepal, people from Magar and Chaudhary (ethnic) and Dalit communities located along a riverbank were most vulnerable and affected by loss and damage (Singh et al. 2021). Pastoralists in Turkana County, Kenya, are one of the groups most marginalised from services and infrastructure, and they are experiencing increasing loss and damage (Bharadwaj and Shakya 2021). People with disabilities and older adults face unique vulnerabilities to loss and damage in many contexts. For example, in Urir Char, Bangladesh, they are often abandoned during cyclones because they cannot move quickly enough (Bharadwaj and Shakya 2021), and in the Lake Chad Basin, they are at high risk in displacement shelters because these are often not equipped for their needs (Bharadwaj and Shakya 2021). A key informant from Nepal explained how this differentiated vulnerability affects Indigenous Peoples and people of certain castes:

> *"It's a structural and sociological issue. Communities are not homogeneous… those who don't have the means will be more impacted… in demographics that's Indigenous communities, Dalits — traditionally marginalised communities who work on others' land to sustain their livelihoods/don't have own resources"* (Anonymous Interviewee 11 2021)

**Gender.** Vulnerabilities to losses and damages are highly gendered. Generally speaking, women and girls experience higher levels of loss and damage on average compared to their male counterparts (Heinrich Böll Stiftung 2021a), which relates to the persistence of discriminatory patriarchal norms and gender-blind or gender-biased policies (Anderson 2021). These create a range of challenges for women that exacerbate their experience of loss and damage, including: limitations to their access to resources, skills, information and climate services; exclusion from decision-making processes; restrictions on their mobility; and unequal burden of care work (Heinrich Böll Stiftung 2021a; Anderson 2021). This burden includes the non-monetary ways that women contribute to their families and communities, which are often left out of assessments of NELDs. Many examples of gendered vulnerability to loss and damage appear in different contexts, such as crop failures reducing family income leading to women skipping meals more than men, and boys' education being prioritised over girls' (Anderson 2021). Gender-based violence can increase in conditions of climate stress, including when women and girls travel further distances for household chores, in displacement camps or domestic settings (Anderson 2021; Bharadwaj and Shakya 2021).

While women and girls are disproportionately vulnerable to losses and damages, it is also important to acknowledge the specific vulnerabilities of men and boys to climate impacts, which can have secondary impacts on women and girls. For instance, in 2011 in Somaliland, many pastoralist men lost their camels due to a severe drought. Without alternative livelihood options, many experienced a loss of identity and hope for the future and fell into khat addiction or became violent towards their wives (Addison 2014). In 2017, a climate resilience assessment in Eastern Kenya found that households headed by a single male (for example, widowers or divorcees) were much less resilient to climate shocks than women-headed households due to social and cultural gender norms (Trócaire 2017).

**Racism and colonialism.** As mentioned in sections 3.3 and 3.4, the root causes and factors that perpetuate vulnerability to losses and damages of the poorest communities and countries of the global South are intimately linked to historical exploitation, colonisation and ongoing colonial legacies. The climate crisis has fundamentally been shaped by racism and colonialism (Abimbola et al. 2021), so colonial legacies on power and inequality make some people and groups more vulnerable to losses and damages.

The historical reality is that some populations have already experienced losses and damages. Climate-related loss and damage builds on a history of prior loss and damage inflicted on many global South contexts through processes of colonisation, resource extraction and exploitation, imperialism, maldevelopment and maladaptation projects imposed by external stakeholders (Wrathall et al. 2015). Structural vulnerabilities are caused by colonialism and the failures of 'development' and international aid.

Decades of international development initiatives have not challenged the power structures of coloniality, and for many of the world's most climate-vulnerable countries, structural adjustment programmes, the debt burdens associated with donor-financed economic development programmes, and the leakage of national income through corruption and illicit financial flows to the global North, have served only to reinforce the structural vulnerabilities bequeathed to them by colonialism. Former colonial powers also continue to dominate the international climate policy arena and prolong the delivery of insufficient climate action and inadequate adaptation finance, which on current progress, are unlikely to avert or minimise losses and damages for the most vulnerable people (Abimbola et al. 2021).

**Disability.** People with disabilities have differential vulnerabilities to climate impacts, based on both the nature of their disabilities and the socially constructed barriers related to disability (or 'disabling environments, policies and cultures'), such as negative attitudes, inaccessible physical structures, discriminatory policies and a lack of support (Jodoin, Lofts and Ananthamoorthy 2020). People with disabilities tend to be among the most marginalised and have fewer resources within a community, due to limited access to education, income, social fora and decision-making platforms (Jodoin, Lofts and Ananthamoorthy 2020). However, they are systematically ignored in climate policies and disaster management (McGill Centre for Human Rights and Legal Pluralism, DICARP and International Disability Alliance 2022; Twigg, Kett and Lovell 2018), which exacerbates their vulnerability to experiencing loss and damage. Action to address loss and damage must recognise and protect the rights of people with disabilities. For instance, disaster information and early warning systems must provide information promptly and in accessible formats (for example, for those with visual or hearing impairments), and evacuation plans must be accessible to wheelchair users or those with limited mobility.

Loss and damage action must target the poorest and most marginalised groups who disproportionately experience loss and damage. This is important learning from adaptation practice, as evidence shows that adaptation that does not focus on addressing vulnerability creates maladaptation: increasing, shifting, or creating new sources of vulnerability (Schipper 2020; Eriksen et al. 2021).

**Action to address loss and damage must prioritise the most vulnerable people in the global South and ensure that support and protection are delivered in a manner that is appropriate, equitable, and guarantees their rights.**

## 4.5 Estimations of loss and damage exclude both informal and non-economic losses and damages incurred by marginalised groups

The losses and damages incurred by marginalised groups and people living in poverty often go undocumented and undervalued. They are overlooked or made invisible in assessments or measurements of losses and damages.

**Focus on economic losses and damages.** Current methods for estimating losses and damages tend to focus only on financial loss and damage, and beyond that, they capture only the losses and damages that are incurred by wealthier social groups (focusing on assets, wealth, infrastructure, GDP) and obscure the varied losses and damages that are incurred by marginalised groups and people living in poverty (Morrissey and Oliver-Smith 2013).

**Informal sector losses and damages.** Countries with the highest risk of losses and damages are often those where most people's livelihoods are entirely within the informal sector. However, standard estimates of loss and damage tend to overlook the impacts of climate shocks on informal or undocumented economies and settlements (Morrissey and Oliver-Smith 2013). Informal livelihoods are not captured in formal economic statistics such as those that inform measures of GDP, so losses and damages incurred by people working in the informal sector or living in informal settlements are therefore invisible to estimations of loss and damage based on GDP (Morrissey and Oliver-Smith 2013).

As a result, most loss and damage estimates miss the significant impacts that climate shocks have on marginalised people and people living in poverty, who operate in the informal sector and who tend to have few assets or may rent/lease them rather than own them. Their tangible economic losses and damages (that would feature in assessments) may appear low, but their wellbeing losses are significant.

For example, if an area of an informal urban settlement is destroyed by flooding, landslides or storm surges, such as those that have affected areas of Freetown (Voskoboynik and Thanki 2017), Lagos (Adegun 2022) and Rio de Janeiro (Hanna 2019) in recent years, the economic loss and damage incurred may be calculated as low compared to the destruction of government infrastructure or luxury housing. But the losses and damages will be catastrophic for those who live in

those informal settlements, impacting homes, assets, livelihoods, health, community, social capital, access to essential services, identity and so on.

Similarly, when climate shocks hit people who operate in the informal sector and live in informal areas they often have no option but to engage in negative coping strategies to survive, such as selling their undocumented assets or taking out informal loans they cannot afford. While such strategies might help them get through a highly stressful period, they can undermine their long-term resilience and may drive them deeper into poverty and vulnerability to future loss and damage (Van Der Geest and Warner 2015b).

Loss and damage is most severely undervalued in contexts where informal livelihoods and labour are prevalent. Failure to account for these 'informal' losses results in undervaluation of the full cost of loss and damage to people and national economies. Efforts to measure and address losses and damages must therefore prioritise the varied forms of losses and damages that will be incurred by poor and marginalised groups whose assets are hard to monetise and are not accounted for formally.

This indicates the increasing importance of loss and damage to urban settings. Informal settlements worldwide are home to over a billion people (Walnycki and Landesman 2021). Given that urban climate change-related risks are increasing, that slums often tend to develop in hazard-prone areas (IPCC 2014b) and that climate impacts are concentrated among marginalised urban residents in informal settlements (IPCC 2022), loss and damage will likely have devastating consequences for millions of informal households and their communities — and thereby for urban economies overall — and these must be accounted for.

It is also vital to go beyond monetary calculations and consider loss and damage in terms of wellbeing and terms that matter to poor and marginalised people. This would have very real consequences for actions to address loss and damage. For example, existing assessments of land and crop loss from flooding in Nepal show bigger economic impacts on wealthier families than on smallholders. This results in wealthier families receiving higher relief and compensation than poorer families, who in fact face more significant loss and damage in terms of their wellbeing (Singh et al. 2021).

**Non-economic forms of losses and damages and their disproportionate impacts on marginalised groups.** Economic forms of losses and damages include negative impacts on assets, infrastructure, industries, and productivity, and are well researched, with numerous studies seeking to calculate quantifiable levels of economic loss and damage (McNamara and Jackson 2018). While this research is valuable, it often fails to consider the impact of NELDs and the fact that these have a more significant impact on marginalised groups (Singh et al. 2021).

Some analysts consider NELDs potentially more important than economic loss and damage (Anonymous Interviewee 1 2021; Schäfer et al. 2021; Morrissey and Oliver-Smith 2013). Despite this, the full range of NELDs is often overlooked in impact assessments of losses and damages. Indirect, intangible and non-market losses and damages are not easily visible or quantifiable (Tschakert et al. 2017). As a result, NELDs are often not addressed in risk analysis, policy and planning and are rendered invisible (McNamara and Jackson 2018; Serdeczny et al. 2018; Puig et al. 2019). For example, formal disaster policies in countries such as Japan and Bangladesh undervalue the importance of NELDs in formal disaster policy (Chiba, Shaw and Prabhakar 2017; McNamara and Jackson 2018).

Orthodox approaches to assessing loss and damage risks also tend to exclude the marginalised groups most severely affected by NELDs. Indigenous Peoples, in particular, face significant NELDs, but their experiences are often ignored. As one key informant explained:

> *"because of the spiritual and intangible connection of Indigenous People with nature, which is often disregarded or undermined by the general discourse … it's really hard to get people to realise how this intangible heritage and intangible capital are connected with natural resources and eventually exposed to the risk of loss and damage."* (Anonymous Interviewee 14 2021)

For example, in both Alaska and Kiribati, Indigenous communities are experiencing a loss of sense of place, which is seen to threaten community survival (Tschakert et al. 2017).

Again, this demonstrates that assessments should consider the different dimensions of loss and damage in terms that matter to poor and marginalised people. This can be achieved by exploring why and how different groups of people value different things, or by using comprehensive wealth accounting systems that consider different types of wealth, including human, social and natural.

Many different types of NELD have been documented, from loss of social fabric and community connection in Turkana County, Kenya, to loss of social cohesion in Sri Lankan communities, loss of farming and fishing livelihoods in the Lake Chad Basin (Bharadwaj and Shakya 2021), irreversible losses in SIDS where ancestral homes and burial grounds are at risk of submersion (Byrnes and Surminksi 2019), and the spiritual losses associated with glacial retreat in the Andes (Morrissey and Oliver-Smith 2013).

The common/UNFCCC categories of NELDs are loss of life, health, human mobility, territory, cultural heritage, Indigenous knowledge, societal/cultural identity, biodiversity, and ecosystem services. These can result directly or indirectly from climate impacts. For example, sea-level rise may cause loss of territory and sense of place (direct), while flooding may cause loss of crops, which affects incomes, causing migration, leading to loss of place (indirect). While valuable, these categories do not include important forms of NELD that need to be considered when assessing loss and damage risks. Three types that we believe deserve particular attention include:

1. **Mental health, emotional wellbeing and trauma:** Losses and damages can profoundly impact people's mental wellbeing (Heinrich Böll Stiftung 2021a; Heinrich Böll Stiftung 2021b; McNamara and Jackson 2018; Anonymous Interviewee 27 2022). These can manifest in various ways, such as anxiety, fear, hopelessness about the future, and/or a psychological response to irreversible losses known as 'solastalgia' (IPCC 2014a). This is seen in Indonesia, where 93% of children who face repeated floods experience anxiety, while 29% experience mild depression (Bharadwaj and Shakya 2021).
2. **Education:** Loss of teaching time, school facilities and materials or educational opportunities can have profound impacts on young people's lives, affecting their long-term access to opportunities and livelihoods, and exacerbating gender inequities. For example, in Tanzania, flooding-induced displacement has meant children must spend more time travelling to school, affecting their ability to perform (Bharadwaj and Shakya 2021).
3. **Increased exposure to violence and exploitation:** Losses and damages can exacerbate discrimination in many forms. In households where male members migrate, women can be at greater risk of sexual violence outside the home (Anderson 2021), and spousal or domestic abuse can increase in climate stress conditions (Anonymous Interviewee 16 2021). Although no firm link is established there is evidence that women, girls, and people with disabilities become exposed to new forms of slavery, trafficking, forced labour and forced marriage when affected by climate shocks (Bharadwaj et al. 2021e, 2022).

More research is therefore needed to understand long-term and derived forms of NELD (Singh et al. 2021; Anonymous Interviewee 26 2022). It is important to go beyond the UNFCCC categories, as they may pay insufficient attention to "more nuanced place-specific and culturally relevant losses", which may be vital for certain groups (Tschakert et al. 2017), and which have implications for procedural justice and how to address NELDs in international processes (Serdeczny et al. 2018).

**The multidimensional losses and damages of marginalised groups, who are most at risk from climate impacts, must be accounted for adequately, including non-economic and 'informal' losses and damages.**

**Actions to address losses and damages must prioritise the losses of life and wellbeing faced by excluded and vulnerable groups and assess losses and damages in terms that matter to poor and marginalised people, especially those of Indigenous Peoples.**

## 4.6 Loss and damage risk perception depend on people's values and lived experiences

Risk perception is an important factor when examining loss and damage risks. What forms of loss and damage are 'tolerable' or 'intolerable' depend greatly on the things different people value, what they understand to be at risk, and what represents a loss or a form of damage to them (Puig et al. 2019). Therefore, any discussion about loss and damage must involve a discussion of what people value and what they think is worth protecting.

Understanding different perceptions of value and risk is complex. Because they are socially constructed they cannot be understood in universal terms (Morrissey and Oliver-Smith 2013). Monetary valuation provides one way of trying to allocate a universal value to different forms of losses and damages, but it is not capable of capturing the impact of NELDs and incommensurable values, nor is it a useful measure for wellbeing losses of poor and marginalised groups or those in the informal sector. This means that understanding what people value and consider worth protecting on their own terms is crucial for understanding loss and damage risks effectively (IPCC 2018).

Different people identify the levels of risk that they consider acceptable, tolerable, and intolerable using very different parameters, which are context-specific and socially constructed (IPCC 2014c). Their views on what represents a tolerable/intolerable risk may also vary over time, depending upon changing circumstances (IPCC 2014c). Therefore, we cannot make generalisations or universal assumptions about where the limits to adaptation might lie for a particular household or community because, ultimately, they will be defined by the socially constructed, evolving perception of risk tolerance held by that household or community. As one key informant explained:

> *"The social construction of loss and damage is key — this is why I can't, in a top-down way, tell you 'this is the map of loss and damage.'"* (Anonymous Interviewee 2 2021)

For example, if a plant species has a significant meaning for a particular social or cultural group, its loss may be intolerable to them. For another group, this may not be the case. This difference in risk perception means that different forms of loss and damage may be perceived very differently by different social groups. As another key informant elaborated:

> *"if a particular plant is lost because of climate change/disasters, and then the source of the knowledge is already damaged, then the whole knowledge system and the identity and the rituals and everything gets disturbed."* (Anonymous Interviewee 14 2021)

It is important to ask: whose values and risk perceptions are included in, and govern, decision-making processes relating to loss and damage? Generally speaking, such processes are governed by people in positions of power who are located far from the places that are most at risk, and who have limited understanding of the values, lived experiences or risk perceptions of the people who are most at risk from climate impacts, and who themselves have very different values and risk perceptions.

In most cases, people who are most at risk are not included in decision-making processes that affect them. Uneven power dynamics shape who can participate in these processes, and whose values and priorities are noticed and considered. This results in decision-making processes that exclude the perspectives and silence the voices of those who will be most impacted — omitting some people's losses as irrelevant and deeming others' losses acceptable (Tschakert et al. 2017). This devalues their concerns and priorities and renders the losses and damages they experience invisible. At the same time, such mechanisms privilege the values and risk perceptions of more influential people or institutions, even though they may not be seriously affected.

It is therefore necessary to interrogate the power dynamics that determine whose voices and values are included and excluded in loss and damage decision making (McNamara and Jackson 2018), and to understand the risk tolerance levels of different people and communities.

This requires using community-led risk assessment processes that guarantee the meaningful participation of those experiencing loss and damage, and that generate a deep understanding of why and how they value the things that matter to them and that they want to protect (Morrissey and Oliver-Smith 2013). These processes could take the form of active societal or community discussions to explore socially determined risk preferences and identify which loss and damage risks exceed what different groups find tolerable, based on their own criteria. Loss and damage risk analysis and planning must consider these socially determined risk preferences (Kreienkamp and Vanhala 2017). In this way, there is a need to co-produce knowledge with people affected by loss and damage (Puig et al. 2019).

This is important on a practical level, as decision makers make trade-offs between tolerable and intolerable losses and damages that affect people's lives (Van Der Geest and Warner 2015a). It also highlights the potential harm that can be caused if powerful institutions, whether government, civil society or the private sector, attempt to formulate loss and damage action plans based on assumptions of risk without engaging in meaningful dialogue with those who are most likely to be affected. It underscores the need for policymakers to use bottom-up approaches to risk assessment that are grounded in the reality of what people value and what they consider risky, and to understand more deeply people's varied values, vulnerabilities and lived experiences (Tschakert et al. 2017).

**Efforts to assess loss and damage risks must seek to understand the varied risk perceptions of different people and groups.**

**Actions to address losses and damages should use bottom-up approaches grounded in people's values and lived experiences and account for the power relations that determine whose voices are prioritised in decision making.**

## 4.7 Loss and damage risks and impacts are highly context-specific

The specific forms of loss and damage risks that different people face are dependent on a wide range of highly context-dependent factors, including: the specific nature of the climate hazards and their exposure to them; the characteristics of their surrounding environment, and how it relates to their livelihoods, wellbeing and culture; the multidimensional forms of vulnerability that govern their capacity to cope with, and adapt to climate shocks and long-range climate change, and that determine their limits to adaptation; the intersectional forms of marginalisation and exclusion that shape their particular experience of vulnerability; and their risk perceptions, which inform how they define tolerable and intolerable losses. In addition, the intersection of these factors with prior and

ongoing experiences of consecutive and compounding climate shocks shapes how each subsequent shock is experienced and how their loss and damage risk profile is likely to evolve over time as climate changes intensify.

The complex and context-dependent nature of loss and damage risks means that top-down, one-size-fits-all solutions based on universal assumptions are inappropriate and unlikely to successfully address the loss and damage risks of particular people and communities in specific places. Rather, actions to address loss and damage must aim to tackle the actual and evolving multidimensional forms of loss and damage present within a particular place for a particular group of people.

This requires the use of locally led approaches based on local understandings of risk and which apply locally designed solutions appropriate to the environmental, social, economic and political conditions that affected people live in, and to their self-defined perceptions of risk and their long-term aspirations. However, this is not to suggest that all action to address losses and damages for affected people and places must be implemented at the local level, as complementary action at national, regional and international levels is also required. Rather, any action to address the risks they face must be informed, defined and ultimately led by and in the interests of affected people.

For instance, India's Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) is a national social protection programme that has the potential to support the resilience of poor households facing losses and damages. But achieving this resilience depends ultimately on the scheme's ability to deliver support to vulnerable and affected households and communities in a manner that is targeted and designed to meet their particular needs. This requires the explicit integration of local leadership into decision-making processes and implementation structures, and the devolution of decision-making authority, agency and financial resources to the most appropriate local level to achieve impact most effectively (individual, household, community or local authority), depending upon the specific form of risk to be tackled and the solution being applied (Soanes and Kaur et al. 2019; Steinbach et al. 2020).

The need to ensure that actions to address loss and damage impacts and risk are context-appropriate suggests that they could be designed and delivered in line with the Principles for Locally Led Adaptation (Soanes et al. 2021). These principles have now been endorsed by almost 80 grassroots and community-based organisations, governments, climate finance providers and international nongovernmental organisations (NGOs). While they were developed with climate adaptation in mind, our research and consultations with national and international stakeholders have shown that they are relevant and applicable to actions to address loss and damage (Bharadwaj et al. 2021c). Thus, they could be used by governments, communities, finance providers and CSOs to establish actions to address loss and damage that are tailored to the needs of the people who are most at risk from climate impacts and that are delivered in a just and equitable manner (also see Chapter 5).

**Actions to address loss and damage must devolve resources, authority and agency to the local level. Investment in loss and damage responses is needed at all levels, however, it must prioritise local leadership by those who understand and have experienced loss and damage.**

## 4.8 Conclusions

In this chapter we have identified seven key features of loss and damage risks and have suggested ways in which they can inform practical action based upon concrete examples from LDCs and SIDS. These features have significant implications for how actions to address loss and damage must be undertaken. We have discussed why such action must be based on regular risk assessments that involve vulnerable communities and combine knowledge of past trends with robust assessments of potential climate risks. We have also explained that interventions must be layered to address diverse risks over time and ratcheted up to respond to consecutive and compounding events

The multidimensional and intersectional nature of loss and damage risks mean any actions to address them should focus upon those people and places in the global South that are most at-risk and least able to cope or recover from climate hazards. We have shown, however, that most current approaches for assessing loss and damage risks, and for addressing loss and damage when it occurs, fail to consider the forms of informal or non-economic losses and damages that most affect marginalised groups and people living in poverty. This means that approaches for understanding loss and damage risks must shift their focus away from the economic forms of loss and damage, which are most relevant to economic elites, and focus instead on the forms of risk that are relevant to the communities who are marginalised and excluded. Actions to address losses and damages must also prioritise measures that aim to help these communities to protect their wellbeing in the face of hazards, while also supporting them to move towards climate-resilient development opportunities.

Furthermore, we have explained that the socially constructed nature of loss and damage risk perception, and how different forms of risk are valued by different people in different contexts, mean that any effort to address them must engage deeply with people's values, vulnerabilities and lived experiences. This means that the design and delivery of practical measures should use bottom-up approaches that are grounded in people's values, priorities and lived experiences. This requires all actors to devolve resources, authority and agency to the local level, and to prioritise local leadership by those who understand the local context and who have experienced loss and damage.

In the next chapter we review a range of different measures that can be used to address different types of loss and damage risks over different time frames, taking these key features into account.

# 5

# Addressing loss and damage

Nora Nisi and Simon Addison

A wide variety of tools, measures, and mechanisms can be used to address different forms of loss and damage impacts and risks in different contexts for different people over different time horizons. In this chapter, we examine these measures and how they might be used to address loss and damage in practice. We also discuss the importance of layering different measures to address different forms of risk over time and explore the attributes that define good practice to ensure that actions to address losses and damages are effective, sustainable and socially impactful.

The features of loss and damage risk that we have described in Chapter 4 highlight the importance of designing and delivering actions to address them that are appropriate and effective to their particularities. We suggest, therefore, that actions to address loss and damage should be designed and delivered in ways that respond to the multidimensional vulnerabilities of particular people in particular places and that can adapt to the evolving nature of loss and damage risks and impacts over time.

In this chapter, we outline various ways in which stakeholders from across the whole of society can address loss and damage risks and impacts over different time horizons at national, local and international levels. Many effective solutions already exist and have the potential to address loss and damage effectively if designed and deployed in the right ways to take the particularities of loss and damage impacts and risks into account.

Many of these solutions are already being applied and/or tested in LDCs and SIDS, but they are not being used explicitly to address 'loss and damage'. Rather they are embedded within policies and programmes designed to deal with other issues, from disaster response and recovery, to climate adaptation and sustainable development. We argue, however, that the nature and key features of loss and damage risks that we have presented in Chapters 3 and 4 demand that the measures used to address loss and damage should be qualitatively different in both design and implementation to those that are currently used to address other issues.

For instance, the unprecedented nature of hazards caused by climate change requires new approaches to risk management, planning and response if they are to deal with the inherent uncertainty and unpredictability of loss and damage now and in the future. In particular, the limits to adaptation mean that actions to address loss and damage must take residual risks into account and consider the varied ways in which the most at-risk populations value those risks. Actions to address loss and damage must also take into account the wide range of possible impacts that will impact different places, communities and groups of people differently over short-, medium- and long-range time horizons,

which have high levels of uncertainty, are likely to compound one another in unpredictable ways, and which will affect all sectors of government and society, but in varied ways.

These factors suggest that actions to address loss and damage must be designed and delivered using comprehensive strategies that layer different measures to address the different types of climate risks that will impact people and places in different ways over time. These actions must therefore overcome the artificial divisions that are often erected between humanitarian action, disaster risk management, forced migration management, poverty reduction efforts, environmental management and climate adaptation activities. Rather, strategies must be developed that focus on the need to address the risks that affect the people and places who are most exposed and most vulnerable, using measures that are tailored to their particular priorities, and that involve not just the whole of government, but the whole of society, using a holistic, locally led approach.

Based upon an examination of measures that LDCs and SIDS are testing to address loss and damage, and also those from other sectors that we believe offer potential to do so, we provide our analysis of practical options that we believe can be mobilised to tackle loss and damage in the most at-risk countries and communities. We also set out 10 attributes of good practice for the design and delivery of measures to address loss and damage, and provide a set of illustrative examples in Annex 1.

## 5.1 What options exist?

### 5.1.1 Assessment and communication of loss and damage risks

Understanding the specific forms of loss and damage risks that might affect different places and people under different climatic, environmental and social scenarios is critical. Climate risk assessments (CRAs) can be an essential tool to help decision makers increase their understanding of loss and damage risks and assess uncertainty (UNFCCC 2020a; WIM 2019). CRAs identify the likelihood of future climate hazards and their potential impacts on different communities (C40 Communities 2018).

CRAs of this kind can aid a country or community in understanding potential risks and risk scenarios (location, severity and frequency), the likelihood that different hazards will occur, the impact they might have (potential losses and damages) and, in some cases, to identify the people and places that are most vulnerable to those forms of losses and damages (WIM 2019; UNFCCC 2020a). Armed with this information, decision makers can ensure that climate hazard response mechanisms are risk-informed (WIM 2019). This can help decision makers better understand the action and support required to tackle different losses and damages and optimise the resources needed to respond to different hazards (Martinez et al. 2012).

CRAs can be national, top-down, data-driven, cross-sectoral assessments or they can be locally led, sectoral, participatory, process-driven assessments (Adaptation Research Alliance 2021). Losses and damages are happening now, but they are also dynamic and complex. Compounding risks, paired with the changing frequency and intensity of climate change impacts over time, mean that the assessment of loss and damage risks must be robust, iterative and flexible. This is not only so that we can understand the risks of loss and damage in a given area from a specific hazard at a given point in time, but also how the losses and damages that these risks might cause will evolve over time, and how they will interact with other forms of risk. Uncertainty requires new forms of decision making built on a robust analysis of a range of possible future events and increased contingency measures. This is especially true when assessing potential losses and damages.

When households and communities receive ample warning of oncoming hazards such as floods, cyclones, droughts or heatwaves, they are better able to respond and make informed decisions that protect their lives, assets and livelihoods (UN n.d.). Given this, early warning systems (EWS) are exceedingly important for addressing loss and damage effectively. EWS do not just consist of meteorological reports or warnings. Rather, they should include a process or system for linking early warning information to effective decision making. This process is most successful when meteorological stations and monitoring systems work effectively to detect oncoming events and this information is then disseminated and communicated promptly and through a variety of accessible channels to the people who need it most, when roles and responsibilities are clear, and when response plans and decision processes are already in place, and responses are coordinated effectively (Climate-ADAPT 2019).

If one of these components is not functioning or is neglected, the whole system is affected. Although all components are critical, climate risk communication demands particular attention. For EWS to work well, decision makers and communities on the frontline of climate change impacts must receive the information necessary to act. It is important to note here that EWS works best to deal with short-term risks related to rapid-onset climate shocks such as hurricanes or cyclones. They are not as well-suited to slow-onset climate impacts such as sea-level rise or ecosystem degradation.

### 5.1.2 Risk reduction, retention and transfer

Risk reduction, retention and transfer measures include targeted interventions such as: physical construction and engineered interventions (for example, seawalls and dykes); cyclone shelters; emergency response plans; floodproofing; maintaining or increasing the resilience of built environments; anticipatory evacuation; Early Warning Early Action; infrastructure modifications and regulations (for example, building codes, drainage systems); planned relocation; social safety nets; contingency funds; anticipatory cash transfers; nature-based solutions (for example, mangrove restoration); hybrid solutions such as climate-smart agriculture; social protection programmes; microfinance; livelihood diversification; insurance; and microinsurance.

These types of ex-ante intervention are critical for addressing the residual loss and damage risks that will become increasingly likely as communities move towards or beyond the limits to adaptation. They have been shown to be effective in reducing the impacts of both low-magnitude, high-frequency climatic events and high-magnitude, low-frequency climatic events, by reducing exposure, improving preparedness, increasing resilience, and/or helping households absorb climate shocks (Roberts and Pelling 2018). However, there are two important considerations to note in the case of actions to address losses and damages.

First, these measures can be viewed as multipurpose. While some of these measures are traditionally branded as either delivering disaster risk reduction, supporting climate change adaptation, or tackling loss and damage, in practice, they are often able to do all three. For example, social protection measures designed as part of a poverty reduction programme can also be used effectively within disaster response systems. Shock-responsive social protection can scale up welfare support vertically or horizontally either before, during or after a climate shock occurs. For example, after Typhoon Haiyan in 2013, the Philippines' Pantawid social protection programme was expanded to provide cash top-up payments to beneficiaries in the worst affected municipalities (Schelzig 2015).

Second, while some measures may effectively decrease climate risk for a period of time, they may be reduced to short-term coping strategies if the limits to adaptation are exceeded. Sea walls and elevated houses, for example, may offer protection against storm surges and sea-level rise of a certain magnitude. As climate change impacts increase, however, those hazards may present an increasingly existential risk for coastal communities in low-lying areas, rendering the risk reduction provided by the engineered solutions ineffective once the limits to adaptation are reached and breached.

For example, in the district of Satkhira in Bangladesh, farmers have struggled with saline intrusion over the past two decades (Warner et al. 2012). One of the most effective adaptation strategies for these farmers to date has been the introduction of saline-tolerant rice cultivars (Warner et al. 2012). But in 2009 the impact of Cyclone Alia raised soil salinity levels beyond what saline-tolerant cultivars could handle, resulting in the immediate and long-term loss of the region's rice harvest, at a cost of millions of dollars (Warner et al. 2012). These saline-tolerant rice varieties appeared to be a highly effective adaptation strategy when they were introduced. However, with the increasing intensity of cyclones in Bangladesh, the limits to adaptation were reached and breached, and these adaptation measures have become redundant.

### 5.1.3 Response and recovery

When a community is struck by rapid-onset climate hazards such as typhoons or flash floods, both economic and non-economic forms of loss and damage will occur. Critical infrastructure, services, ecosystems, lives and livelihoods will be lost, disrupted, damaged or destroyed. Though more gradual, the impacts of slow-onset events can be just as catastrophic. As the frequency and intensity of climate change impacts increase over time, so too will the scope and scale of the associated losses and damages that people experience. This means that the costs associated with response and recovery will also increase.

The response of a household or community to a rapid-onset climate shock can impact dramatically the levels of loss and damage that they incur, both immediately and over time, and may also erode their ability to cope with shocks in the future. It is therefore essential to have a coordinated emergency response system in place that can support affected people to cope with impacts of climate shocks, and to reduce the losses and damages they experience.

Emergency response systems ensure that the capacities and resources are in place to meet immediate needs, by providing emergency relief and medical aid, while also linking with longer-term climate-hazard preparedness and planning systems. For example, a household at risk from cyclones may need access to designated evacuation routes for themselves and their livestock, while also having access to emergency services that can provide shelter, food, water and healthcare, including psychosocial support.

Evidence from disaster risk management and humanitarian response also shows that anticipatory action based upon EWS can make a significant difference in reducing the losses and damages caused by unavoidable climate shocks. By providing information and material support to vulnerable households and communities before a shock occurs, people who are at risk can cope more effectively and can avoid the losses and damages that can result in the erosion of assets, livelihoods and long-term adaptive capacity.

For instance the Start Network is a network of international and local CSOs that use climate projections, weather forecasts and EWS to trigger the delivery of support to at-risk households and communities either before, or very soon after a climate shock occurs (Start Network 2020). Similarly, in Kenya the government's Hunger Safety Net Programme uses EWS to identify the early onset of drought conditions and emergency cash transfers to highly vulnerable households (Merttens et al. 2017).

Once a climate shock has passed and the immediate needs of affected people are met, countries and communities begin the process of recovery and reconstruction.

Recovery refers to the coordinated process of restoring infrastructure, public services, livelihoods and ecosystems that have been negatively affected by a hazard (Australian Council of Social Service 2015). Given the importance of non-economic and informal losses and damages for the most at-risk populations of the global South, recovery and reconstruction must ensure that the restoration of the wellbeing of affected people, in all its forms, is also prioritised. This demands that recovery and reconstruction interventions should not simply focus on repairing damages to physical infrastructure and assets, or on restoring economic growth to pre-crisis levels, but must also integrate measures that enable affected people to rebuild their lives and livelihoods in ways that are climate resilient, and support them to overcome the impacts upon their social and cultural identities, physical health and mental wellbeing.

The recovery process offers valuable opportunities to integrate residual risk reduction into programming and to include resilience-strengthening measures in reconstruction activities so that communities can better withstand future impacts (Jha and Stanton-Geddes 2013). Although 'recovery' is relevant only to damages, as losses are non-recoverable, the recovery phase can include processes that support households to recuperate from certain losses (for example, gaining back livestock or lost assets).

In short, although many countries are shifting their approach from focusing on emergency response to addressing disaster risk reduction (FAO 2008), effective emergency response, reconstruction, and rehabilitation processes are still crucial for addressing residual and future loss and damage risks (UNFCCC 2020a).

### 5.1.4 Addressing long-range risks

There are a number of long-range existential risks of loss and damage posed by slow-onset hazards associated with climate change that are likely to be unavoidable for certain communities because of the locations in which they live. These risks relate to hazards that will render particular places uninhabitable in the future, such as sea-level rise, atmospheric temperature rise, biodiversity loss, desertification and glacier melt.

Such unavoidable forms of loss and damage demand the use of a particular set of ex-ante measures that include the planned relocation, resettlement, assisted migration and integration of households, communities, and potentially entire nations, in a manner that enables them to move towards long-term opportunities for climate-resilient development in new locations. In many places such measures may only require affected people to move a short distance — for instance to move a few kilometres inland to avoid inundation in a coastal settlement. In some others, such as Pacific Islands that are at risk of total inundation, or semi-arid regions that may become uninhabitable, they may require the relocation of large numbers of people to areas far from their place of origin, and may even require the international migration of a country's entire population.

Such processes of planned relocation can offer people who face existential risks with a valuable lifeline, and must become an integral component of national and local plans to manage climate and disaster risks and climate change adaptation strategies and development plans (Ferris and Weerasinghe 2020). But they can only deliver on this potential if they are implemented effectively in ways that are sensitive to the multiple forms of loss and damage that they will produce — from loss of land and livelihoods and loss of access to natural resources and ecosystem services, to loss of cultural and social identity, loss of access to essential services and government support and protection, exposure to risks of modern slavery, sexual and gender-based violence, xenophobia, social exclusion and marginalisation, and long term individual trauma — and to the human rights and security of those who are relocated.

The long history of development-induced displacement has shown that the planned relocation of communities to accommodate projects such as mega-dams often results in serious negative consequences for those who are relocated (Terminski 2012). It can also have serious unintended consequences for the people, environments and economies of the places to which they are relocated — especially when the relocation processes are not planned in a manner that takes into account the particular preferences, needs and rights of all those who will be impacted.

These risks must therefore be taken fully into account when planning such long-term measures to address loss and damage. But, if well planned and executed they can offer highly vulnerable communities a means to secure long-term intergenerational life chances that are climate resilient and that can contribute significantly to the sustainable development of the locations that they migrate to.

Table 5. Some of the diverse measures that can be used to address loss and damage

| MEASURE | HOW DOES IT WORK |
|---|---|
| Engineered interventions (eg dams, dykes, seawalls, floodgates, levees, air conditioning) | Engineered (grey) interventions are engineered and physical structures that are often made of long-lasting materials such as concrete. These physical structures work to reduce risk by protecting people from biophysical hazards.<br><br>Engineering or grey approaches have their disbenefits. They often do not tackle the root causes of risk and, in some cases, can increase the vulnerability of populations over the long term (eg by damaging the natural environment). Therefore, these grey approaches should be integrated alongside green and blue solutions. |
| Nature-based solutions (eg mangrove restoration, wetland restoration, slope reforestation, revegetation of river mouths and shorelines, permeable pavements, living breakwater) | Under normal circumstances, intact coastal ecosystems (such as mangroves and wetlands) can reduce the energy of storm surges and counteract the effects of sea-level rise. Natural drainage systems can reduce the impacts of floods as natural barriers slow floodwater down, allowing it to percolate into the ground. In addition to this, deep-rooted vegetation such as trees on slopes reduces the risk of landslides and flash flooding. |
| Infrastructure modifications (eg building codes, floodproofing houses) | Infrastructure modifications can increase resilience of the built environment. Modifications can include: elevating houses and ensuring that building codes are followed that allow for risk-sensitive urban development, ensuring construction is made in safe locations and following standards and regulations that make building more resilient to climate change impacts. |
| Hybrid solutions (climate-smart agriculture) | Climate-smart agriculture (CSA) is an integrated approach to managing landscapes — cropland, livestock, forests and fisheries — that addresses the interlinked challenges of food security and accelerating climate change. CSA aims to simultaneously achieve three outcomes: increased productivity, enhanced resilience and reduced emissions. |
| Emergency response plans (evacuation routes, cyclone shelters) | The best emergency response plans include evacuation routes and knowledge on how to act during an emergency, and detailed communication procedures to follow during and after a specific emergency occurs. Knowing that a rapid-onset hazard is approaching is not enough, communities and households need to know how to respond and where to go. |

| | |
|---|---|
| Early warning systems (EWS) | EWS consist of meteorological stations and monitoring systems that work effectively to detect oncoming events, this information is then disseminated and communicated in a timely manner and through a variety of channels to those exposed to the oncoming hazard. |
| Planned relocation | Planned relocation is carried out under the authority of the state. It is a planned process in which persons or groups of persons move or are moved away from their homes, settled in a new location, and provided with the conditions for rebuilding their lives. |
| Social protection programmes | Social protection is a set of policies and programmes aimed at preventing or protecting all people against poverty and vulnerability throughout their lifecycle. This can include labour market interventions, social welfare programmes, social safety nets and social insurance. |
| Livelihood diversification | Climate change can threaten certain livelihoods (eg farming). Livelihood diversification is known as a risk-spreading process in which households construct a diverse portfolio of activities that they can undertake to increase their resilience and maintain or improve their standard of living. |
| Climate insurance | Insurance is a risk transfer mechanism that is able to provide quick liquidity after an insured climate hazard occurs. Climate insurance can include extreme weather insurance. Microinsurance schemes can help vulnerable and poor households reduce harmful coping strategies related to climate change hazards (eg using savings, selling assets, taking children out of school, using seed stock) by releasing a payout. It is important to note, however, that the costs of insurance are high and can be unaffordable, especially for those living in poverty. |
| Anticipatory cash transfers | Anticipatory cash transfers seek to make cash handouts to households after the occurrence of a climate shock. Anticipatory cash transfers, on the other hand, ensure that households receive cash *before* the peak of the shock triggered by an impact-based forecast. This, like insurance, reduces harmful coping strategies and supports households with few savings and assets to absorb shock. |

## 5.2 Layering interventions

The most recent report of the IPCC's Working Group II on impacts, adaptation and vulnerability reported that climate change impacts and risks are becoming increasingly complex (IPCC 2022). The compounding risks of escalating climate hazards, the residual risks and limits to adaptation that people increasingly face, and the concrete impacts of losses and damages themselves, are overwhelming the ability of individuals, households, communities and systems to cope and adapt (Van Der Geest and Warner 2015a).

That being said, no clear line can be drawn to distinguish where adaptation ends and loss and damage begins — especially for the marginalised groups and people living in poverty who are most at risk. Climate change impacts are increasing in intensity and frequency over time and are compounding one another. In addition, climatic and non-climatic risks interact in unpredictable ways. More specifically, the biophysical processes of climate hazards are interacting with the underlying but highly dynamic social, economic, territorial and political processes that shape the vulnerabilities of particular individuals, households or communities and that affect the outcomes of a shock (Oliver-Smith et al. 2012).

Given this, it is important to see risk reduction, resilience, adaptation, response, recovery, and loss and damage as interacting in a space and on a spectrum that is dynamic, ongoing and evolving. To tackle loss and damage effectively, the DRR, humanitarian, development, and adaptation communities, which often operate in siloes, must come together to share their knowledge, explore new and innovative solutions, and design and deliver coordinated responses that can address loss and damage risks in a holistic and comprehensive manner.

This also means that intervention measures must be layered, so that the potential inadequacy of one measure (for example, saline-tolerant crops) can be offset by complementary measures that act as a safety net (for example, social protection). No individual measure will work to tackle loss and damage effectively. Instead, a suite of measures is necessary to support vulnerable communities and households to address the range of climate impacts they might face. Measures must also be layered to help households deal with multidimensional and compounding risks as they change and to handle the increasing intensity and frequency of climate change impacts over time.

In the earlier example of saline-tolerant cultivar use in Bangladesh, a suite of interventions might have allowed rice farmers to better absorb shocks and better manage the losses and damages caused by saline intrusion. Other measures might have included:

- Reforestation of hill slopes and floodproofing of infrastructure to help manage the compounding risks that farmers might be exposed to, such as the risk of landslides or flash floods
- Community-based disaster risk reduction, emergency response and recovery plans to better address the immediate and residual loss and damage that farmers face in the aftermath of extreme rapid-onset events
- Safety nets such as social protection to help farmers better absorb the impact of increasingly frequent and intense compounding hazards
- Index-linked insurance or forecast-based financing to deliver anticipatory support to farmers who might be hit by a climate shock in the near future
- As climate change intensifies, more limits to adaptation may be reached and may cause the area where these farmers live to become uninhabitable or unsuitable for farming. Further interventions within the designated suite of measures might then be initiated, for example, planned relocation and livelihood diversification.

CRAs and vulnerability mapping can play a useful role in helping governments to understand not only the types of measures that are best suited to tackle specific forms of loss and damage as they will affect different people in particular contexts, but also when and where particular risk thresholds have been reached, or may soon be reached, and the corresponding measures that should be triggered.

Simply put, adopting a comprehensive approach that acknowledges the complexity of loss and damage risks and that layers a range of measures to address those risks into existing processes would allow communities, households and local authorities to better anticipate, reduce, respond to and recover from loss and damage risks, while simultaneously addressing the underlying causes of vulnerability to those risks.

## 5.3 What defines good practice?

While layering measures is critical for effectively addressing loss and damage impacts and risks, the success of those measures will depend on applying good practices. At first glance, the above-mentioned measures may appear to deliver solely positive impacts. But how they are implemented and delivered can affect their outcomes hugely, potentially rendering them ineffective, unsustainable, or, at worst, harmful. To illustrate this point, both Eriksen et al. (2021) and the most recent IPCC Working Group II report warn that initiatives to reduce climate risks and support adaptation can result in maladaptation and maladaptive outcomes, which can lock in vulnerabilities or reinforce and exacerbate existing inequalities (IPCC 2022).

On the other hand, measures can be effective, sustainable and socially impactful if they are implemented in conjunction with certain principles and attributes; or more specifically, if they are implemented within an enabling environment that overcomes political and legislative barriers and in a way that ensures that they are robust, needs-driven and ecologically sound, and build from a foundation of sustainable development and climate justice while addressing the underlying causes of vulnerability and intersectional inequality. The remainder of this chapter will examine these attributes in detail. It will also highlight on-the-ground examples where these attributes have been employed.

However, it is important to be mindful that regions, countries, and communities are not homogeneous, and the particular risks they face are highly varied. Countries have unique political, demographic, social, cultural, economic and risk landscapes, so there are no 'off-the-shelf' solutions for tackling loss and damage. Where some measures may be scalable, there is always room for countries and regions to learn from one another, but a one-size-fits-all answer does not exist. Certain attributes will be more appropriate in one context than another, and different measures will work in different contexts and enabling environments.

Table 6 summarises eleven good practices we have identified for addressing loss and damage impacts and risks in countries and communities particularly vulnerable to climate impacts. This is followed by a narrative explanation of each practice with links to detailed case studies in Annex 1.

Table 6. Good practices for addressing loss and damage

| | | | |
|---|---|---|---|
| 1 | Map multidimensional vulnerabilities | 6 | Address the underlying causes of vulnerability |
| 2 | Communicate climate risks effectively | 7 | Take a whole-of-government approach |
| 3 | Act early, before risks become disasters | 8 | Include the whole of society |
| 4 | Empower communities to lead local responses | 9 | Be ecologically sound and harness the role of nature |
| 5 | Ensure measures are based on the locally defined priorities of people at risk | 10 | Always account for non-economic forms of loss and damage |

### 5.3.1 Map multidimensional vulnerabilities

Understanding where vulnerabilities lie helps guide responses and inform decision making on how to address loss and damage risks effectively. Vulnerability mapping, which maps exposure, sensitivity and coping capacity (Mohanty and Wadhawan 2021) can provide crucial information for local governments and nongovernmental agencies when developing disaster prevention and preparedness plans and identifying gaps in or opportunities for resilience building.

The vulnerabilities of a person, household or community to climate change are shaped by intersectional factors such as age, gender, disability, wealth and health. Recognising these multidimensional and intersectional factors and including them in vulnerability mapping gives a more nuanced and grounded understanding of how losses and damages might manifest in particular households and communities. This can help ensure that programmes and policies addressing loss and damage do not take a 'one-size-fits-all' approach.

In some cases, simply understanding where loss and damage has occurred and where it is most likely to occur in the future can help governments better plan and develop measures to address losses and damages effectively. In Cambodia, for example, the Cambodian Disaster Loss and Damage Information System database (CamDi) was developed (Clingeleffe 2020). This database took 7,800 records of climate events between 1996 and 2013 to understand where disasters have occurred and the geographic scope of the related losses and damages they caused (Clingeleffer 2020).

However, these kinds of databases often do not account for NELDs or the losses and damages incurred by the poorest households in informal settlements/sectors (for example, urban slum dwellers). For such databases to be most effective, governments can seek support from grassroots organisations such as Slum/Shack Dwellers International (SDI) to generate bottom-up evidence that can be used to better quantify and aggregate the actual losses and damages incurred by those worst affected by climate impacts.

Vulnerability mapping cannot always rely upon formal data. This can be for various reasons. For example, the uncertainty of climate change impacts over time can make climate data unreliable, or some communities may be excluded from official databases due to their land ownership or tenure status (such as Indigenous communities or people living in informal settlements). Utilising more 'informal' data such as experience on the ground, local knowledge, and participatory bottom-up mapping can better address these uncertainties and blind spots. For example, the mobile and web-based tool, Climate Resilience Information System and Planning tool for the Mahatma Gandhi National Rural Employment Guarantee Scheme (CRISP-M), combines scientific climate risk information with local and traditional knowledge to help communities in India manage climate risks more effectively (Abhilashi and Renton 2022).

In some cities, those living in informal settlements make up 40% of the population (World Bank 2022a). These groups must be included in vulnerability mapping. The process of mapping and profiling informal settlements is being taken forward in Kenya, India, and Zimbabwe (Patel 2021). Organisations such as SDI have supported thousands of informal settlements

to engage in 'slum profiling' through the Know Your City initiative (Patel 2021). In Freetown, Sierra Leone, informal settlements are being supported to undertake their own risk mapping to increase preparedness and to assess where greater resilience can be achieved (UrbanShift 2021).

For more on community vulnerability mapping, see Annex 1: Case study 1: Mapping India's climate vulnerability.

### 5.3.2 Communicate climate risks effectively

Risk communication is the intentional effort on the part of one or more sources to provide information about hazards and their potential impacts for the purpose of motivating recipients to use the information and take appropriate action (Martínez et al. 2012). Climate risk communication is important for both rapid- and slow-onset hazards. CRAs and EWS will be fruitless if the appropriate communication of climate risks does not flow readily from forecasters to decision makers to the people who need it the most (Bharadwaj et al. 2021a). Several factors determine the effectiveness of risk communication.

**Climate risks must be communicated to those who need the information most.** The information should be disseminated based on an understanding of who is exposed to a climate hazard and who is vulnerable to being adversely affected by that hazard. This should be informed by the vulnerability mapping described above, and should be done in a timely manner, using a variety of appropriate channels. Relying on a single channel of communication may exclude some groups and communities. For example, in Malawi, Burkina Faso and Bhutan, most rural herders and farmers don't own a television, so radio is one of the most effective communication channels because it is one of the most common and far-reaching forms of media (Malawi LIFE-AR FP 2021). In other locations, SMS text messaging might be a very far-reaching form of communication. In Pakistan, for example, early warnings are sent to specific regions or neighbourhoods via SMS (APP 2014). In Cuba, where multi-hazard risk assessments and EWS are recognised as crucial factors in effective DRR (Castellanos Abella and Wisner 2019), hurricane EWS work through a communication system that includes the local radio station *Ecos de Sagua* and also warnings broadcast by cars using loudspeakers and megaphones (Llanes Guerra 2010).

**Climate risk should be communicated in a bottom-up rather than a top-down manner.** Communities do not always accept top-down information. This can be for various reasons, including mistrust of the government or national media. For example, during France's catastrophic 2003 heatwave, even when information was distributed through media outlets and pamphlets, at-risk populations did not respond (Field et al. 2012). When questioned later, they suggested that trusted community-based organisations (CBOs) should be involved to engage with communities at the local level, rather than relying on top-down messages (Field et al., 2012). CBOs, grassroots organisations and NGOs are often seen as trusted community members and can thus play a significant role in the dissemination of information and mobilisation of the community at large (Victoria 2013).

**Information provided must be appropriate for the intended audience.** Risk communication must remove unnecessary scientific jargon and be translated into local languages and dialects (Resilience Hub 8 November 2021). In some cases, local NGOs and volunteer groups are best placed to fill communication gaps and act as intermediaries, interpreters and champions of information. Friendship, a needs-driven NGO that works in the Char islands and on the riverbanks of northern Bangladesh, communicates climate risk to local communities. Recognising that some households are illiterate, Friendship has used pictures and 'pictorial participation' to communicate climate risks (Friendship, 2022).

**Climate risk communication should come with clear advice on what to do.** It is not sufficient to provide people with information about climate risks alone. Households and communities should also be given clear advice on the concrete actions they can take to reduce their risk, and when they should do so. They should also be provided with information on support services that may be available to them. Although local communities have been dealing with the impacts of climate change risks for decades by utilising their traditional and Indigenous knowledge, climate change impacts are increasing in intensity and frequency and may exceed the experience of people likely to be affected. This means, for example, that communities such as pastoralists may face droughts unprecedented in length or severity. As such, risk information must also come with advice and information on how to act in these potentially unique situations (Resilience Hub 3 November 2021).

For more on risk communication, see Annex 1:

Case study 2: The Weatherwise Project in Tanzania, Uganda and Kenya

Case study 3: Northern Kenya's community radio initiative

### 5.3.3 Act early, before risks become disasters

To reduce the risk of climate hazards becoming disasters, there is a need to shift from reactive emergency management to disaster risk reduction, stressing proactive pre-hazard intervention (UNFCCC 2020a; Bharadwaj et al. 2021a; Victoria 2003). Unfortunately, many countries focus on disaster response rather than prevention and preparedness. This can often be linked to the uncertainty of climate change as policymakers may not want to invest scarce resources into uncertain outcomes, lack of adequate resources and funding, having other priorities or a lack of political will (Anonymous Interviewee 11 2021)

Several forms of early action have shown that they are most effective when implemented pre-emptively. Examples include evacuation, relocation and cash transfers.

**Evacuation.** While displacement from rapid-onset events can place communities in dire circumstances, pre-emptive emergency evacuations can move communities to safety before an extreme weather event occurs, reducing loss of life and impacts on livelihoods. In India and Bangladesh, evacuation has dramatically reduced death tolls caused by cyclones (BBC News 2020; Sharma and Alam 2021). Planned relocation refers to evacuating people from areas that are likely to be affected by a slow-onset event (Ferris and Weerasinghe 2020; Boston, Panda and Surminski 2021; Pill 2020). When Hurricane Stan, a relatively weak storm, struck Mexico in 2005, evacuation of affected areas began during the emergency phase, when floods in 98 rivers had flooded and already affected 800 communities (IPCC 2012). Some 100,000 people fled from mountainous regions to improvised shelters such as schools and 'guest families' (IPCC 2012). A few weeks later, Mexico was hit by the extremely intense Hurricane Wilma. People were pre-emptively evacuated from dangerous areas and taken to shelters following an early alert (IPCC 2012). This early action resulted in a greater than four-fold reduction in mortalities (IPCC 2012).

**Cash transfers.** Delivery of one-off cash transfers to affected households has become an increasingly common humanitarian response measure following extreme weather events (IFRC 2014; Mansur, Doyle and Ivaschenko 2018). However, anticipatory cash transfers have shown to be far more successful than ex-post cash transfers. This is because the poorest households in LDCs and SIDS have fewer assets, and their consumption is close to subsistence levels. When climate hazards strike, they often have little to no savings to fund preparatory measures or absorb shock (Cadet 2021). Delivering support after an event often involves long delays. It may arrive long after a household needed it most. Anticipatory cash transfers support households to take preemptive action before a hazard strikes (Pople et al. 2021), providing them with the additional means necessary to absorb shock. Additionally, compared to anticipatory cash transfers, ex-post cash transfers are slower to distribute, more expensive and reach fewer people (Resilience Hub 10 November 2021).

For more on early action, see Annex 1:

Case study 4: Anticipatory cash transfers in Bangladesh

Case study 5: Anticipatory drought action in Senegal

Case study 6: Index-linked insurance in Kenya

### 5.3.4 Support communities to lead local responses

Local community members are the first responders in any disaster situation (Briones, Vachon and Glantz 2019), and for decades, affected communities have been using their local experiences, perceptions, traditional knowledge and resources to develop and implement community-based solutions in response to the impacts of climate change (Mekonnen et al. 2021).

As first responders, households and communities bear the burden of covering the majority of the costs of coping with climate shocks, using their savings or selling their assets to address their immediate needs. For instance, it has been estimated that in Bangladesh in 2015 rural households in Bangladesh spent just under US$2 billion on climate and disaster management. This was more than double the government's spending in that period, and over 12 times more than multilateral international financing for the rural Bangladeshi population in absolute terms (Eskander and Steele 2020; Eskander et al. 2022).

In South Asia more broadly, households have long adopted strategies to protect their livelihoods from being destroyed by flooding, such as storing their seeds in high places (Mitchell, Tanner and Lussier 2007). In Turkana in northwestern Kenya, pastoralists have employed a variety of traditional responses to drought stresses (Opiyo et al. 2015). Further examples can be seen in Bangladesh (Anik and Khan 2012), Mexico (Audefroy and Sánchez 2017), Ethiopia (Mekonnen et al. 2021) and across the African Sahel (Nyong, Adesina and Elasha 2007).

Communities often develop innovative, proactive solutions in times of stress (Bharadwaj et al. 2021c). Given their proximity to the risks, local knowledge and skills, communities can play a critical role in reducing risk and by being the first responders in the aftermath of rapid-onset events (Resilience Hub 10 November 2021). As such, community-based disaster management, community-based disaster risk reduction and community emergency response teams can dramatically increase community capacity to respond to climate hazards. The knowledge and skills possessed by these communities should be harnessed and utilised in planning processes.

However, communities will struggle to play this essential role unless they are able to access education, information and financial and technical support, and if relevant forms of authority and decision-making power are not devolved to their level. Case studies have indicated that knowledge and information are critical for communities to become active participants in government-initiated programmes, and take ownership of them (WIM 2019). They also show that when appropriate resources are available — such as funding, resources, expertise, and technical capability — communities are better able to deal with risk and act in times of crisis (WIM 2019)

For instance, although EWS are crucial for addressing loss and damage, they are ineffective if communities do not have adequate resources, capacity or training to act on them. Countries such as the United Kingdom, the Netherlands and Japan have taken steps to better educate the public on climate risk response (Wyman 2009). In Japan, a 'disaster prevention week', which includes training and drills, raises public awareness about disasters and knowledge of disaster preparedness and response strategies (Wyman, 2009).

For more on community led approches, see Annex 1:

Case study 7: Community-based cyclone management in Bangladesh

Case study 8: Community-based flood early warning system in India

Case study 9: Community-based flood management in Uganda

### 5.3.5 Ensure measures are based on the locally defined priorities of people at risk

Before decision makers decide on what measures will be part of their layered suite of interventions to tackle loss and damage, it is vital that those measures have been designed to meet the priorities of affected communities or vulnerable social groups (Anonymous Interviewee 3 2021). Measures such as planned relocation, dam construction and mangrove restoration have direct impacts on the communities for which the risk-reduction benefit is intended. A top-down approach that does not consider community priorities and preferences and is not framed by the intended beneficiaries can skew the distribution of benefits, exacerbate inequality, and likely lead to maladaptation (Eriksen et al. 2021). Top-down approaches will limit the sense of ownership (thus impacting the long-term sustainability and effectiveness of initiatives) (Soanes et al. 2021) and can also cause negative social impacts such as economic (for example, loss of livelihood) and non-economic (for example, loss of identity) loss and damage.

For example, planned relocation to address future losses and damages (for example, loss of land, loss of life) can result in other unintended forms of loss and damage, such as loss of culture and traditions, language, social networks, identity, and community cohesion (Schäfer and Künzel 2019; Anonymous Interviewee 3 2021). The importance of NELDs, such as social cohesion and social networks, which are often overlooked, cannot be overstated. Social capital as it relates to social cohesion and networks is a critical component of rural livelihood security. Households often rely upon relationships between individuals and groups in times of stress, helping them cope with climate hazards (Adger et al. 2004). Smallholder farmers in Pacific SIDS, for example, often rely on friends and family members in times of severe drought, sharing and borrowing water for irrigation as needed (Taylor, McGregor and Dawson 2016).

In addition, some households depend on their location for their livelihoods. If communities are moved away from these locations to reduce their exposure to future climate risks but are not supported to adopt new forms of sustainable livelihood, this results in loss of income and security. This can be seen in Timor Leste, where fishing households relocated away from risk-prone coastal areas have moved back to their original locations, despite the risk of climate shocks, because that is where their livelihoods are located (Anonymous Interviewee 9 2021). Similarly, in the Philippines, after Typhoon Yolanda in 2013, the government relocated coastal communities inland and away from risk-prone areas (UNFCCC 2020). However, due to the community's continued heavy reliance on coastal economic activities and a lack of opportunity for new livelihood opportunities inland, communities returned to coastal areas, despite the high risk of storm surges (UNFCCC 2020).

Migration and relocation are often last-resort options to address loss and damage. Nevertheless they should still be facilitated with the needs of individuals and communities in mind, with the rights

of affected communities safeguarded, and with rehabilitation and recovery measures in place that promote livelihood shifts and reduce NELDs. There is a substantial literature on the perils of, and good practices for, development-induced displacement and planned relocation. This provides important lessons for addressing loss and damage and should be consulted by stakeholders interested in using such measures (for example Wilmsen and Webber 2015; Satiroglu and Choi 2015).

Being needs-based is also important for recovery and response. In fact, "[t]he strength of post-disaster recovery and reconstruction efforts lies with how well they respond to the socio-economic needs of affected people" (Abhas, Miner and Stanton-Geddes 2013).

For example, temporary shelters such as tents or vacant buildings are often used during the reconstruction and recovery phases. However, reconstruction often takes a long time, resulting in households living in temporary shelters for extended periods (Kennedy et al. 2008). This situation is especially difficult for households with few savings and assets who need to resume 'normal' life as soon as possible (Kennedy et al. 2008). Being seen as temporary, these shelters are not designed to respond to the needs of households, and disaster-affected people often take action to fulfil their own needs by adapting the shelter items given to them. For example, they might use blankets to seal tent doors for privacy and dignity rather than for sleeping. Thus, while reconstruction should occur quickly to minimise suffering and reduce residual loss and damage, 'transitional shelters' must still operate in ways to fulfil demands such as psychological health, physical health, privacy and dignity.

Participatory processes and approaches are often best to assess vulnerable communities' priorities and preferences. The involvement of communities in planning processes means that plans to tackle loss and damage can be bespoke, as communities are often best placed to determine the most appropriate response measures and how measures can be supplemented to deal with the compounding risks they face (Roberts and Andrei 2015).

For example, if a community depends heavily on its livestock for its livelihood, and livestock plays a vital cultural role (for example, being used as dowry), the community may prefer measures that protect this important asset. In this case, solutions such as Cuba's livestock-specific evacuation routes and emergency shelters function well (FAO 2008). In addition, communities are far more likely to be committed to the plan's implementation if they participate actively in its formulation (WIM 2019).

For more on needs-based measures, see Annex 1:

Case study 10: Community-based flood resilience in Kibera, Kenya

Case study 11: Participatory planning in Colombia

Case study 12: Community-driven development in the Philippines

### 5.3.6 Address the underlying causes of vulnerability

As we saw in Chapter 3, climate change interacts with diverse social, economic and political processes to create multidimensional loss and damage risks. Extreme weather events do not cause disasters; rather, disasters are caused by place-based vulnerabilities, which result from the range of economic, social, cultural, institutional, physical and political factors that shape people's lives and the environment that they live in (PreventionWeb 2020).

The impacts of climate change-related events can be augmented by non-climatic drivers that negatively affect the conditions and circumstances of communities and increase their vulnerability to loss and damage (UNFCCC 2020; Schäfer 2019; Anonymous Interviewee 7 2021). Since systemic risks and development risks 'run in the same direction' (Steele and Patel 2020), these non-climatic factors can become underlying risk drivers.

Non-climate drivers can include rapid urbanisation (by expansion into flood plans or landslide-susceptible hillsides), widespread poverty, inadequate infrastructure, lack of building standards, over-exploitation of resources and poor land management (Schäfer 2019; UNISDR 2015; World Bank 2012). In Senegal, for example, loss and damage risks to coastal populations have been exacerbated by sand mining, rapid population growth and unplanned development (Schäfer 2019). In Haiti, high urban population density combined with informal infrastructure, settlement in low-lying areas and floodplains and severe environmental degradation contribute to the losses and damages experienced by communities after climate events (World Bank 2012).

Residual loss and damage risks are likely no matter what forms of adaptation action are taken — especially in highly exposed or highly vulnerable communities. These residual risks are shaped significantly by non-climatic drivers, and communities remain likely to experience losses and damages unless the structural issues that shape their experience of risk are addressed. With the

increasing frequency and intensity of climate change impacts and the threat of compounding impacts, it is imperative that these non-climatic drivers of residual risk are tackled and that measures to address them are ratcheted up over time.

Those most vulnerable to losses and damages should be prioritised, and the chronic drivers of vulnerability, including poverty, food insecurity, poor infrastructure, marginalisation and exclusion, must be addressed alongside disaster response, recovery and risk-reduction interventions. Ultimately, short-term action to address losses and damages must be linked to long-term resilience-building in the face of residual risks (Roberts and Pelling 2018).

For instance, measures such as social protection include an array of policies and interventions that are aimed not only at providing safety nets in the event of shocks but are also designed to reduce poverty, inequality, and vulnerability (Aleksandrova and Costella 2021). They can be mobilised as effective means to address loss and damage risks that are residual or potentially unavoidable. Evidence from the Sahel indicates that migration and displacement associated with drought and climate change are actually driven by processes of political and economic exclusion and exploitation that limit households' abilities to adapt (Ribot, Faye and Turner 2020) and that should be included in any strategy to address loss and damage.

Response and recovery operations present a powerful opportunity to build back better, enhance community resilience (Kennedy et al. 2008) and address residual risks. This means working with a wide range of different sectors (for example, water, sanitation, public health, economic development, natural resource management, social welfare) during reconstruction and rehabilitation processes to address the root causes of people's vulnerability to losses and damages over the long term, as well as dealing with their immediate needs (Kennedy 2008). This is also a chance to address important socioeconomic factors that underpin vulnerability, such as land tenure rights (Kennedy 2008), or to invest in more resilient infrastructure. In fact, there is evidence that when countries rebuild better, faster and more inclusively after disasters, the effect of climate events on people's livelihoods and wellbeing can be reduced by up to 31% (World Bank 2022b).

Not all individuals or groups are equally vulnerable: vulnerabilities are shaped by structural inequities, that are in turn shaped by unequal power relations. Indigenous Peoples and those living in informal settlements are unlikely to have tenure rights and are likely to be excluded from reconstruction efforts that require such documentation. People with disabilities often don't have access to risk information, critical infrastructure, and/or emergency services (United Nations Office for Disaster Risk Reduction 2022).

Measures to address loss and damage risks must not perpetuate or worsen existing inequities and vulnerabilities. This means including the most vulnerable and marginalised groups in planning and decision-making processes and ensuring meaningful engagement and participation. Building effective strategies to tackle climate change loss and damage demands the experience of those whose marginalisation can hide their needs (Resilience Hub 10 November 2021).

For more on addressing the underlying causes of vulnerability, see Annex 1:

Case study 13: Ethiopia's Productive Safety Net Programme

Case study 14: Climate-sensitive social protection in India

Case study 15: Inclusion of people living with disabilities in Ecuador and Thailand

Case study 16: Flood-resilient homes in Vietnam

Case study 17: Resilient infrastructure in Dominica

Case study 18: Slum upgrading in Mukuru, Kenya

### 5.3.7 Take a whole-of-government approach

Climate change impacts all sectors of society. This means actions to address losses and damages must be integrated into national and local policies and planning processes across the whole of government. Although the issues of climate change and disaster management are often confined within the remit of specific government agencies or departments (normally environment ministries and disaster management departments), climate change impacts and the losses and damages they create must be tackled across all sectors.

As climate change intensifies different ministries will need to address different forms of loss and damage risk and impacts. While finance ministries must address the economic impacts caused by climate shocks and stresses, transport ministries will have to tackle the impacts on roads, railways and bridges. Ministries of agriculture must find ways to address losses and damages in food systems and value chains caused by increasing temperature increases, drought, soil salinisation and pest infestations, and departments of disaster management and social services must address impacts on affected or at-risk communities and social groups. The multidimensional, compounding

nature of climate risk does not allow government sectors to work in siloes. It requires climate risk to be integrated across all sectors and for collaboration and coordination to be fostered across all ministries and between different levels of government.

Unfortunately, siloed, sector-specific approaches remain the norm in many countries. For example, communities working on DRR and climate change adaptation in Bangladesh have been operating in institutional siloes with little cross-sectoral cooperation or collaboration among ministries (Farbin and Huq 2021). In some cases, ministries may be unaware of how risk-informed planning would benefit them. Columbia's environment and sustainable development team within the national planning department have tried to overcome this problem by developing a public policy on climate vulnerability that integrates a multisectoral approach — showing the economic costs of inaction on risk-reduction to different government sectors (Resilience Hub 8 November 2021). An alternative approach could be to create a government institution that is mandated with the responsibility for coordinating action to address loss and damage across the whole of government as a long-term priority.

**Decentralise authority to local authorities.** Efforts to address loss and damage impacts and risks must support vertical and horizontal integration across government. In particular, local authorities must be given the authority and the finance to address loss and damage in locally appropriate ways. Although there may sometimes be a need for risk management efforts to be coordinated by a high-level ministry with the power to enforce and monitor implementation (Abhas, Miner and Stanton-Geddes 2013), it is crucial to have local governments in the driving seat to ensure that the suite of layered measures selected to tackle loss and damage risks in a particular place is chosen and implemented effectively.

Measures must be needs-based, and local actors such as local governments are better placed to define local needs, create locally contingent definitions of resilience and incorporate local needs into policies. Local governments can then be better held accountable to communities (Bharadwaj et al. 2021e). But local governments often struggle to implement measures due to a lack of technical and financial resources (World Bank 2012). Even when programmes are coordinated by municipalities there is a large gap between what is needed and what is available. (Anonymous Interviewee 11 2021). Farbin and Huq (2021) discuss the lack of autonomy and chronic underfunding of local governments in Bangladesh, calling for increased local government autonomy in financing, planning and implementing decisions on tackling loss and damage.

**Regulatory and rights-based frameworks.** Risk-informed policies and plans will not work if appropriate enabling legislative and regulatory frameworks are not in place. As the IPCC (2012, p342) mentions, systems to reduce current climate risk are most successful if "legislation for managing disaster risks is supported by clear regulations that are effectively enforced across scales and complemented by other sectoral development and management legislations where risk considerations are explicitly integrated". A legal framework provides programmes and policies with legal authority: enforcing standards, dictating processes, assigning authority and responsibility, and empowering existing agencies (IPCC 2012). Regulations such as building codes and standards are examples of legislative measures that act as safety-enhancing measures in the face of climate impacts (UNFCCC 2020).

For more on taking a whole-of-government approach, see Annex 1:

Case study 19: Disaster risk reduction and management in the Philippines

Case study 20: Integrating risk into national policy in Vanuatu

### 5.3.8 Include the whole of society

Taking a comprehensive approach to loss and damage requires effective collaboration and partnerships, not just across government but across the whole of society. Addressing climate hazards requires effective coordination of planning and action by multiple agencies and organisations, from local to national and international levels, including government, community representatives and CBOs, national and international NGOs, donors and finance providers, the media and the private sector (Azad et al. 2019).

The same holds for addressing loss and damage. Different actors can play different roles, for example, local NGOs and CSOs have a critical role as trusted members of society, working closely with local communities and representing them at local and national levels. They are often well placed to work alongside governments to increase community resilience and reduce risk. A collaborative approach is important because as Soanes et al. (2021) put it, a whole-of-society approach ensures that initiatives work in concert, support each other and layer their activities to avoid duplication, enhance efficiencies and learn what works best.

The DARAJA (Developing Risk Awareness through Joint Action) project is a multi-stakeholder partnership that aims to improve weather and climate information services in Kenya and Tanzania by providing early

warnings of extreme weather events to informal urban residents (Met Office n.d.). Its success can be attributed to its use of a system-wide approach to developing and implementing solutions. DARAJA convened multiple stakeholders from across the risk system, including vulnerable urban residents, national weather agencies, civil protection and disaster management agencies, infrastructure operators, media houses, and telecommunication companies (Resurgence 2020). This helped build operational partnerships between the actors that proved critical to the effectiveness of their EWS dissemination channels (Resurgence 2020).

Cross-sectoral coordination and collaboration between organisations and activities are also essential for response and recovery. Local CSOs are often best placed to respond to climate change impacts. Leveraging the global network of CSOs could deliver significant action at scale with reduced transaction costs compared to international organisations. For example, the members of Start Network (a network of 42 NGOs) can deliver rapid and anticipatory action in response to small and medium-scale shocks, which often have a devastating impact on the most vulnerable but which may be ignored by national and international actors (Taylor and Assefa 2017).

Local organisations can play an important role in the absence of timely and coordinated government action. During the 2004 Bangladesh Flood, there were massive shortcomings in the government's forecasting and preparedness and a lack of coordinated response to the crisis (Azad et al. 2019). As a result, NGOs undertook relief and rehabilitation efforts largely without government directives and coordination (Azad et al. 2019). NGOs in rural Bangladesh often work as catalysts in communities, playing a significant role in local-level disaster management (Azad et al. 2019). This is especially the case where existing institutions and organisational systems have become inadequate to provide external service delivery and effective governance post-disasters (Azad et al. 2019).

### 5.3.9 Be ecologically sound and harness the role of nature

Climate change is contributing to biodiversity loss and ecosystem damage (Schäfer 2019; UNFCCC 2012). Ecosystems are highly sensitive to long-term climate stressors, particularly temperature increases and rainfall variability. The poorest and most marginalised people in LDCs and SIDS are more likely to depend on plants and animals, water sources and soils for their food, household supplies and livelihoods (Kumar and Yashiro 2014; Anonymous Interviewee 10 2021; Anonymous Interviewee 3 2021). Many also have profound cultural and spiritual connections with nature, especially Indigenous Peoples (Anonymous Interviewee 7 2021; UNEP 2017).

When climate change impacts ecosystems and biodiversity, communities that depend upon them can experience significant losses and damages, which can be both tangible (livelihoods and resources) and intangible (cultural and spiritual). Addressing loss and damage risks must therefore consider the potential impacts that climate change will have on nature, and loss and damage action should include the restoration or strengthening of vulnerable and affected ecosystems.

Efforts to address other forms of loss and damage should take ecological health and resilience into account and should aim not only to avoid ecological damage but to leave ecosystems stronger and healthier than they were. Ensuring that risk-reduction measures are ecologically sound can also help harness nature to protect communities against climate change impacts (Seddon et al. 2020b). For example, intact coastal ecosystems (such as mangroves and wetlands) can reduce the energy of storm surges and can counteract the effects of sea-level rise (UNFCCC 2020a). Natural drainage systems can reduce the impacts of flooding, as natural barriers slow down floodwater and allow it to percolate into the ground, and trees on slopes reduce the risk of landslides (Sudmeier-Rieux et al. 2019).

Static engineered solutions such as dykes and sea walls can effectively tackle loss and damage attributed to certain climate impacts (Sudmeier-Rieux et al. 2019); however, if efforts to reduce loss and damage risks for vulnerable people increase damage to local ecosystems and disrupt natural hazard-reducing processes, they may have unintended negative consequences and precipitate other, potentially more problematic forms of loss and damage. Well-designed nature-based solutions, such as the rehabilitation and protection of mangroves and climate-smart agriculture, offer cost-effective solutions that not only build resilience to a range of climate change impacts but also benefit communities by addressing societal challenges such as food and water security (Cohen-Shacham et al. 2016; Seddon et al. 2020a).

For more on harnessing the role of nature, see Annex 1:

Case study 21: The resilient colline project in Burundi

Case study 22: Sustainable solutions for women and mangroves in Papua New Guinea

### 5.3.10 Always account for non-economic forms of loss and damage

NELDs are often not accounted for in orthodox approaches to addressing loss and damage risks because they are not easily quantified in monetary terms. As a result they can often be invisible and difficult to address (Van der Geest and Warner 2015a). In Bangladesh, for example, the Ministry of Disaster Management and Relief's Department of Disaster Management publishes national reports on the economic loss and damage incurred from climate hazards such as cyclones (Chiba, Shaw and Prabhakar 2017) but the reports do not account for the socio-cultural or environmental NELDs that affect the most vulnerable communities and don't take into account the costs these communities bear in coping with shocks and stress (Chiba, Shaw and Prabhakar 2017). This means that subsequent decisions are based on limited data and can impede the holistic viewpoint needed when considering the appropriate measures to tackle loss and damage (Chiba, Shaw and Prabkahar 2017).

Warner et al. (2012, p13) put it perfectly when they said, "[f]ailing to measure these non-economic losses means that they could elude policy attention… without explicit efforts to assess these kinds of losses, policymakers may have a myopic view of both impacts and solutions because policy tends to address values that are assessed". National governments need to be aware of cultural practices and value systems to ensure policies and practices not only recognise and address NELDs, but support communities in building resilience to avoid such NELDs and ensure measures do not incur further loss and damage through NELDs (Roberts and Andrei 2015).

In some cases, simple measures can help address NELDs. For example, in order to retain a former sense of place and recreate it in a new destination, resettled communities have reused the names of streets, squares, place names, and landmarks in their new communities (UNHCR 2014). Trauma counselling is another mechanism. Indonesia held a training-of-trainers programme to train mental health and community-based professionals to develop and deliver culturally relevant training to promote emotional resilience and wellbeing in communities affected by disaster (Institute of Mental Health and Temasek Foundation 2015).

## 5.4 Conclusions

In this chapter, we have presented our analysis of options that are available to stakeholders at national, local and international levels to address loss and damage risks and impacts in practice, now and into an uncertain future. We have also presented 10 attributes of good practice that we believe can guide stakeholders in the design and delivery of strategies and measures to address loss and damage risks in a manner that is effective, sustainable and socially impactful.

These options and attributes draw upon our analysis of the efforts of LDCs and SIDS to address the loss and damage impacts and risks that they already face and upon our consultations with stakeholders from across the whole of society in affected and at-risk countries. They also reflect our understanding of the particular nature of loss and damage risks and impacts outlined in Chapter 3, and are based on our conviction that, while many of the measures that can be used to address loss and damage are often used to tackle other challenges, the particular nature of loss and damage requires that they must be deployed in ways that are appropriate to the risks faced by the most at-risk people and places as they evolve over time.

We have emphasised that the unprecedented, dynamic and compounding nature of loss and damage risks and impacts, and the need to address them over a wide range of time horizons, necessitates the layering of interventions so that the multidimensional vulnerabilities of different people and places to different forms of risk over time can be addressed comprehensively, taking residual risks and the limits to adaptation into account.

The options and good practices that we have set out can be used by governments and other stakeholders to guide the design and delivery of practical measures to address loss and damage risks and impacts at national and local levels. They can also inform the development of loss and damage response strategies by affected and at-risk countries and communities and may prove valuable in shaping the demands of LDCs and SIDS for technical advisory support from the SNLD and from their development cooperation partners more broadly.

In the next chapter, we turn our attention to financing for loss and damage action and show how the concept of layering measures can inform the design of suitable loss and damage financing mechanisms.

# 6

# Financing action to address loss and damage

Clara Gallagher and Clare Shakya

The scale of loss and damage will be vast. No single source of finance or delivery mechanism will be appropriate or adequate to provide all the finance needed to address all the loss and damage risks and impacts that will affect the most at-risk countries and communities of the global South. In this chapter we examine sources of finance that might be used to address losses and damages at national and sub-national levels, and suggest potential delivery mechanisms. Layering different financial flows to address different forms of loss and damage risk and impact over different time frames could be an effective way forward and can be pursued while maintaining pressure to mobilise new and additional loss and damage finance for the most at-risk countries over the long term.

Addressing loss and damage requires governments and other stakeholders to tackle a range of potential risks and impacts over various time frames and scales using a diverse set of measures. To do this, adequate and appropriate sources and flows of finance are needed to support the range of interventions that need to be layered together, from those designed to tackle the impact of extreme weather events, such as anticipatory action, disaster response, recovery and risk reduction, to those which tackle the long-term risks associated with slow-onset processes. Yet under the UNFCCC, no collective commitments have been made by developed countries to provide finance to address loss and damage, similar to those made in Paris to provide US$100 billion per year by 2020 to fund mitigation and adaptation (Carty and Walsh 2022).

Given the dynamic and broad spectrum of loss and damage impacts and risks that must be addressed, governments and other stakeholders will need various financing options to ensure that the money deployed to address loss and damage is appropriate, timely and sufficient. Options also need to be agile so that they can respond adaptively to the evolving nature of loss and damage risks under different climate change scenarios and in response to escalating and compounding climate impacts. They should also be designed to incentivise action that considers the medium- to long-term loss and damage risks, as well as those that present clear and present dangers.

Governments and their financial partners must choreograph a variety of financial sources, flows and delivery mechanisms to ensure that the right forms of finance can flow to the right combination of measures to be implemented in the right place, at the right time and by the right actors to address the range of risks and impacts that are likely to affect the most at-risk people, households and communities.

No single source of finance will be able to provide all the characteristics that are needed to address them effectively. By connecting diverse products from the most appropriate sources of finance for different layers of intervention within a delivery mechanism, it is possible to respond appropriately and cost effectively to hazards as they emerge and to support those living at and beyond the limit of adaptation when shocks occur.

In this chapter, we review various sources of finance that are relevant for addressing the diverse forms of loss and damage impacts and risks, including Official Development Assistance (ODA), innovative finance, debt relief, philanthropy, re-insurance and domestic sources. The finance that flows from these sources can be complex, and different parts of the development, humanitarian and climate sectors use their financing in different ways to fund activities that could be layered to address loss and damage effectively.

The second half of the chapter reviews delivery mechanisms that could be used to address loss and damage in different ways, and which could channel appropriate types of finance to the people and places that need it the most. These include social protection systems, such as Ethiopia's Productive Safety Net Programme (PSNP), and pooled funds such as the Philippines' Kalahi-CIDSS programme. The chapter concludes by exploring how a number of different financial instruments might be choreographed at the national level through a solidarity fund.

## 6.1 Loss and damage financing needs

There are various estimates of the scale of financing needed to address loss and damage and the availability of finance to address these needs. Conceptual ambiguity about what loss and damage refers to, as well as contention between Parties about how to finance action to address loss and damage, have resulted in a situation where no formal tracking of spending on loss and damage has been conducted to date, nor is there any common process for assessing financial needs, aggregating from the community level upward. Instead, research has produced estimates of possible loss and damage costs under different future climate scenarios.

Estimates of the financing needed to address losses and damages in Non-annex I Parties (mostly developing countries) look at the expected value of financial damages that will be caused by losses and damages, which range from US$116 billion to US$435 billion in 2020 and increase to US$1,132–1,741 billion in 2050 (Markandya and González-Eguino cited in Schäfer and Künzel 2019). Other estimates consider the impacts of global temperature increase on GDP, finding that under current climate policies, GDP is expected to reduce on average by 19.6% by 2050 and by 63.9% by 2100 (Andrijevic and Ware 2021).

Other regionally specific estimates suggest that 4.7%, 3.7% and 3.7% of GDP is at risk from climate change and extreme weather events in Africa, Latin America and the Middle East, respectively, by 2050 (Economist Intelligence Unit 2019). But these estimates exclude the costs of NELDs, which are more challenging to capture and require answers to questions such as how to value the loss of a life or the loss of a language or cultural heritage.

A single event can help illustrate the immense scale of climate impacts and the losses and damages they cause. In 2019, Malawi, Mozambique and Zimbabwe were hit consecutively by Cyclones Idai and Kenneth in March and April (Eckstein, Künzel and Schäfer 2021). The compounding impacts of these storms were devastating. Idai alone caused economic damage of US$2.2 billion, affected three million people and caused over 1,000 fatalities. In Mozambique alone, the two cyclones resulted in 2.5 million people requiring humanitarian services, 600 fatalities and over 1,600 people injured, and the country sustained damages equivalent to roughly half the national budget (US$3.2 billion) (Eckstein, Künzel and Schäfer 2021). This figure did not capture the full extent of NELDs, such as those incurred by displaced people. One year on from Idai and Kenneth, negative impacts persisted, including reduced livelihood options, cultural losses due to displacement, and reduced access to shelter and schooling (Norton, MacClune and Szönyi 2020).

Financing provisions must be designed to respond to increasingly frequent climate hazards and the compounding effects of rapid-onset events and slow-onset processes, while also considering the multidimensional vulnerabilities of at-risk and affected populations. As losses and damages escalate year on year, ever greater volumes of finance will need to be mobilised and must become more flexible and locally appropriate. This will require using agile delivery mechanisms that can anticipate loss and damage impacts and risks and provide support that is appropriate to a specific context at the right moment to be most effective.

## 6.2 The loss and damage finance gap

As we saw in Chapter 2, some stakeholders argue that loss and damage can be addressed through mitigation and adaptation actions. This perspective implies that financing to address loss and damage need not be delivered as a distinct pillar of the climate change finance framework, and that it might be conceived of as either a subset or an extension of adaptation and/or mitigation finance. Others have a narrow concept of action to address loss and damage, focusing on the need to deliver disaster responses and support recovery through channels such as emergency relief, humanitarian action and disaster response.

These perspectives imply that financing to address loss and damage could be covered by a combination of adaptation, mitigation and humanitarian/disaster finance. But the evidence on the provision of adaptation and humanitarian/disaster finance (IFRC 2018, 2021; UNOCHA 2021; UNEP 2021; Development Initiatives 2021; Willitts-King and Spencer 2021; Carty and Walsh 2022; Shakya and Barnes 2022) show that these are not adequate to cover the current scale and nature of loss and damage related to climate shocks, let alone the escalating loss and damage impacts and risks that will build up over the coming decades as households, communities and countries are pushed beyond the limits to adaptation.

Between the existing gaps in adaptation and humanitarian/disaster finance the loss and damage financing gap is widening rapidly. This gap needs to be filled urgently by forms of finance that are able to meet the particular challenges posed by the impacts of climate change. This will require both an expansion in the scale of adaptation and humanitarian/disaster finance to cover loss and damage costs, but also the deployment of additional forms of finance. Because investments in adaptation and mitigation will not be able to avert or minimise all forms of residual risk of losses and damages, especially for the most at-risk people and places, other forms of finance must be tailored to address these risks.

If highly vulnerable households and communities are not adequately supported to reduce the risks they face from unavoidable and unavoided climate shocks, they are likely to enter into a downward spiral of vulnerability from which they will not recover. As climate change pushes people beyond the limits of adaptation, the losses and damages they incur will combine with their own efforts to cope with adversity (for example by selling assets, reducing food consumption, degrading environmental resources, removing children from school or engaging in risky distress migration), eroding their ability to maintain their lives, livelihoods and wellbeing with dignity. While disaster/humanitarian action can help affected people to recover from climate shocks, it is not capable of enabling people to address the full range and scale of residual risks that will be left by the inevitable limitations of adaptation finance — nor is this appropriate.

This is why other forms of finance must be mobilised to fill the substantial gap that lies between the limits of adaptation finance and humanitarian finance to address residual loss and damage risks. Enabling poor and marginalised groups to survive climate shocks while long-term adaptation actions are implemented must be the absolute minimum objective for actions to address loss and damage. Rather, responses to loss and damage risks must aim to support highly vulnerable countries and communities to create climate-resilient development pathways through the loss and damage risks they face.

## 6.3 Principles for loss and damage finance

A number of authors have proposed possible principles that could guide the provision of finance to address loss and damage. For instance, Robinson et al. (2021) assessed interventions for slow-onset events against criteria of fairness, feasibility, predictability, adequacy, transparency, additionality, how direct access to funds is facilitated, and whether the finance has sufficient vulnerability focus (Robinson et al. 2021).

Others echo these principles while raising broader questions about who should access loss and damage finance, prioritising those who have higher levels of vulnerability and more limited capacities to act without support (Pandit Chhetri et al. 2021). Some have extended the analysis to develop principles for fund mobilisation, fund administration and governance, as well as fund disbursement and implementation (Richards and Schalatek 2017).

Shawoo et al. (2021) have proposed principles that build upon those of common but differentiated responsibilities and respective capacities (CBDR-RC). They suggest that in addition to CBDR-RC, loss and damage financing should be based upon a principle of 'solidarity' with those experiencing losses and damages, and that the finance should not only be additional to and distinguishable from that provided for adaptation and mitigation, but must also be readily accessible and nationally owned.

Rather than focusing on the need for polluters to assume liability or to pay compensation for climate impacts, Shawoo et al. emphasise the urgent need to mobilise funds to address concrete losses and damages now and in the near future, while recognising the possible need to pursue liability in the future (Shawoo 2021). This approach is useful as it supports the mobilisation of funds to address losses and damages in the near term using available financial sources and flows, without jeopardising the long-term goal of LDCs and SIDS to establish a dedicated facility to deliver long-term, new and additional loss and damage finance under the UNFCCC.

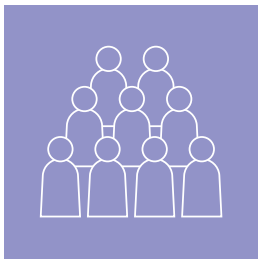
Many of the proposed principles align closely with the eight Principles for Locally Led Adaptation (LLA) (see Figure 2), which aim to ensure that local communities assume the authority to lead the design and delivery of sustainable and effective adaptation at the local level (Soanes et al. 2021). Developed by a global coalition of civil society actors including IIED and ICCCAD, these principles have been endorsed by more than 75 governments, global institutions and international NGOs.

While action to address loss and damage risks can be distinguished from 'pure' adaptation action, the two activities can be envisaged as overlapping — particularly where residual risks of loss and damage are concerned. As such, the LLA Principles, although focused on adaptation, are highly applicable to loss and damage and were frequently referred to by key informants in our research as being relevant (Anonymous Interviewee 17 2021; Anonymous Interviewees 27 and 29 2022; Bharadwaj et al. 2021b).

Most recently, Carty and Walsh (2022) have proposed a set of fourteen principles that should underpin the provision of finance to address loss and damage. Ranging from principles relating to the scale, predictability and additionality of loss and damage finance, to gender equity, transparency and accountability and local ownership, these principles reflect the UNFCCC's foundational principles of equity, justice and fairness, adhering to aid and development effectiveness principles, and learning lessons from good practice in climate finance spending.

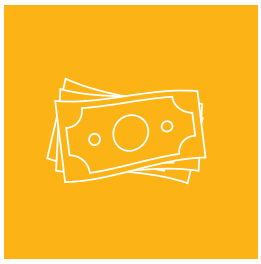
These useful ideas indicate that there is an emerging consensus on the principles that should guide the design and delivery of loss and damage finance, and how that finance can be understood in relation to other forms of finance. What is required now, however, is a dialogue in which the various stakeholders can move from principles to action, by practically identifying how the right types of finance can be deployed in the right quantities, at the right time, to the right place to meet the needs of the most at-risk people effectively.

Figure 2. The Principles for Locally Led Adaptation (Soanes et al. 2021)



1. Devolving decision making to the lowest appropriate level

2. Addressing structural inequalities faced by women, youth, children, disabled, displaced, Indigenous Peoples & marginalised ethnic groups

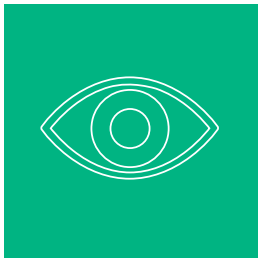


3. Providing patient & predictable funding that can be accessed more easily

4. Investing in local capabilities to leave an institutional legacy

5. Building a robust understanding of climate risk & uncertainty

6. Flexible programming & learning



7. Ensure transparency & accountability

8. Collaborative action & investment

## 6.4 Loss and damage financing under the UNFCCC

At COP26, the outcomes related to financing for loss and damage were less ambitious than those sought by the G77 and China. Their demands for new and additional finance to address loss and damage and for a dedicated loss and damage financing facility were not included in the Glasgow Pact.

Instead, a multi-year dialogue was set up to "discuss the arrangements for the funding of activities to avert, minimize and address loss and damage associated with the adverse impacts of climate change" over the next three years (UNFCCC 2021b). COP26 decisions on the Santiago Network also failed to include provisions on the delivery of finance to implement action to address losses and damages. COP only committed to facilitating access to finance by particularly vulnerable developing countries (UNFCCC 2021a).

While these are steps in the right direction, there is a long way to go before LDCs and SIDS achieve their vision of dedicated large-scale financial support to address loss and damage, and the outcomes of the recent meeting of the Subsidiary Implementation Bodies in Bonn on finance did not indicate that they will be achieved in the near future (UN Climate Change News 2022; Goswami 2022).

The Green Climate Fund (GCF) remains the only UNFCCC financial mechanism named by the COP to support countries to address loss and damage. At COP25, the GCF was invited to "continue providing financial resources for activities relevant to averting, minimizing and addressing loss and damage." (UNFCCC 2020b). This phrasing reinforced the developed country assumption that losses and damages should be addressed through mitigation and adaptation, as well as through actions designed to tackle concrete climate impacts and immediate loss and damage risks.

But the GCF has a weak record on financing action to address loss and damage, especially in the countries that are most vulnerable to climate impacts. Kempa et al. (2021) have estimated that of 165 GCF-approved projects available for analysis in November 2020, only 27 (16%) used loss and damage terminology in their project proposals, with total grant requests for the 27 projects totalling only US$902.5 million. This is only a fraction of the finance needed to tackle loss and damage effectively.

Securing new, additional and dedicated finance to address loss and damage over the long-term under the auspices of the UNFCCC and Paris Agreement is a key priority for climate-vulnerable developing countries and climate activists representing affected communities (AOSIS 2022; LDC Group 2022; CAN 2022; Carty and Walsh 2022; Kung 2022). The principles and values of the UNFCCC and the Paris Agreement emphasise climate justice, human rights (especially those of Indigenous Peoples and women) and CBDR-RC.

Vulnerable developing countries believe it is vital that loss and damage financing reflects these values, and therefore insist that a financing facility must be established under the UNFCCC (Richards and Schalatek 2017). It is therefore essential that pressure to achieve this goal is maintained, and momentum must be increased towards achieving this in the coming years.

In the continuing absence of such a mechanism, the urgent need to address losses and damages already being experienced and likely to increase across the global South requires an examination of how existing finance sources, flows and delivery mechanisms at international and national levels can be harnessed to support effective responses for the people and places that need them most.

What follows is a pragmatic assessment of how different types of finance might be used to achieve this aim, and builds upon our understanding of how different forms of finance can be mobilised to deliver the varied types of intervention that are required to tackle the key features of loss and damage risk described in Chapters 3 and 4.

## 6.5 Financial sources and flows relevant to loss and damage

We have identified six primary sources of finance that may be relevant for financing action to address loss and damage. These sources of finance each generate different financial flows that operate with different characteristics according to different sets of principles or rules, and each will be relevant to loss and damage action in different ways.

Different flows and sources of finance can have challenging characteristics from the recipients' perspective. For example, climate finance flows ought to be characterised by human rights principles and the concept of CBDR-RC, in line with the values of the UNFCCC and the Paris Agreement. But the most climate-vulnerable developing countries continue to face significant challenges in accessing climate finance — especially from the GCF.

Despite the avowed commitment of climate finance providers to meet the values enshrined in the UNFCCC, most developing country institutions remain unable to access finance. This can be because they are unable to meet the exacting requirements set by the climate funds for accreditation or project approval, because they are set back by the long time frames involved in proposing, achieving and implementing project awards, because of the short project periods allowed by the funds, or because they are forced to access funds via intermediaries who siphon off significant quantities of money in administration fees (Soanes 2019; Soanes et al. 2019b; Shakya et al. 2021; Holland et al. 2022).

As we have seen in Chapter 5, taking action to address loss and damage might require the use of multiple layered interventions, each of which will require a different type of finance. A rapid-onset event might require the delivery of anticipatory risk finance before the shock occurs, in the form of index linked insurance or social safety net payments to highly vulnerable households. These may need to be followed up by rapid deployment of emergency response finance from a pooled or contingency fund, which in turn will need to be followed by long-term support for climate-resilient recovery and reconstruction in the form of loans and/or grants from development finance providers, as well as the delivery of long-term support to address the physical and mental traumas and livelihood needs of survivors, through national public services funded by the domestic budget.

The principles of climate justice must also be applied to loss and damage financing. While a flash flood may need a rapid humanitarian response, and development finance may be the best way to strengthen health services in response to increased levels of malaria as mosquito habitats expand with climate change, the root cause of both impacts is global heating caused by GHGEs by developed countries. As such, financial contributions to address loss and damage must not be seen as charitable contributions that support afflicted countries to overcome adversity resulting from 'natural disasters'. They must be understood as a necessary contribution to climate justice.

Climate justice principles relate, at their core, to the idea that polluters should pay for the impacts of the damage they have caused, and to the principle of CBDR-RC (UNDESA 1992; UN 1992, Art. 3.1). These principles place the onus on historically emitting countries to provide finance to address the impacts of the climate change that they have caused, and which affect first and worst the people and places that have done the least to create the problem.

Different sources of finance offer different financial products that can support the range of actions needed over the time horizon of any particular loss and damage event. But different types of finance comes with different characteristics, depending on its source and the terms on which it is provided. These characteristics might relate to risk appetite, requirements on justification for the finance, the need for co-funding and the willingness of the provider to support long-term systems development over short-term project-based goals.

Layering different finance products from different sources can ensure that the full range of actions needed to address loss and damage can be mobilised, and can prevent the burden of financing falling upon the poorest, most vulnerable and most badly affected households.

### 6.5.1 Official Development Assistance

ODA is a very broad category of finance. Each individual provider of ODA offers a complex array of products that can be relevant to financing action to address loss and damage in different ways (Figure 3).

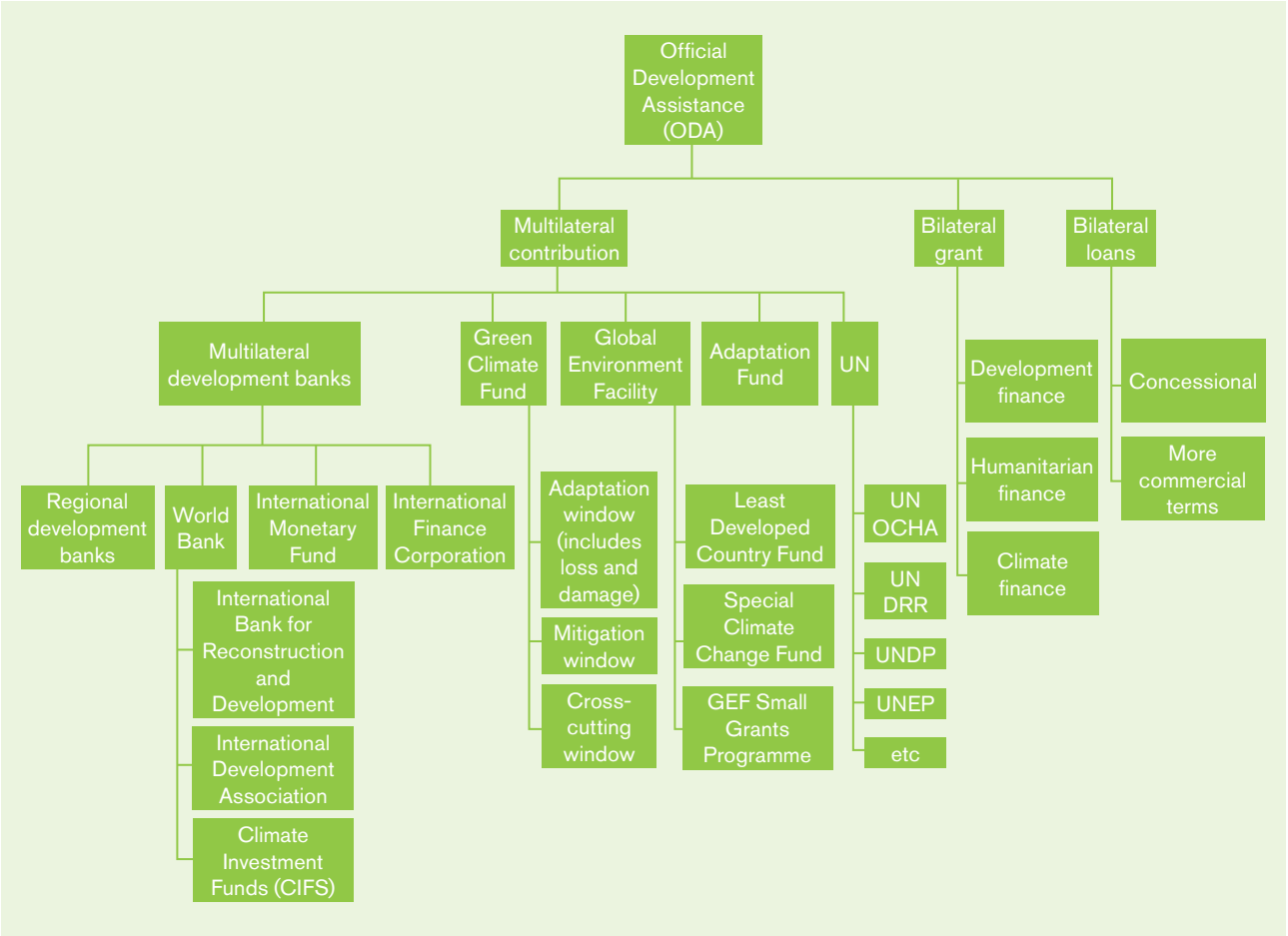
ODA providers voluntarily report their contributions to the Organisation for Economic Co-operation and Development's Development Assistance Committee (OECD-DAC) using agreed methods. In 1970, DAC members agreed to spend 0.7% GNI on ODA, but in 2021 only five countries met or exceeded that target (OECD 2022a). Provider countries, like the United Kingdom, frequently reference the need for maximum impact and value to their taxpayers in ODA allocation, and the OECD counts as ODA spend finance allocations that are said to have the aim of promoting the "economic development and welfare of developing countries as its main objective" (OECD n.d.b).

The Paris Declaration on Aid Effectiveness (2005) outlines principles that should characterise ODA spending. These include country ownership, alignment with country objectives, harmonisation between donor countries, a results-based focus, and mutual accountability for development results (OECD n.d.a). The Accra Agenda for Action (2008) and the Busan Partnership for Effective Development Cooperation (2011) both reaffirmed and iterated these principles, increasing participation and scope and reflecting changes in the international development landscape (Brown, S 2020).

The aid effectiveness agenda is not without its challenges (McKee et al. 2020). But principles like these should enable the delivery of finance to address losses and damages to be broad, programmatic, flexible and relevant to both economic and non-economic forms, and to both slow-onset processes and rapid-onset events. New and additional financing for loss and damage action that is sourced from ODA should reflect these qualities.

ODA is the overarching category for both humanitarian finance and climate finance, as well as for development finance; but each form of finance is managed differently by different stakeholders within each provider, as well as under different rules. Significantly for climate action, OECD-DAC members have committed to align ODA with the goals of the Paris Agreement (OECD 2021).

Figure 3. Schematic of ODA financial flows relevant to loss and damage



Within ODA, different flows support different types of interventions with varying transaction costs, playing to the strengths and specialisms of each kind of flow.

**Bilateral allocations of grants and loans.** Bilateral allocations of grants, concessional loans and commercial loans can support humanitarian, development and climate action. The appropriateness of grants versus loans varies across intervention types, and the kind of principles that guide the allocation might relate to what income bracket (GDP per capita) the recipient country is in, whether the recipient is public or private sector, and whether the activity implemented would generate revenue (for instance, renewable energy generation).

However, it is important to note that half of the top ten countries most at risk from climate change are already in, or at high risk of entering, debt distress (IIED 2022a). This illustrates the dangers of climate finance being provided primarily as loans: there is a limit to how many debt instruments countries can take on through multilateral or bilateral channels, yet countries have little fiscal space to take climate action.

Bilateral grants have often funded opportunities for innovation, led by forward-thinking providers of ODA. While innovation has also been supported via other financing instruments, grant funding has characteristics that enable greater confidence in testing ideas without the pressure for repaying debts. This is especially relevant in early stages of innovation and would be applicable to financing action to address loss and damage, given its early stage of development.

**Multilateral finance.** Multilaterals are financed by member governments making contributions as a means of working collectively for specialised purposes. Multilateral finance can still flow as development finance (through the multilateral development banks, the United Nations Development Programme (UNDP) or the United Nations Environment Programme (UNEP), for instance), climate finance (through the climate funds like GCF, Adaptation Fund, the Global Environment Facility, or the Climate Investment Funds), or humanitarian finance (through the UN Office for the Coordination of Humanitarian Affairs (UNOCHA) or Office for Disaster Risk Reduction (UNDRR)). The multilateral development banks (for example the World Bank, Asian Development Bank, African Development Bank) provide loans at more or less concessional terms, while most of the UN receive grants to cover their core costs or to manage projects. Many multilaterals have different areas of work across the range of development, humanitarian and climate action.

**Climate finance.** Climate finance may be delivered bilaterally or multilaterally but lacks a formal definition. Importantly climate finance is guided by principles informed by climate justice, including: the need for polluters to pay for the damage they cause (Schäfer and Künzel 2019); CBDR-RC between countries (UN 1992, Art. 3.1); an emphasis on the provision of grants for LDCs and SIDS (UNFCCC 2015a, Art. 9.4); the additionality of that finance (Schalatek and Bird 2018); and prioritising the most vulnerable first (Pandit Chhetri et al. 2021).

Compared to other streams of ODA, climate finance flows are severely constrained. Rich nations did not achieve their 2009 promise to channel US$100 billion per year in climate finance to developing nations by 2020. Yet this missed target is many billions smaller than the 2020 ODA flows from OECD-DAC countries, and further trillions smaller than global private sector financial flows (OECD 2022b).

The primary aims of climate finance should therefore be to experiment and demonstrate potential solutions, and our review of how different actors are making decisions on what counts as climate finance suggests that it should be used to influence larger flows of finance (IIED 2022b). The functions that climate finance needs to offer within this landscape are to:

- Enable innovation
- Support the incubation of that innovation (to test a new technology or a new institutional mechanism for supporting climate action)
- Enable institutions to build their capabilities for climate action
- Influence other flows of finance, and
- Set incentives to encourage actors to change actions to reduce emissions and increase their resilience to climate impacts.

Adaptation finance is a subset of climate finance and has a more specific role if it is to be used to influence transformational change. Not only must adaptation finance respond to current climate variability through adaptation action, but it should also be able to tackle the underlying drivers of vulnerability, restore and protect ecosystems to increase resilience of landscapes and prepare robustly for future uncertain climate risks (Soanes et al. 2021). Recipients must build in flexibility to adaptation pathways so that actions can respond to changing circumstances.

**Financing challenges.** Climate-vulnerable countries face many challenges in accessing climate finance in general, and even greater challenges in accessing climate finance to address loss and damage, particularly on the terms outlined in the Principles for LLA.

Accessing climate finance through bilateral channels and multilateral climate funds is a significant challenge to many countries and especially LDCs. Bilateral finance providers often have political ties to certain countries and leave others underfunded regardless of their needs. They may also choose to focus their finance on certain kinds of intervention, which may not be appropriate to the particular needs of a country seeking support to address loss and damage (ODI 2020; Hagelsteen et al. 2022).

Multilateral sources frequently have an accreditation-project-proposal model for accessing finance that is time consuming, expensive and complex. It is also inappropriately designed for providing programmatic finance that is capable of funding a wide variety of actions to address different forms of loss and damage under a single goal with in-built flexibility for spending at the local level (Shakya et al. 2021).

Bilateral and multilateral funding channels also feature significant time lags between diagnosing a problem, conceiving of a project, accessing finance, procuring inputs, and delivering on promises to participating communities. While proposals for finance are being designed and approved, the dynamic nature of climate change means that the needs and priorities of vulnerable countries and communities may change dramatically. New risks may emerge and new limits to adaptation may be breached, potentially rendering the finance redundant as soon as it has been disbursed.

The complexity of multilateral climate finance application processes — including an emphasis on science-informed justifications for projects — is a known barrier to access, especially for the poorest and most fragile developing countries, many of which are among the most vulnerable to loss and damage (Anonymous Interviewee 22 2021; Garschagen and Doshi 2022). The so-called 'climate rationale' for a project — which is more challenging to secure for adaptation projects — is an outdated and burdensome restriction when the climate versus development distinction guiding this stipulation makes little sense in practice to a climate-vulnerable country that is seeking to define their development pathway towards climate resilience.

In addition, the speed required to respond to rapid-onset extreme weather events is not served by the current accreditation-project-proposal approach. For example, the median time taken for entity accreditation by national Direct Access Entities in LDCs to the GCF is almost two years (around 22 months or 688 days) (Green Climate Fund Independent Evaluation Unit 2022). The median project approval time for LDCs was 21 months (not including project preparation time) in the period November 2015 to July 2021 (Climate Analytics 2021), while the median time for funds to reach LDCs after the date of project approval was about 17 months (507 days) (Green Climate Fund Independent Evaluation Unit 2022). This means that, on average it takes around 5.5 years for an LDC that is not yet accredited to the GCF to receive finance from the fund.

Given the overlapping skills, knowledge and financing flows that can be used to tackle loss and damage alongside broader climate issues, climate finance is clearly relevant for action to address loss and damage risks and impacts. However, the GCF is currently the only named financial mechanism that is mandated by the UNFCCC to fund action to tackle loss and damage, and the fund's approach to approving and disbursing finance is inappropriate to the needs of those seeking financial support to address loss and damage action, especially in the short to medium term.

Humanitarian responses and the varied approaches of multilateral development banks (MDBs) can provide skills and financial instruments that may be relevant to loss and damage action, but they are neither appropriate nor sufficient to deal with the loss and damage challenge in its entirety, and are guided less strongly by the principles of climate justice. Before considering other sources of finance beyond ODA, we first review the specific relevance of humanitarian and MDB financial flows to loss and damage financing.

**Humanitarian and disaster finance.** Humanitarian response is guided by the principles of humanity, neutrality, impartiality and independence (UNOCHA 2012). In addition, the Grand Bargain (High Level Panel on Humanitarian Financing 2016; ICVA 2017) is attempting to improve the quality of humanitarian finance that is provided through localisation and a greater emphasis on the accurate assessment of humanitarian needs and the use of cash transfers rather than the provision of commodities, goods and services (Metcalfe-Hough et al. 2021). However, as we have noted, humanitarian and disaster finance are not governed by principles of climate justice, and are for the most part inappropriate and ineffective for dealing with the full range and scale of loss and damage risks and impacts that will affect developing countries — especially long-range slow-onset events (also see Carty and Walsh 2022).

As we have seen, humanitarian finance is inadequate to cover the current impacts of climate-related shocks, and will not be able to absorb the escalating needs caused by climate change, (IFRC 2018, 2021; UNOCHA 2021; UNEP 2021; Development Initiatives 2021; Willitts-King and Spencer 2021). Furthermore, humanitarian finance tends to be delivered in a reactive fashion via a system that remains fragmented, complex, discretionary, project based, piecemeal and highly unpredictable (Poole et al. 2020).

The majority of humanitarian finance also goes towards chronic crises associated with conflict-affected, fragile and protracted refugee situations (Milante and Lilja 2022). While these situations are at the frontline of the climate crisis, with many of the most fragile and conflict-affected states also affected by climate impacts, the scale of finance needed to deliver humanitarian response to them is likely to limit the availability of funds needed to address loss and damage.

Despite decades of effort to overhaul the humanitarian system to deliver more effective outcomes and to better link humanitarian operations with long-term development and climate change adaptation, radical transformation of the system is still required to make the humanitarian-development nexus' effective (Lilly 2021; Lough and O'Callaghan 2021). Over the past two decades it has become clear that humanitarian responses to climate hazards can be delivered pre-emptively to reduce disaster impacts, especially in the case of relatively predictable climate hazards. While post-disaster responses are absolutely critical for saving lives and support reconstruction, a growing body of evidence has shown that efforts to reduce disaster risks and to provide anticipatory support to vulnerable communities and households before a hazard strikes can significantly limit losses and damages by increasing the capacity of local communities to cope with and to recover from climate hazards.

A great deal of innovative work has been done to improve EWS and to link them more effectively to the delivery of humanitarian finance and relief on the ground (Wilkinson et al. 2018). Growing interest in the use of anticipatory action to deal with the impacts of climate change has been growing in recent years, and was tangible at COP26, where among others the Risk-Informed Early Action Partnership (REAP) actively convened numerous events on the issue and a number of governments made public declarations of support to early action as a means for addressing climate change (REAP n.d.)

Unfortunately, while an immense amount of energy and finance has been invested into developing these anticipatory approaches, the vast majority of humanitarian finance is still allocated to deliver responses long after climate-related shocks have occurred, and the humanitarian system continues to find it challenging to be forward-looking or risk-informed (Poole et al. 2020). Furthermore, financing for disaster risk reduction, which should be a key component of any strategy to address residual loss and damage risks, commands a tiny proportion of the overall aid budget. Between 2010 and 2018 finance for disaster risk reduction totalled a pitiful 0.47% of total development aid (UNDRR 2021).

Pooled funds offer one model of a financial mechanism that may be relevant to addressing loss and damage. Managed by the UNOCHA, the Central Emergency Response Fund (CERF) facilitates global access to finance and supports country-level responses through Country-based Pooled Funds, which provide finance that is increasingly responsive and nimble in the event of a disaster (UNOCHA 2020). The characteristics of timeliness, responsiveness and flexibility are highly relevant to the needs of loss and damage financing, and much can be learnt from these humanitarian innovations.

Humanitarian finance is managed on the basis of charitable giving. Governments donate to humanitarian funds voluntarily, generally in response to appeals for specific crises. Contributions are generally event-driven and are made retrospectively after a crisis has occurred. While, in principle humanitarian relief should be provided on the basis of need, in practice the allocation of humanitarian finance is heavily influenced by political interests and influenced by the interest of the media. This means that humanitarian financing is highly unpredictable, which often results in significant time lags between the trigger for financial need (disaster) and the disbursement of funds. It also means that humanitarian budgets are perpetually under-capitalised, as donors regularly fail to meet the requests for funding of humanitarian agencies and disaster-affected countries (Development Initiatives 2021).

Overall, while humanitarian and disaster finance clearly have a role to play in addressing loss and damage impacts and risks — especially by supporting critical support to affected or vulnerable households just prior to or in the wake of extreme weather events, the available scale and nature of this finance is neither adequate nor suitable to deal with loss and damage as a whole. Humanitarian finance is also not in keeping with the principles of climate justice. Event-driven fundraising contradicts the climate justice perspective by mobilising funds out of a sense of charity rather than as an issue of justice (Pandit Chhetri et al. 2021). In addition, persistent challenges in realising the localisation agenda preclude local CSOs from accessing and delivering finance for interventions that they know are locally appropriate, and mean that the vast majority of humanitarian finance is not designed to meet the Principles for LLA (Baguios et al. 2021).

**Multilateral development banks.** MDBs provide an important flow of finance, facilitating loans (and occasionally grants) for climate action, as well as often acting as an intermediary for other flows of finance. While MDBs provide loans with varying degrees of concessionality, depending upon their estimation of the fiscal status of client countries, in a recent public forum MDB reliance on loans as an instrument to finance developing countries was raised as a "red flag" for loss and damage financing by an official and experienced climate negotiator from the Gambia (Chatham House 2022).

Loans with repayment terms and interest effectively generate a transfer of wealth from the loan recipient to the creditor, and can place recipient countries into debt distress while absorbing finance for debt servicing that could be spent on pressing development needs. Yet, despite their high levels of vulnerability to climate change, many SIDS are excluded from MDB grants and the most concessional flows of finance as they are not in the eligible category of recipient based on per capita income (Bouhia and Wilkinson 2021).

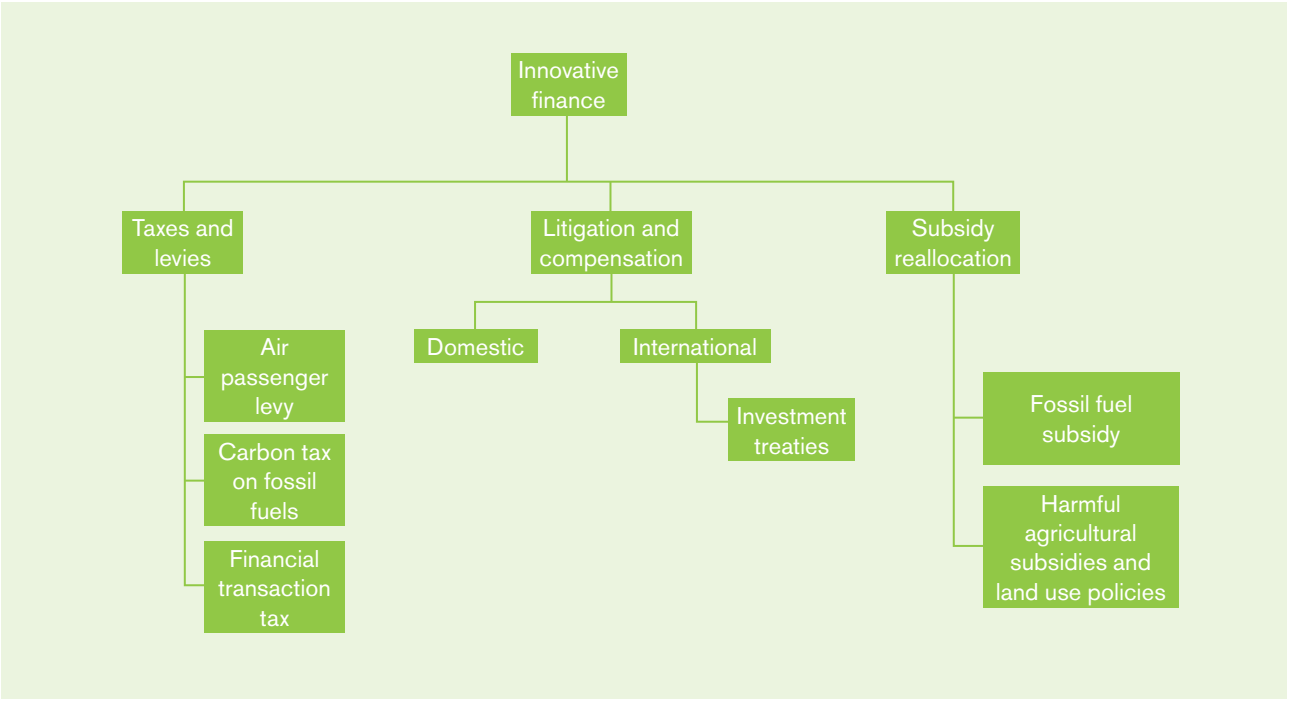
MDBs have experience in funding instruments that support risk management, which are relevant to loss and damage, including risk-pooling mechanisms supported by contingency finance, catastrophe bonds and parametric insurance. One example includes the MDBs setting up a line of credit that is triggered with a disaster, known as the Catastrophe-Deferred Drawdown Option (CAT-DDO) (Pandit Chhetri et al. 2021). These have had limited roll out in LDCs due to the high expectations of MDBs for the national policies that have to be in place for countries to be eligible.

Such mechanisms can be useful tools for rapidly dispersing finance after a rapid-onset event, but often require substantial domestic financial management capacities that are beyond some governments. The MDBs also set up national pooled funds for contingency finance, such as PSNP, and regional pools for sovereign risk transfer arrangements, such as the Caribbean Catastrophe Risk Insurance Facility (CCRIF) and the Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI). Africa's equivalent, the African Risk Capacity (ARC) group, was set up under the African Union.

### 6.5.2 Innovative finance

There is insufficient ODA to meet the scale of losses and damages experienced today, let alone in the future. A great deal of energy has been invested in exploring the potential of 'innovative' sources of loss and damage finance (Carty and Walsh 2022; Heinrich Böll Stiftung 2021a). The most commonly discussed innovative sources can be grouped into three rough categories: taxes and levies, litigation and compensation, and subsidy reallocation (Figure 4). These can be harnessed at national or international levels.

Figure 4. Schematic of innovative financial flows relevant to loss and damage



One proposal for innovative finance revolves around 'hypothecated taxes'. This involves raising a specific tax to cover a specific expenditure, and can be used to clearly link a negative behaviour (for example, using fossil fuels for air travel) to a socially beneficial activity (addressing losses and damages). This satisfies the climate justice principle that the polluter should pay, and it can feature progressive pricing where each country could set their own levy. The model has been used to raise funds for Unitaid, and has been proposed by the LDC Group as a potential source of revenue for climate action since 2008, and has been taken up by many campaigning groups (Hossain et al. 2021).

Unfortunately, the volumes of finance that can be raised by hypothecated taxes rarely match the volumes of finance that will be needed to target the socially desired outcomes associated with addressing loss and damage. In addition, as the world transitions to net-zero, relevant negative behaviours, such as burning fossil fuels, must become less common, making the funding source unsustainable just as greater funds are required due to the unavoidable impacts of climate change.

The political feasibility of raising finance from innovative sources differs across different flows. Levies on air travel that are small, nationally determined and collected (as with the levies that fund Unitaid) may be more feasible than internationally agreed tax regimes to fund loss and damage action. The latter may be fraught with challenges if first movers that implement taxes are rewarded by the flight of industry to low-tax jurisdictions, with implications for livelihoods and broader development goals.

### 6.5.3 Debt relief

As an alternative to seeking lines of credit to finance disaster responses, the provision of sovereign debt holidays, debt relief, cancellation or swaps can create domestic fiscal space, which countries can use to pay for recovery instead of servicing debts (see Figure 6).

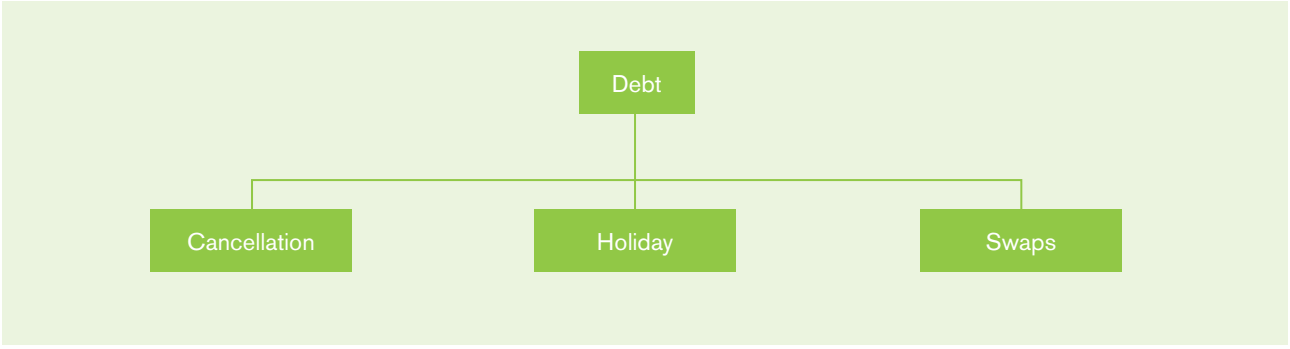
Many climate-vulnerable countries are highly indebted, with five of the top ten countries most at risk from climate change already in, or at high risk of entering, debt distress (IIED 2022).

In the wake of the COVID-19 pandemic, initiatives like the Debt Service Suspension Initiative (DSSI) set up by the G20 group of countries sought to rapidly coordinate the suspension of debt servicing payments to permit debtor countries to reallocate domestic resources to social, health or economic spending as a response to the crisis. While this allowed 73 countries the chance to postpone debt repayments, it did not reduce the overall debt burden and many countries still experienced an increase in debt stocks (IIED et al. 2021).

The financial flows that can be generated by pausing, cancelling or swapping debt can be used both to respond to disasters and to reduce underlying vulnerabilities and exposure to losses and damages, making them appropriate for both rapid- and slow-onset events. For example, Barbados has an ex-ante arrangement for suspension of debt-servicing payments for a two-year period following a climate-related disaster; this will avoid the process of rescheduling debt payments during a crisis and generate immediate liquidity (Persaud 2021). Debt swaps allow the volume of debt to be reduced in exchange for that money being spent on pre-determined actions — such as investment in poverty-reducing climate resilience (Steele and Patel 2020).

Thus debt holidays, relief, cancellation or swaps can open an immediate source of liquidity for spending on other priorities. In practice, however, such arrangements can take a long time to set up, can fail to support climate-vulnerable countries that do not fit into the low or lower-middle income category (as with the DSSI), and only open up liquidity if the debtor government was able to pay the debt servicing prior to the shock.

Figure 5. Schematic of possible debt relief options



Debt is a strong indicator of a country not having sufficient resilience and struggling with the triple crises of poverty, climate and nature — creating an 'immovable obstacle' for development in many vulnerable countries (IIED et al. 2021). The issue of indebtedness and access to concessional finance is extremely important in financing for climate action of all kinds. Among climate-vulnerable island states, this issue is particularly relevant.

Rapid-onset events can cause extreme damage, as seen in the Dominican Republic in 2017, when Cyclone Irma generated losses equivalent to 226% of the previous year's GDP (UNDP 2017). Without access to concessional finance, debt burdens increase and compounding disasters make it difficult to service the debt while also improving domestic resilience. These compounding debts and their repayment requirements undermine the ability of at-risk countries to invest in measures to adapt or reduce their risks to future climate impacts, and push them closer to, or beyond, the limits to adaptation.

### 6.5.4 Philanthropy

Philanthropic sources of finance have fewer internationally recognised principles to guide their finance flows. Interest in state involvement, particular sectors or challenges, investment sizes, accountability, long-term dedicated giving, the speed of impact being realised, and understanding of risk differ across philanthropists of different backgrounds, locations and endowment size (Jones, Dewing and Alexander 2018).

Philanthropy can provide funds quickly, with less stringent reporting requirements, and has more latitude in supporting issues that are considered risky or too politically sensitive for institutional funding — all characteristics that can be beneficial for supporting action on loss and damage. It is notable that a portion of the finance pledged on the side lines of COP26 to address loss and damage by Scotland are being handled by the Climate Justice Resilience Fund (CJRF), which is a "community of philanthropic funders" that seeks to work with "the realities of climate challenges in local communities" (CJRF n.d.). The CJRF funds locally led action on climate change, and has the opportunity to apply their commitment to the Principles for LLA to the management of loss and damage related funds, and to test new ways of delivering finance to address loss and damage that supports locally grounded action.

However not all philanthropies flow finance in ways that are accessible to those experiencing loss and damage. Volumes of philanthropic spending on climate action is dwarfed seven-fold by spending on, for instance, education. Thus US-based philanthropy in 2020 spent US$1.4 billion on climate action, contrasted with US$10.5 billion on education, out of a total of US$64 billion (Hellstern et al. 2021). Furthermore, there is a tendency for philanthropies to focus on revenue-generating mitigation investments and new technologies (Pill 2021), or on achieving quick impacts rather than on long-term capacity building and investing in the transformation of complex systems.

Yet, shifts are occurring in climate-related philanthropy. At COP26, a donor collaborative led by six philanthropies began a process of critical self-reflection and learning to ground their work in the lived experiences of people living at the front lines of the climate crisis, and to understand how to ensure that their funding options reflect the needs of those experiencing the impacts of climate change. Focusing on climate justice and the need for a just transition, members of the collaborative seek to "permanently shift power and resources to those on the front lines" (Justice Transition Donor Collaborative n.d.) and have already demonstrated positive qualities like patience in their funding and support for long-term institutional strengthening (Soanes et al. 2019b). This now needs to become the norm.

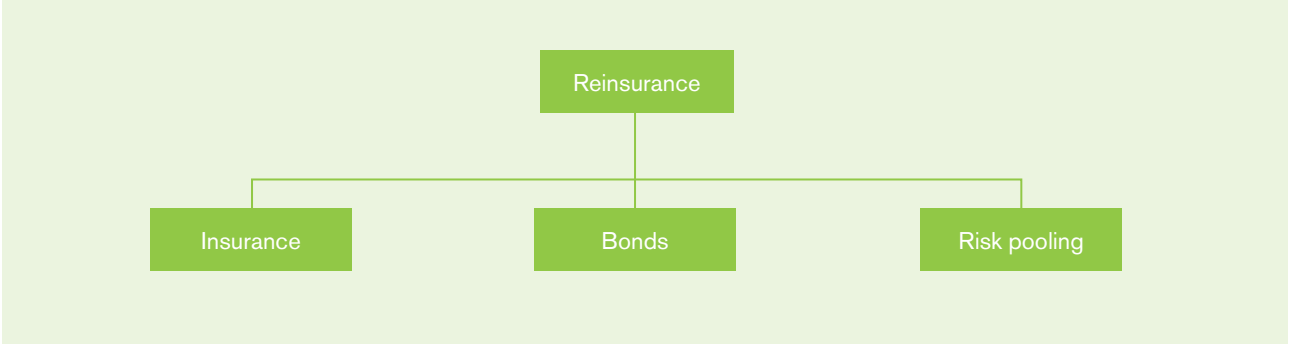
### 6.5.5 Re-insurance

Re-insurance is the source of finance that makes insurance schemes functional by reducing their exposure to risks themselves (UNU-IEHS 2021). Risk transfer has received a large share of attention when examining ways to address loss and damage and has been referenced as an instrument to address risk in climate-vulnerable countries since the earliest days of the UNFCCC. It is a useful tool to share the risk of disaster among many, and can be used from the micro level of individual households up to regional sovereign risk-pooling schemes that share risk between states.

Such approaches can be effective when insurance consumers are expected to take steps to reduce their exposure to hazards, leaving only exposure to unavoidable risk, thereby making insurance premiums more affordable. This is the theory; however in practice, residual risks are becoming so great that even where risk reduction activities are implemented, premiums are prohibitively high. Countries can struggle to cover even the 'subsidised' premiums of regional risk pools, where donors support capitalisation (Evans 2020), and payouts can be woefully small when low-probability but high-impact events occur (CCRIF 2017).

Thus while insurance and risk transfer mechanisms have historically been presented as the most important financial instruments to address loss and damage, in reality these approaches must be understood as only one tool among many that are required. As one key informant remarked, "insurance doesn't prevent deaths. It only provides money for deaths, injuries or damage to property" (Anonymous Interviewee 16 2021).

Figure 6. Schematic of different flows generated from re-insurance




Solutions must go beyond insurance if there is to be action to reduce, for instance, deaths and property destruction before loss and damage occurs. Some critics go further and state that insurance schemes are actually ill-suited to address the full range of loss and damage, despite their popularity among policymakers (Nordlander et al. 2020).

The differences between risk transfer tools relate to the kind of institution that holds the risk of an event occurring (see Figure 6). Insurance places the risk with an insurance firm. Bonds (for example, catastrophe bonds) place the risk with investors. Risk pooling spreads the risk between different parties who share the burden if an event occurs (Clarke and Dercon 2016). A thorough review of these types of instruments was recently collated by the Pacific Insurance and Climate Adaptation Programme (UNU-IEHS 2021) so we do not present one here.

Different risk transfer tools can operate at regional, national, sub-national or household levels. Typically these tools address economic forms of loss and damage caused by rapid-onset events, but tools such as health insurance can also address non-economic forms of loss and damage. Defining insurance payout triggers can be more challenging for slow-onset events (Robinson et al. 2021) and it can also be challenging to define insurance products with accessible premiums when the probability of an event is ever-increasing.

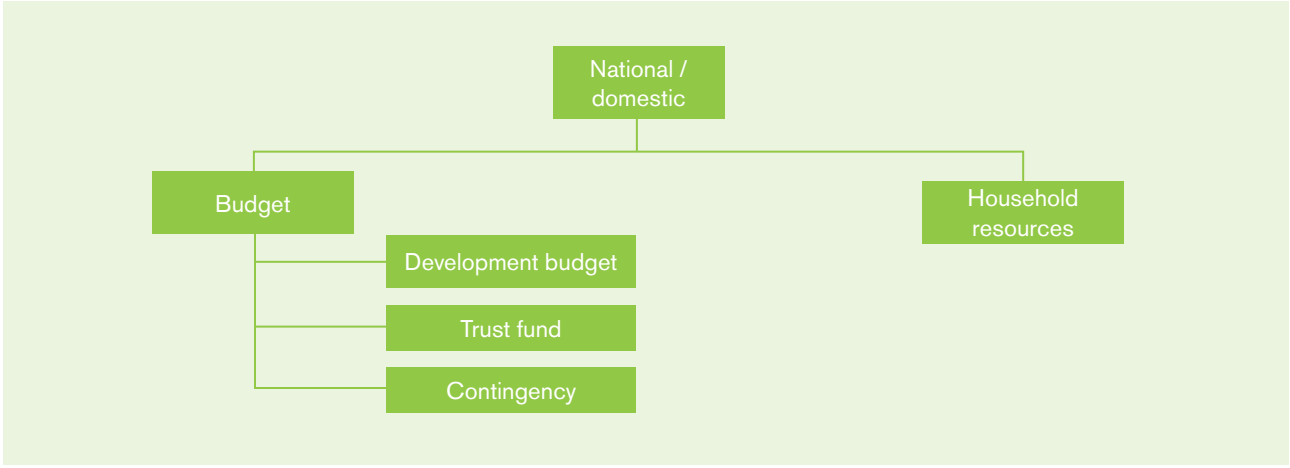
Traditional insurance schemes are characteristically slow to assess damage and release payouts. Parametric insurance policies offer cover based on the probability of a pre-defined event occurring and pay out according to a pre-defined scheme instead of requiring a lengthy claims adjustment process. The ARC group is one organisation offering this type of insurance, speeding up the disbursal of funds (Van Nostrand and Nevius 2011). However parametric insurance schemes require careful design and are not a miracle solution (Broberg 2020).

Both traditional and parametric insurance markets that focus on at-risk households have limited reach in developing countries. In some countries exposed to climate-related losses and damages, there is still limited understanding and uptake of relevant insurance products. For instance, in Fiji, Tonga and Vanuatu, insurance penetration rates are only 12%, 13% and 5% respectively (Jain et al. 2022). Premiums for transferring the risk must be paid and depending on the exposure of a country or a community, the residual risk and corresponding premium may be too high to be affordable, even after risk-reduction measures have taken place. In the case of bonds, issuance may be limited by the country's credit worthiness and a financial sector capable of issuing a bond.

### 6.5.6 Domestic sources

National budgets, tax revenues and households' own access to funds, whether through savings, remittances (or even, on rare occasions, online crowdfunding) are most likely to be the first line of response to an extreme weather event (see Figure 7). In advanced economies, domestic resources — or resources financed through readily accessible, extremely low-interest loans — could be disbursed through social protection schemes to channel finance to those in need, via shock-responsive payments to those on the edge of poverty, by subsidising efficient parametric insurance, investing in forecast-based financing, or by encouraging loss and damage preparedness through preferential interest rates for investments that build climate resilience.

Figure 7. Schematic of domestic funds relevant to loss and damage




In LDCs and SIDS, however, domestic resources are unable to cover such needs. Establishing processes and systems for disbursing finance through such delivery mechanisms is also complex and highly challenging for many governments, given their limited financial capacities. Augmenting or financing priorities through delivery of ODA and finance from other sources to the national budget is one way to fund loss and damage-relevant activities through institutions that already exist in the country. Participatory policy design can support the disbursement of funds in ways that include affected populations and highlight local practical needs.

When all attempts to avert, minimise and address loss and damage fail, the burden falls upon households and communities to protect themselves from the impacts of climate change. Households may have savings in the form of cash or assets, but for poor households, dealing with losses and damages can consume a large portion of their wealth, as referenced by the study on household spending in Bangladesh mentioned above. Expecting vulnerable households to cope with losses and damages using their own meagre resources clearly contradicts the concept of climate justice.

Through these different sources of finance, different flows can support different kinds of actions that are relevant to addressing loss and damage. In arranging finance in the short to medium term, the questions asked should be about how to layer these different sources and flows to respond to different needs. This should be done without jeopardising the long-term goal of new and additional dedicated loss and damage financing.

There are, however, few examples in LDCs and SIDS of effective mechanisms to aggregate the varied flows of relevant finance and allocate them effectively to address the loss and damage risks of vulnerable people and places in comprehensive and coordinated ways that balance present and short-term need with longer-term goals of climate justice. The next section reviews different types of delivery mechanisms that could be used to achieve these goals by layering different forms of finance and action at national and local levels to support those experiencing loss and damage.

## 6.6 Example delivery mechanisms

### 6.6.1 Social protection

Social protection is a valuable mechanism for climate action: it can help to reduce poverty and inequality, address underlying vulnerabilities and build climate resilience (Costella et al. 2021; Soanes et al. 2019a). In the context of loss and damage, it is relevant to both slow-onset processes and rapid-onset events. Slow-onset processes are a key driver of multidimensional poverty and social marginalisation (Aleksandrova and Costella 2021) and social protection can be used to increase individual and household coping capacities. When rapid-onset events occur, shock-responsive social protection can provide recipients with extra support before, during and after a disaster, reducing the need for families to asset strip, maintaining resilience and enabling swifter recovery.

Ethiopia's PSNP layers a range of risk management tools to enable the delivery of different kinds of response under different circumstances (Oxford Policy Management 2017). This scheme can be used as an example to demonstrate how the layering of responses — and the use of appropriate forms of finance to operationalise them — may be relevant to addressing losses and damages in highly vulnerable communities.

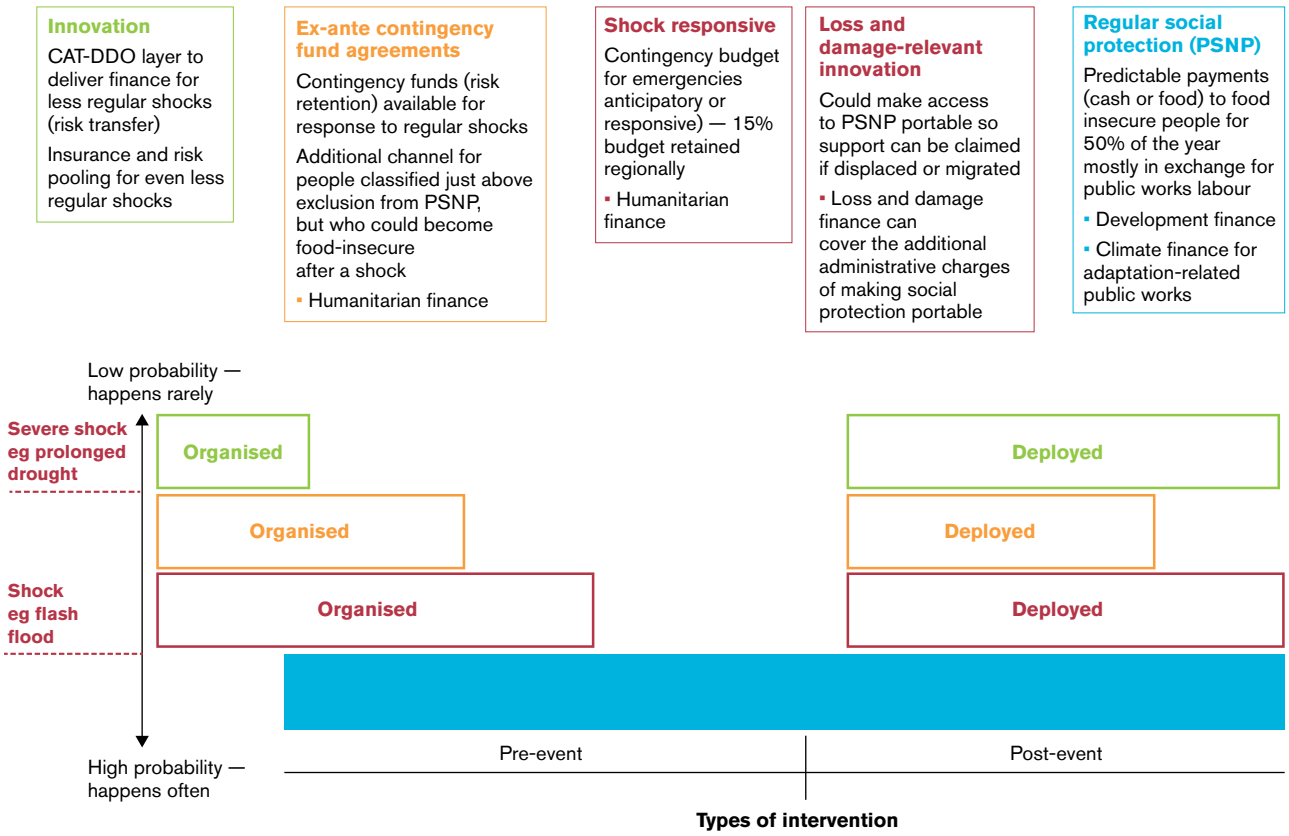
The primary long-term purpose of the PSNP is to shift millions of chronically food-insecure people out of recurrent emergency food aid and to enable them to graduate out of poverty. It uses three layers of intervention to try and achieve this ambitious goal (see Figure 8):

1. **Cash and food transfers,** often in exchange for public works labour. These transfers are designed to help poor households to meet their basic needs and to increase their coping capacity by supporting them to overcome underlying vulnerabilities such as chronic poverty and food insecurity. This kind of intervention is usually funded by the Ethiopian government's domestic budget, with support from international public development finance.
2. **Contingency finance** supports recipients when there is an emergency, using defined triggers to guide the release of additional funds. Contingency funds are cost effective if the benefit of liquidity outweighs the opportunity cost of setting funds aside (Clarke and Dercon 2016).
3. **Anticipatory cash transfers.** These involve pre-arranged access to an additional contingency line of ODA finance that can be mobilised when shocks might tip households on the edge of food insecurity into the insecure group. Ex-ante transfers to at-risk households can prevent them from selling assets to cope with shocks. This is beneficial because households that are forced to sell assets are likely to increase their underlying vulnerability. This type of response is usually financed through humanitarian flows.

The PSNP mechanism shows how social protection schemes have the potential to channel extra funds to recipients when significant climate impacts occur. The PSNP is set up to respond to risks of a certain likelihood, but the mechanism also has the architecture to deliver responses when events outside the normal risk range occur, such as a particularly severe flood, cyclone or drought.

Re-insurance of national risk pools, or paying to maintain access to regional risk pools, supports governments to access the larger sums of finance required to respond to lower-frequency but higher-impact 'fat-tail' disasters. CAT-DDO mechanisms can also be set in place to enable rapid access to multilateral liquidity when certain parameters are met. In Ethiopia these extra layers are used to buttress funds in the safety net and are able to use the existing PSNP architecture to deliver finance to those in need.

Figure 8. PSNP schematic showing different layers of intervention (adapted from Oxford Policy Management 2017)



To improve the accessibility of these types of safety net under normal scenarios, and to improve their utility for addressing losses and damages (including disaster displacement), social protection schemes could consider making benefits portable. This would allow recipients to access safety net funds if they are displaced by extreme weather events or could enable households to explore adaptation options by moving to more climate-resilient, or migrant-friendly locations.

The portability of social protection could be funded through loss and damage financing and should have the express intention of supporting households that are approaching or have moved beyond the limits to adaptation and are facing unavoidable loss and damage to move to a given place.

### 6.6.2 Devolved delivery mechanisms

There are delivery mechanisms that are used to channel climate and development funds from the national to the local level for spending on community-identified priorities and could be used to direct finance to measures that address loss and damage. For example, programmatic funding that supports approaches like community-driven development (CDD) or locally led climate adaptation could be adapted to address loss and damage impacts and risks in the most at-risk communities.

In the Philippines, the Department of Social Welfare and Development (DSWD) has used the CDD approach in its Kalahi-CIDSS programme. This originated in 2003 as a programme financed by the World Bank through a loan, and co-financed by the government to address poverty and strengthen participation in local governance. In 2011, the programme was extended with funds from the World Bank (loan) and the Millennium Challenge Corporation (grant). In 2013, the Asian Development Bank used the existing Kalahi-CIDSS institutional arrangements and delivery mechanism to channel recovery funds to the community level in the wake of Typhoon Yolanda.

The Kalahi-CIDSS programme is designed to meet community-identified needs and priorities and devolves financial management to the local level. It invests in projects that build resilience at the community level, providing predictable funds to the municipal level and transferring funds directly from the DSWD to the community bank account (World Bank 2013) (further details are in Annex 1, Case study 12.). This example illustrates how a delivery mechanism that is designed to pool funds from finance providers to invest in the resilience priorities of the poorest communities could disburse grant-based loss and damage finance to affected communities quickly.

While the initial purpose of the Kalahi-CIDSS mechanism was to support community engagement and poverty reduction, it could be made more appropriate for addressing loss and damage by layering in additional instruments. For instance, communities participating in the scheme could be informed that an additional layer of contingency finance will be available to support them in the event of a climate shock. This contingency finance could include forecast-based finance to support anticipatory action and disaster risk reduction, as well as funds to support recovery after a shock has occurred. Following regular CDD processes, communities would be able to use these funds to prepare for, cope with and recover from an extreme weather event in line with their own needs.

The mechanism could also operate as a means to channel recovery funds from other financing instruments (international solidarity funds, contingent credit, and so on) to the people and places that need support in the event of a climate shock.

### 6.6.3 National solidarity funds

New and additional financing is required to meet the needs of those experiencing loss and damage today, and to meet the needs of those who will become exposed as unavoidable loss and damage materialises or new hazards emerge. The governance of that finance must ensure that access is equitable both between and within countries.

One approach that might be used to pool and disburse funds to address loss and damage is the 'solidarity fund'. This concept is gaining attention as a possible means to catalyse action to address loss and damage in developing countries. An example of this type of fund is the European Union Solidarity Fund, which was created to assist European Union member state governments to respond more effectively to climate shocks. The fund was set up to manage the financial implications of flooding events. Member states contribute to the fund and can call on it within 10 weeks of a disaster to help recovery (Pill 2021).

A similar type of fund could be established to support LDCs and SIDS to manage loss and damage impacts, with finance providers contributing to a central fund that affected countries could draw upon. Such a fund could be established internationally, to pool and disburse funds from a variety of finance providers to support a group of LDCs and SIDS, or individual states.

A national-level solidarity fund could be established by a national government to bring together the variety of different sources of financing that can be used to address loss and damage. The same fund could then be used to disburse finance of different types for different purposes to national and local authorities or directly to communities, depending upon the most appropriate level of subsidiarity for the implementation of a particular measure. The disbursement of funds

could be made either through existing delivery mechanisms, such as social protection schemes, CDD programmes, or devolved climate finance mechanisms (DCF Alliance 2019).

Decisions on how to disburse the funding could be made by a board of national and local actors, including representatives from affected and at-risk communities, with technical guidance, oversight and coordination provided by the fund itself. Such decisions should be based upon robust risk/impact assessment methodologies that consider multidimensional vulnerabilities over time, and would need to be flexible and agile enough to:

1. **Respond rapidly** to extreme weather events with measures such as disaster relief and recovery and social insurance payments,
2. **Mobilise early action** using forecast-based financing and disaster risk financing and social protection, and
3. **Address longer-term residual risks** through investments in DRR, resilience building and planned relocation, where appropriate, factoring in the effects of global heating and compounding climate impacts on the future loss and damage risks of the most vulnerable people.

A solidarity fund would not be expected to do every job: employing the skills to manage its own insurance scheme or social protection system would needlessly duplicate capabilities in other parts of government. Instead, a solidarity fund should be designed to support entities across government and society that already manage relevant delivery mechanisms, enabling them to become more effective at addressing loss and damage impacts and risks, connecting the appropriate finance layers to each of the interventions needed to address different forms of impact and risk, and coordinating action across actors and levels of governance. Examples could include investing in the right kind of risk-financing mechanism or highlighting NELD needs in relevant social protection systems.

Given the challenges that already exist in conceptualising, planning for and addressing loss and damage effectively, a national-level solidarity fund could act as a specialist entity with the expertise and the mandate to:

- Understand the nature of loss and damage impacts and risks for different people and places under different climate change scenarios
- Support actors at different levels to conduct robust loss and damage risk assessments
- Support actors to design loss and damage strategies and action plans that take multidimensional vulnerabilities and compounding risks into account
- Design and establish financing mechanisms that are appropriate to the various measures that are required to address loss and damage effectively
- Access and manage the different sources and flows of finance that will be brought on stream to implement those measures
- Coordinate decision-making and action using a whole-of-government and whole-of-society approach, by convening representatives from affected/at-risk communities, Indigenous Peoples, civil society organisations, the private sector and academia, as well as national and local government institutions.

The Enhanced Direct Access (EDA) programmes of the GCF and Adaptation Fund operate with similar funding and governance arrangements, and provide a relevant model to learn from. Under the GCF EDA, climate finance can be delivered to locally focused interventions without the need for countries to provide a detailed proposal for each individual intervention to the international fund board (Green Climate Fund 2020). In practice, however, these mechanisms currently require receiving countries to have extremely strong fiduciary standards and track records for receiving and disbursing finance, as required by the GCF approval process.

Given the current state of climate, development and humanitarian financing, establishing a national solidarity fund along these lines would likely require national government institutions to comply with the highly exacting standards that have been set by different finance providers for different types of finance. But many of the countries that are most in need of dedicated support to address loss and damage remain unable to meet those standards, and are thus unable to access the finance they require on terms they can meet to fund their adaptation plans, let alone cover the immense costs of addressing loss and damage.

This situation highlights the urgent need for finance providers to innovate and offer more appropriate financing that enables and supports delivery mechanisms that meet the practical needs of the most affected and at-risk countries and communities, while also taking their institutional and financial requirements into account. This challenge will not be easy, but it is a vital task that can be tackled quickly and effectively if finance providers work collectively with developing countries, civil society actors, academic institutions and affected/at-risk community members to identify and craft locally appropriate and mutually acceptable solutions, and this should be one of the principal objectives of the Glasgow Dialogue process over the next two years.

## 6.7 Conclusions

In this chapter we have examined the challenge of how to deliver finance that can support actions that address loss and damage risks and impacts at national and sub-national levels in high-risk developing countries. Given the key features of loss and damage risks outlined in Chapter 4, and the attributes of good practice for addressing loss and damage described in Chapter 5, we suggest that no single source of finance, or delivery mechanism, will be appropriate or adequate to address the full range of loss and damage impacts and risks that the most at-risk countries and communities will face. Rather, we argue that a variety of sources and flows of finance, each with different characteristics and guiding principles, need to be combined in a comprehensive approach that can channel the right forms of finance to the right places at the right time to address the needs of the people that need support the most.

In the absence of dedicated forms of finance to address loss and damage, there remains an urgent and escalating need to address the impacts of climate change that are already happening, as well the risks of loss and damage that are likely occur in the future. As such we have argued that existing forms of finance and delivery mechanisms can and must be mobilised and shaped to address loss and damage impacts and risks.

Taking this perspective, we have reviewed six existing sources of finance that we believe highly vulnerable countries can use to address loss and damage today. None of these options, however, is appropriate or sufficient to address all the forms of loss and damage on their own. Rather, it will be necessary for governments and their partners to layer different sources and flows of finance so that they can channel the right types of money to the right types of interventions, at the right time, to that right place to meet the needs of the people who are most at risk or most badly affected.

A great deal of research and experimentation is still needed to understand how best to design and establish the financial and institutional architecture that is needed to mobilise and deliver the trillions of dollars required to address loss and damage in all its forms across the most at-risk developing countries in the course of the next century. Such research must balance the demands of high-risk countries in the negotiations of the UNFCCC for new and additional dedicated international finance in the form of a loss and damage financing facility with the needs of national and sub-national stakeholders to access and allocate the finance they need to address the multidimensional and evolving loss and damage risks of the most at-risk people and places.

# 7

# Conclusion and recommendations

Simon Addison

In this paper we have presented a detailed overview of the nature of loss and damage risks that affect low income countries, marginalised groups and people living in poverty in the global South, and how they might be addressed. Based upon a structured review of existing literature, and a series of deliberative dialogues, key informant interviews and consultations with representatives of affected communities and countries in LDCs and SIDS, we have presented our assessment of the current evidence on the key features of loss and damage risks, and described how we believe national and local actors might approach the design and delivery of measures to address those risks, now and into an uncertain future.

Throughout the paper we have argued that there is an urgent need to take action to address loss and damage risks and impacts now, and that international stakeholders from government, finance institutions and civil society must support LDCs and SIDS to assess the risks they face, develop robust strategies to address them, and implement concrete actions using all of the tools and financial instruments available. We have also argued that to do so now, does not undermine or threaten the efforts of developing countries to secure their demands for climate justice under the terms of the UNFCCC, or for an SNLD or dedicated financing facility that is fit for purpose. Rather we believe that if affected and at-risk countries take action to design and test practical approaches for addressing loss and damage, they will be able to generate evidence and learning that will only strengthen their case in COP negotiations.

This perspective has informed our argument that the time is now ripe to develop and deploy a pragmatic perspective on loss and damage, one that focuses on the multidimensional realities, impacts and risks that climate change poses to communities and countries in the global South. Such an approach should also tackle the challenging question of how national and sub-national actors can address those risks to ensure that the most vulnerable people are able to cope with and recover from the losses and damages they incur with resilience, and to minimise the impact of residual or unavoidable climate risks that are likely to occur in the future.

Based upon this view, we have presented a detailed examination of the nature of loss and damage risks that affect marginalised groups and people living in poverty across the global South, and have highlighted

why these risks need to be considered differently from the broader set of climate risks that can be addressed by adaptation and mitigation. Loss and damage risks are characterised by the fact that they either cannot be or will not be avoided, no matter what adaptation or mitigation action is taken. This means that, by definition, actions to deliver climate adaptation and mitigation will not be able to resolve all forms of loss and damage risk, and other actions must be taken to address them.

This has several important implications. On one hand it means that actions taken to address loss and damage risks must consider not only how to address the actual manifestation of losses and damages that will be incurred after an extreme weather event or slow-onset event has happened. They must also address the residual and unavoidable risks that are likely to remain even after adaptation action has been implemented. As such, actions to address loss and damage must focus not only upon disaster response, recovery and reconstruction, which are neither appropriate nor sufficient to address all forms of loss and damage risk. Rather, actions must incorporate a range of measures and approaches that can address the full range of loss and damage risks that are likely to occur over time under different climatic, environmental and socioeconomic scenarios. On the other hand, it means that actions to address loss and damage risks can and should be implemented alongside actions to support adaptation and mitigation, especially in the communities and countries that are most badly affected and most at risk in the global South.

Loss and damage risks are multidimensional in nature and are distributed inequitably across society along intersectional lines of wealth, gender, age, physical ability, ethnicity, language and geography. Different types of people have very different levels of exposure, vulnerability and resilience to different types of climate hazards, and individual shocks will affect them very differently as a result. This means that even if adaptation actions are taken that are effective in enabling some people to cope with, overcome or avoid losses and damages, there will always be some people who will be impacted badly, some catastrophically. As such, actions to address loss and damage must take multidimensional risks into account and must consider the intersectional lines along which vulnerability to climate impacts are distributed. Furthermore, actions to address the loss and damage risks of the people who are most at risk should be implemented alongside those designed to support people with higher levels of adaptive capacity to adapt to changing climatic conditions.

Based on these findings we have suggested that actions to address loss and damage should take a comprehensive approach that considers and addresses the different forms of loss and damage risk that are likely to impact different people and places over time, with a focus on those that are likely to impact the most vulnerable people — marginalised groups and people living in poverty. One way to approach this is to identify the most appropriate measures to address specific loss and damage risks in a particular context, based upon a robust assessment of those risks using climate scenarios that cover a wide range of possible futures, and to layer those measures in a complementary manner that delivers the right kinds of support to the right people in the right place at the right time.

In practice this means that strategies to address loss and damage should factor in a range of measures to address different forms of risk over the short, medium and long term. Such measures include: anticipatory and rapid emergency responses to extreme weather events; climate-resilient recovery and reconstruction after a disaster has ended; disaster risk reduction, social protection and planned relocation to minimise the impact of residual and unavoidable risks in the future; and climate-resilient development initiatives to address the forms of injustice that place marginalised groups and people living in poverty disproportionately close to, or beyond, the limits to adaptation.

Layering diverse forms of action to address varied forms of risk ultimately requires the use of a similar variety of financial instruments to fund them effectively. The scale of loss and damage risks, and the wide range of actions that can be taken to address them, mean that no single source of finance will be sufficient, appropriate or agile enough to fund actions to address loss and damage. The different forms of action that are required necessitate the use of sources and flows of finance that have very different characteristics, which operate according to very different principles and respond to different triggers. For instance, finance designed to deliver rapid or anticipatory disaster responses will be very different to the forms of finance required to support long-term recovery and reconstruction, or to enable the planned relocation of a country's entire population. As a result, new financial arrangements need to be explored that can harness a variety of different sources and flows and finance and layer them in coordinated and complementary ways to deliver finance to the right measures in the right places at the right time to enable those people who are most badly affected or most at risk to manage loss and damage impacts and risks.

In this paper we have explored various different sources and flows of finance that might be mobilised in this way, together with some examples of delivery mechanisms that might be used to deliver finance to the people and places that need it most. We have also proposed the idea of a national solidarity fund as one possible option that might be used to aggregate and then allocate different forms of finance to actions that can address loss and damage in an appropriate, effective, equitable and timely manner.

Based on this analysis we propose the following recommendations, which we hope may be useful to policymakers and practitioners responsible for designing and delivering practical action to address loss and damage, especially those working at national and sub-national levels in LDCs and SIDS, and their international partners.

## 7.1 Recommendations

**Act now to address loss and damage risks** using available approaches and sources of finance. The evidence is clear that loss and damage is happening now and will only escalate with global warming, especially among marginalised groups and people living in poverty in the global South and particularly in LDCs and SIDS. It is vital that national and sub-national actors and their international partners begin to develop strategies and action plans to address loss and damage risks so that action can be taken as soon as possible. In particular, international donors and financial institutions must follow the lead of the governments of Scotland and Wallonia to allocate finance explicitly to concrete actions that address loss and damage risks in the most vulnerable countries, and should support LDCs and SIDS immediately to begin conducting detailed assessments of the loss and damage risks that they face and to develop comprehensive multisectoral strategies to address them.

**Take a pragmatic approach** that is grounded in the multidimensional and intersectional risks of the marginalised groups and people living in poverty who are most at-risk from climate impacts in the global South. Such an approach should proceed from first principles by considering the nature of loss and damage risks as they affect these populations, and by assessing the particular risks they face from the various climate hazards that they are likely to face under different warming scenarios. It should also focus on the particular requirements, preferences and priorities of these populations, based on a robust analysis of their values, vulnerabilities and lived experiences, and taking into consideration their understanding of the loss and damage risks they face and the types of solutions that they prefer to use in pursuit of a climate-resilient future.

**Prioritise the loss and damage risks of those who are most at risk.** Marginalised groups and people living in poverty have the most to lose from climate change. They are already suffering first and worst from the impacts of global heating, despite having done the least to cause it, and they have the lowest levels of capacity to cope with the climatic changes they endure. The non-economic losses and damages that they experience do not factor in mainstream assessments of loss and damage risks or impacts, yet even the smallest of climate shocks can push them over the limits to adaptation and into an intergenerational downward spiral of poverty and vulnerability. Billions of poor, marginalised people across the global South are at increasing risk from the adverse impacts of climate change, and are at risk not only of losing their lives, homes and livelihoods due to climate shocks, but also their cultures, social networks and sense of identity. Any effort to address loss and damage must therefore begin from a robust assessment of the types of loss and damage that matter most to marginalised groups and people living in poverty, and must focus on the delivery of actions to support them to address the risks they face in ways that are appropriate to their circumstances, preferences and priorities, and that respect their rights.

**Recognise the multidimensional, intersectional and dynamic nature of loss and damage risks.** Climate impacts affect different people differently depending upon their particular circumstances and the social, political, environmental and economic context in which they live. These differences mean that individual climate shocks will impact different people differently, and actions to address loss and damage must take those differences into account. The dynamic, intensifying nature of climate change, and the compounding nature of loss and damage impacts and risks, together with the dynamic manner in which socioeconomic, political and environmental power relations evolve over time, also mean that the particular risks to which different people are likely to be exposed in different places will differ markedly over time under different scenarios. Actions to address loss and damage risks must therefore take multidimensional risks into account and must consider the intersectional lines along which vulnerability to climate impacts are distributed. They must also be agile and adaptive enough to respond to the evolving nature of loss and damage risks over time for different groups of people in different places.

**Support highly vulnerable countries and communities to assess their loss and damage risks using robust approaches.** Currently the approaches, tools and guidelines to assess multidimensional loss and damage risks in

disaggregated ways that take the evolving climate and other scenarios into account do not exist, and must therefore be developed. Such approaches can draw upon existing methods that are used to address climate risks more broadly, such as: the use of climate models to produce a range of climate scenarios including fat-tail events; layering climate projections on to maps of socio-economic and biophysical vulnerability; probabilistic models of climate risk for particular hazards in particular locations; and triangulating climate scenarios and hazard risk maps with insights from traditional knowledge, community-level data or citizen-science data. Such approaches must however ensure that they integrate robust data on the multidimensional and intersectional vulnerabilities and exposure of marginalised groups and people living in poverty. Current approaches to climate risk analysis do not integrate such data sufficiently, or with adequate accuracy to address the risks that these groups face — especially from non-economic and informal forms of loss and damage. Approaches to assess loss and damage risks, must also integrate an assessment of the likelihood that avoidable loss and damage risks will transform into unavoidable residual risks and identify the triggers or warning signs that indicate when the limits to adaptation are being reached or breached. Developing methods, tools and guidelines to conduct such assessments must be a priority for the international community and research institutions.

**Develop comprehensive strategies and action plans to address loss and damage risks that layer complementary measures.** Tackling the multidimensional, diverse and dynamic nature of loss and damage risks within and across a community or country and over time means that there is no magic bullet to addressing loss and damage. No single approach will be effective for all forms of loss and damage risk. Instead, stakeholders, from local to national and international level should aim to develop comprehensive strategies and action plans to address loss and damage that layer different types of action in complementary ways that can address the variety of risks that are likely to affect different people and places under different scenarios. These strategies and scenarios should be based upon robust assessments of multidimensional loss and damage risks, as noted above, and should consider the roles that different actors can play to address those risks, using the different capabilities, resources, technologies and forms of knowledge they have available to them, from the local to the national and international levels. In particular national governments in high-risk developing countries (especially LDCs and SIDS) would benefit greatly from the process of developing such strategies, and their international partners should prioritise the delivery of financial and technical support to enable them to do so as soon as possible. To be most effective, these strategies and action plans should also:

- Be integrated into other planning and strategy development processes that aim to deliver climate-resilient development
- Take an inclusive, whole-of-society approach that is focused on delivering locally led action to address loss and damage, based on the principle of integrated subsidiarity, and that prioritises the participation of marginalised groups and people living in poverty who have been affected by or who are at risk of loss and damage
- Take a whole-of-government approach that uses the issue of loss and damage to bring together the various sector and levels of government that will be affected by adverse climate impacts to develop a coherent strategy in which each arm of government adopts appropriate measures to tackle the forms of loss and damage that will impact them.

**Layer diverse sources and flows of finance.** No single source of finance will be sufficient to address the wide range of loss and damage risks that a high-risk community or country will face. National governments and other stakeholders must aggregate and layer different sources and flows of finance to ensure that the right types of finance are mobilised and allocated to the right measures in the right place at the right time to address the different types of loss and damage risk that marginalised groups and people living in poverty are most likely to face. Various existing forms of finance can be harnessed to fund actions to address loss and damage over different timelines, but institutional arrangements and financial architecture are required to layer them effectively at the national level in a coordinated and complementary manner. One means by which this challenge might be overcome is through a national solidarity fund. National governments and their international partners should explore and test such an approach to generate evidence and learning on what works and what does not to pool and deliver finance for loss and damage action effectively and in line with the principles of climate justice.

# Annex 1: Examples of good practice

Nora Nisi

This annex details a variety of different types of climate action that are being undertaken by countries, communities, and organisations across the global South. Each case study is directly linked to one of the good practice attributes outlined in Chapter 4. These case studies have emerged from an extensive literature review and were selected based on evidence of the operationalisation of one or more of the attributes of good practice. It should be noted that this list is not exhaustive — a number of good practice examples exist that have not been included in this list.

## 1. Mapping India's climate vulnerability

India's Council on Energy, Environment and Water, with the support of the India Climate Collaborative and The EdelGive Foundation, commissioned a first-of-its-kind district-level vulnerability assessment of India. This study, titled *Mapping India's Climate Vulnerability: A District Level Assessment*, developed a climate vulnerability index of Indian states and union territories and then used this to map the exposure, sensitivity and adaptative capacity (by evaluating socioeconomic and governance mechanisms) of different regions using spatio-temporal analysis (Mohanty and Wadhawan 2021). Importantly, rather than viewing climate extremes in isolation, the study mapped the combined risk of hydro-met disasters and their compounded impacts on vulnerability.

The study found that more than 80% of India's population lives in areas that are highly vulnerable to extreme rapid-onset events. It also established which zones in India are most vulnerable to extreme climate events, which states are most vulnerable to which types of events (for example, floods or droughts), where adaptative capacity is low and what the key anthropocentric drivers of high vulnerability are (such as lack of infrastructure planning and unsustainable land use). This information not only helps map important vulnerabilities and critical communities, sectors, and assets, it also informs policy goals. It feeds into national and sub-national government planning strategies to enhance resilience by guiding decision-making in climate-proofing communities, infrastructure, and economies.

## 2. The Weatherwise Project in Tanzania, Uganda and Kenya

Weatherwise — a project funded by the UK Foreign Commonwealth and Development Office (FCDO) and delivered by the UK Met Office in partnership with BBC Media Action and the Network of Climate Journalists in the Greater Horn of Africa — strengthened the capacity of media professionals and technical experts to respond to the climate and weather information needs of audiences located in Northern Kenya, around the Lake Victoria shores of Kenya and Uganda and along the coastal strip of Kenya and Tanzania (Met Office 2019). Research conducted before the project launch found that farmers, pastoralists, and fishers did not trust weather information because they saw it as too technical and unreliable (Resilience Hub 10 November 2021).

Given this, the project aimed to provide farmers, fishers, and pastoralists with adequate and timely information to help them make risk-informed decisions, and also trained journalists to co-produce information with scientists and work with them to disseminate their findings in their local broadcasts (Resilience Hub 10 November 2021). Media professionals were trained to first understand and translate the information they received, and then to produce practical, understandable, jargon-free and contextually relevant media outputs (Met Office 2019).

Trainees included media professionals working for local radio stations broadcasting in local languages and dialects (Resilience Hub 10 November 2021). "The project also developed the capacity of technical professionals to communicate climate and weather information for practical decision-making through training and guidance; and nurtured strategic links between media partners, technical climate and weather experts and relevant government decision makers, and generated opportunities for co-production and public conversations in order to deliver more effective climate services" (Met Office 2019).

## 3. Northern Kenya's community radio initiative

Garbatulla Development Organization is a local CBO operating in the semi-arid district of Northern Kenya and involved in community development initiatives (WIM 2019). During the severe 1992 drought, the community radio initiative began operating using a single base station and one mobile very high frequency (VHF) radio (a long-distance coverage VHF base station that can link remote pastoral villages where other forms of telecommunication do not exist) to communicate information and coordinate emergency relief intervention for pastoralist communities (WIM 2019).

The radio station, which was initially installed for drought monitoring and warning, was used for diverse information transfer (UNISDR 2010). "The mobile station visited remote centres, monitored the situation, collected data, and relayed the information to the base station, which compiled the report and sent it to the Government and other aid agencies for action" (UNISDR 2010). Over time, more radios were added, eventually connecting nine pastoralist villages (WIM 2019). The size of the area, remoteness of communities, and poor infrastructure mean that radio is a highly effective form of communication (UNISDR 2010). VHF radio stations are hardy, cost-effective, and have negligible running costs (UNISDR 2010). Combined with the sheer effectiveness of the communication method, the community radio project became a success. Garbatulla Development Organization was easily able to hand over management of the radio, and costs of the operators, to communities.

## 4. Anticipatory cash transfers in Bangladesh

Bangladesh is particularly vulnerable to the effects of climate change (World Bank 2021). According to the World Bank, Bangladesh is currently ranked as one of the world's most disaster-prone countries, with 97.1% of its total area and 97.7% of the total population at risk of multiple hazards (Chowdury et al. 1993), including cyclones, flooding, salinisation and coastal erosion. In recent years, Bangladesh has shifted its paradigm from disaster response to DRR, making substantial progress in disaster management (Azad et al. 2019).

Most notably, since 2015, the World Food Programme, in close collaboration with the Government of Bangladesh, the Bangladesh Red Crescent Society and the Red Cross Red Crescent, has supported the development and implementation of severe weather event anticipatory action based on Bangladesh's national early warning system (World Food Programme 2021). The World Food Programme used a data-driven forecast to predict the impacts of excess flooding from the 2020 monsoon season along the Jamuna River (Pople et al. 2021). The national early warning system and data collection allowed for the development of forecast-based financing (FbF), a mechanism that uses weather forecasts to disburse funding (anticipatory cash transfers) to vulnerable people before an event occurs (Snowdon 2020).

The 2020 monsoon season floods in Bangladesh were the second-highest since 1989 and the second-longest since 1998 (Pople et al. 2021) and became one of the most severe flooding events on record. More than 5.5 million people were directly affected by the flooding (Pople et al. 2021). Vulnerable households along the Jamuna River were able to receive approximately US$53 up to four days before floodwaters reached the critical level (World Food Programme 2021). This unconditional cash transfer reached approximately 145,000 people and was distributed using mobile money accounts.

The anticipatory cash transfer allowed households to purchase essential supplies such as food and medicine, and enabled them to move themselves and their assets (for example livestock) to safer ground before the floods reached the critical peak (World Food Programme 2021). Importantly, by receiving a choice in how they wanted to respond, households were able to act with dignity. The anticipatory cash transfers also resulted in fewer negative consequences: households receiving the transfer were 36% less likely to go a day without eating for the duration of the flood; they reported significantly higher child and adult food consumption three months after the flood; they experienced lower asset loss; they engaged in less borrowing and thus incurred less debt; and they were less likely to lose livestock, while being more likely to evacuate their livestock and household members (World Food Programme 2021).

## 5. Anticipatory action in Senegal

Senegal, located in the westernmost part of the African continent, is vulnerable to climate change impacts such as drought, locust invasions, flooding, sea-level rise, coastal erosion and bush fires (World Bank n.d.a). The ARC group (an organisation made up of members states and mandated by the African Union to help African nations proactively manage climate-related risks through macro insurance) allows member states to purchase 'parametric' insurance policies. These policies are triggered once pre-agreed triggers are met, while nongovernment partners may buy a 'replica' insurance policy (Start Network 2020).

In July of 2019, the Government of Senegal partnered with Start Network and the World Food Programme to do just this (Start Network 2020). In 2019, "Start Network and the Government of Senegal each purchased an insurance policy against drought. If rainfall levels dropped below a pre-defined threshold, Start Network members and the Government of Senegal would receive payouts to implement timely and coordinated actions to protect communities at risk" (Start Network 2020). By November the pre-agreed triggers were met, and two payouts were made: US$12.5 million to the Government of Senegal and US$10.6 million to Start Network.

With these funds, Start Network members and the Government of Senegal began forecast-based anticipatory action on drought to enable families to protect assets such as livestock and avoid negative coping strategies (CDKN Global 2021). The Government of Senegal and Start Network members delivered in-kind donations such as flour and made anticipatory cash transfers that reached more than 335,000 people across seven regions (Start Network 2020).

## 6. Index-linked insurance in Kenya

Droughts and locust invasions have impacted the Sahel and the Horn of Africa for centuries. Climate change is exacerbating these events, making them more prolonged, more severe and more frequent. Severe droughts can have devastating effects on pastoralists: when their livestock is wiped out, it can lead to distress sales, which in turn leave herders without a source of food or income (ILRI 2020).

The International Livestock Research Institute (ILRI) is a CGIAR research centre co-hosted by Kenya and Ethiopia. In collaboration with various partners, including the Kenyan Meteorological Department, ILRI has aimed to develop and implement a market-mediated index-based livestock insurance product to protect livestock keepers such as pastoralists from the asset loss and damage they face from environmental hazards such as droughts (ILRI 2020). The first payouts were made in 2010 in the Marsabit District of Kenya.

At first, the programme was based on asset replacement contracts. In 2014, the index-based insurance product was turned into an asset protection programme (Resilience Hub November 3 2021). This meant that pastoralists and agropastoralists were able to receive a payout before incurring a livestock loss due to drought. In 2017 and 2018, a severe drought triggered a payout of over US$7 million (Resilience Hub November 3 2021). This anticipatory payout allowed pastoralists and agropastoralists to spend money on livestock-saving measures such as food and foraging fodder (Resilience Hub November 3 2021), helping them to pre-emptively manage drought-related livestock mortality. They were also able to pay off incurred debt, thus shrinking their financial vulnerability.

## 7. Community-based cyclone management in Bangladesh

Cyclones are one of the many environmental hazards that strike Bangladesh. Over the past few decades, the Government of Bangladesh has instituted several measures to avert and minimise the loss and damage incurred from cyclones. For example, Bangladesh has strived to make their EWS as effective as possible (a Storm Warning Centre has been established in the Meteorological Department) and has built cyclone shelters (accommodating 500 to 2,500 people) and *killas* (raised earthen platforms that accommodate livestock and protect them from storm surges) in cyclone-prone areas (IPCC 2012; Hossain 2013). In 2010, the Government of Bangladesh developed a National Plan for Disaster Management (Azad et al. 2019). Recognising the vital role that communities play in the face of environmental hazards such as cyclones and flooding, this plan emphasised community participation in both the planning and implementation of local-level disaster management activities (Azad et al. 2019). Bangladesh also established District Disaster Management Committees, which include Upazila (district sub-unit), union and village tiers of the disaster management committees (Haque and Uddin 2012). These local-level committees include representatives from almost all relevant interest groups in society (Haque and Uddin 2012).

In line with this bottom-up approach, the Bangladesh Red Crescent Society, alongside the Government of Bangladesh, established the Cyclone Preparedness Programme (CPP). This operates in thirteen districts and, using robust EWS, provides rapid dissemination of cyclone warning signals to coastal communities (UNDRR 2019a). The CPP also helps people to find shelter, provides medical aid and assists with post-disaster rehabilitation and recuperation (UNDRR 2019a). Importantly, the CPP has only 203 employees but, as of 2019, has approximately 76,000 volunteers. The volunteers are community members who disseminate cyclone warnings within their communities, assist in providing shelter and provide humanitarian assistance (UNDRR 2019). They undergo regular training and drilling practice. The overall strategy of the CPP programme includes the formation of Village Disaster Preparedness Committees, the development of awareness-raising campaigns alongside training programmes in disaster preparedness and first aid, cyclone warning signals, cyclone shelter maintenance, the installation of food and water storage facilities and the construction of raised poultry sheds (Hossain 2013).

Local NGOs in Bangladesh are also operating at the community level. Friendship, an NGO working with marginalised communities, has established disaster management committees in coastal and char villages, working with them to prepare risk-reduction action plans for implementation during natural disasters (Friendship 2022). In these committees, residents are able to share their experiences, assess potential risks, identify needs and develop practical solutions using local knowledge and Friendship's resources.

## 8. Community-based flood early warning system in Assam, India

Floods and flash floods are the major climate-induced natural hazards that threaten the lives and livelihoods of downstream communities in the Hindu Kush Himalaya, particularly in the monsoon season. Because governments tend to monitor floods on larger rivers and develop early warnings at the global, regional or national level, floods in small rivers and tributaries strike vulnerable communities with little to no warning (ICIMOD 2018). In 2010, the International Centre for Integrated Mountain Development (ICIMOD) implemented a community-based flood EWS (CBFEWS) along the Jiadhal and Singora rivers in Assam. A CBFEWS consists of an integrated system of tools and plans that are community-managed and thus allow communities to detect and respond to flood emergencies (ICIMOD 2018). The detection of flood risk and its communication to vulnerable communities depend on technology such as wireless water level monitoring stations that can transmit water level data to a receiver unit up to 800 metres away. ICIMOD also facilitates communication between stakeholders and local communities through mobile applications (ICIMOD 2018). In Assam villages such as Abhoipur, caretakers are appointed to monitor the CBFEWS instruments installed at the river. These caretakers are responsible for disseminating early warning information to downstream communities and authorities (ICIMOD 2018). Based on the success of the pilot project, CBFEWS has also been introduced for the Gagan and Rangoon Rivers in Nepal (ICIMOD 2018).

## 9. Community-based flood management in Uganda

The population of Kasese District is concentrated in a narrow corridor of land running between the Rwenzori Mountains and the Western Rift Valley (Bharadwaj and Shakya 2021). The district has five major rivers fed by glaciers from the Rwenzori Mountains, which flow to Lake Albert. More than 85% of the people in the district are involved in agriculture, most of them peasant farmers who depend on subsistence farming for their livelihoods (Bharadwaj and Shakya 2021). Floods (which, since 2013, have been so severe they cause riverbanks to burst) have caused economic and non-economic loss and damage, impacting infrastructure, industry, homes, communities, and religious, cultural and heritage sites (Bharadwaj and Shakya 2021). The floods have destroyed crops and livestock, leading to food insecurity, unemployment and poverty (Bharadwaj and Shakya 2021). The community has taken a number of measures to deal with the destruction caused by flooding, including risk-reduction and risk-retention strategies such as awareness, soil management, insurance, public information actions, riverbank tree planting and building floodwalls (Bharadwaj and Shakya 2021). The Kasesese community has also created disaster management committees manned by volunteers, which sensitise residents to the importance of protecting rivers and their tributaries through restoration and environmental activities (Bharadwaj and Shakya 2021). Community members have campaigned for an end to human activities along the riverbanks, including unstainable cultivation, animal grazing and sand mining. Trained community teams monitor water levels to detect early warning signs of disaster and warn communities accordingly (Bharadwaj and Shakya 2021).

## 10. Community-based flood resilience in Kibera, Kenya

Kibera is Nairobi's most populous informal settlement, with 300,000 residents (Mulligan and Harper 2016). Each year, residents face the risk of flooding. The Urban Flood Resilience Project in Kibera was a two-year (2015–2016) action-research project undertaken by the Kounkuey Design Initiative (KDI), a community development and design non-profit. Rather than simply aiming to apply top-down hard engineering approaches through a fly-in-fly-out consultancy, KDI and its partners had the understanding that residents should be part of the process of finding solutions to flooding (Mulligan and Harper 2016). The project brought together stakeholders with various backgrounds and carried out in-depth consultations and participatory analysis with the local government, community groups and nearly a thousand local households. By bringing in the perspectives of the community, the project was able to understand local concerns and perspectives around matters such as sanitation, flooding impacts, public space and watershed remediation (Mulligan and Harper 2016). As a result, KDI and its partners were able to combine engineering, science and local knowledge to find bespoke solutions that catered to local needs and were useable by different local stakeholders such as community members, the county government and national users (Mulligan and Harper 2016).

## 11. Participatory planning in Columbia

Disaster risk analysis in Colombia has shown that 31% of the population is at risk from landslides (SDG Academy 2021). Given the significant correlation between water resources and landslides, the Guarino River basin, located between the departments of Caldas and Tolima, and depended upon by several communities, became a focus for DRR related to landslides (SDG Academy 2021). In 2008, the basin planning process began with local stakeholder participation in creating an Immediate Action Plan (SDG Academy 2021). This process emphasised inter-institutional and collaborative work. The plan set out DRR projects along each river area (lower, mid and upper), which involved ecosystem restoration to control soil degradation and promote more sustainable land-use systems (SDG Academy 2021). The plan engaged in community engagement and consultation throughout. For example, plants to provide protective stabilising vegetation were provided through community nurseries, encouraging direct involvement (SDG Academy 2021).

## 12. Community-driven development in the Philippines

Community-driven development (CDD) seeks to enable local communities to identify and implement the projects they most need. This approach involves devolving decision making about resources and planning to local decision makers, enabling more efficient identification and prioritisation of community needs. In the Philippines, CDD is used by the Department of Social Welfare and Development (DSWD) to implement the Kapit-bisig Laban sa Kahirapan-Comprehensive Delivery of Social Services (Kalahi-CIDSS). The World Bank is one of the first

development partners of the DSWD in developing and implementing CDD. Under Kalahi-CIDSS, villages selected and implemented sub-projects related to disaster response in the wake of Typhoon Yolanda. It was used to restore basic social services and rebuild damaged or destroyed facilities, infrastructure and livelihoods (ADB 2021). The programme evaluation found that Kalahi-CIDSS "improved how people dealt with hardship" in the immediate term.

## 13. Ethiopia's Productive Safety Net Programme

The Productive Safety Net Programme (PSNP), first launched in 2005, is a policy initiative by the Government of Ethiopia, with support from donors, which delivers a predictable and mostly cash-based form of social protection. It aims to shift millions of chronically food-insecure people out of recurrent emergency food aid (Sharp 2006). The PSNP provides payments (either as cash or food) for up to six months per year to chronically food-insecure households. Able-bodied community members are provided with these payments in exchange for labour on public works (EU 2014). These public works include integrated community-based watershed development, soil and water conservation measures, road building, digging wells and constructing embankments (EU 2014). Many of these activities can be linked to climate change adaptation. For households that are labour-poor, elderly or incapacitated, payments are made directly, thus assisting them to avoid asset depletion and food insecurity (EU 2014). Some 85% of payments are made through public works, while 15% are made as direct support (IDS 2008).

Over time, the PSNP has supported households to meet their immediate needs and overcome underlying vulnerabilities such as poverty and chronic food insecurity, making them better able to absorb climate-related shocks. It has also allowed the wider communities to become more resilient in the face of climate change. Households are thus better placed to reduce and address loss and damage.

## 14. Climate-sensitive social protection in India

The Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) is India's largest programme for social protection. As part of its broad programme to enhance the livelihood security of rural households, the scheme entitles every rural household to access 100 days of guaranteed wage employment per year. This is designed to help households meet consumption gaps during shocks, especially extreme weather events. The wage employment aims to strengthen long-term livelihood strategies (Kaur et al. 2020; Soanes et al. 2019a; Steinbach et al. 2020). While the scheme's contribution towards poverty reduction is well documented, climate change has emerged as a major threat and could reverse important development gains (Kaur et al. 2019). By integrating climate risk management, MGNREGS can play an important role in helping rural households and local economies absorb the effects of climate risk and transform their ability to address climate stresses and recover from them.

IIED, with support from the UK's FCDO, is supporting India's Ministry of Rural Development to enhance the climate resilience impacts of MGNREGS. This is being done by generating evidence and lessons through research to identify options for Indian policymakers to integrate climate risk management into MGNREGS, facilitate the co-development and institutionalisation of a climate information services tool (CRISP-M), and provide evidence for global policymakers on how to integrate climate risk management into social protection provision and address poverty in the context of climate change (Kaur et al. 2020; Soanes et al. 2019a; Steinbach et al. 2020; Bharadwaj, Addison and Reddy 2021). CRISP-M is a digital tool designed to facilitate climate risk-informed geographic information system (GIS) planning, decision making and monitoring for MGNREGS through three core components: a drought early warning system, GIS-assisted asset planning, and community-based planning and monitoring (Bharadwaj, Addison and Reddy 2021; Abhilashi and Renton 2022). Using the tool, communities can turn their needs and priorities into collective action.

## 15. Inclusion of people living with disabilities in Ecuador and Thailand

People living with disabilities often don't have access to risk information, critical infrastructure and/or emergency services (UNDRR 2022). In addition, they are more likely to live in poverty and face discrimination (UNDRR 2022). DRR measures such as evacuation routes and warning systems often do not take people with physical disabilities into account (UNDRR 2022). For example, people living with disabilities may not be able to use designated evacuation routes or hear or see warnings (UNDRR 2022).

Some countries are now addressing this situation. In the city of Baños de Agua Santa in Ecuador, the Technical Secretariat for Inclusive Disability Management developed a project that promotes the rights of people living with disabilities in all stages of risk management (Smith et al. 2017). After a campaign in Thailand calling for disaster management exercises to be more inclusive, the Royal Thai Armed Forces invited the Council of Persons with Disabilities and other CSOs to join government bodies and take part in the Thailand–Cambodia Joint and Combined Exercise on Humanitarian Assistance and Disaster Relief. This led to more inclusive practices and greater engagement between the Council of Persons with Disabilities and those responsible for disaster planning (Smith et al. 2017).

## 16. Flood-resilient homes in Vietnam

Vietnam's Mekong Delta is home to 17 million people, mostly rice and fish farmers. Flooding is a natural occurrence for a delta and communities have traditionally built their houses on stilts for this reason. However, climate change is making floods more severe. The Global Resilience Partnership and the Zurich Foundation funded the Buoyant Foundation, a Canadian non-profit, to improve the flood resilience of local households. The project worked with local experts such as carpenters and community members to retrofit four traditional wooden homes to make them "amphibious" (Bouyant Foundation n.d.). Empty recycled jugs were fixed underneath the properties, allowing them to float when water levels rise, while vertical guideposts keep the buildings in place. The design supplements the traditional practice of building on stilts (Bouyant Foundation n.d.). The floating houses aim to reduce the loss and damage caused by flooding by protecting assets (including the houses themselves) and reducing economic and social disruption (Bouyant Foundation n.d.). Because the project worked to get local community members involved, based the designs on traditionally built houses and used local, affordable and recycled materials, the project should have a long-term legacy.

## 17. Resilient reconstruction in Dominica

The Housing Recovery Project was initiated after Hurricane Maria tore through Dominica in 2017. This project (running from 2018 to 2023 with support from the World Bank Group) sought to implement resilient building practices during recovery and reconstruction (World Bank 2018). Where houses were classified as destroyed, owners could apply for financial, technical and administrative assistance for reconstruction (Government of the Commonwealth of Dominica n.d.). Successful applicants were provided with small grants for owner-driven resilient reconstruction (World Bank n.d.b). The owner-driven component aimed to build the long-term capacity of local communities to improve the application of resilient building practices (World Bank n.d.b).

## 18. Slum upgrading in Mukuru, Kenya

Mukuru is one of Africa's largest informal settlements, with a population of more than 400,000 people. Lacking paved roads, an adequate sewer system, and flushing toilets (Muiruri 2021) a community-based programme looked to 'upgrade' the settlement. Muungano Alliance, a social movement that includes the Kenyan federation of slum dwellers (*Muungano wa Wanavijiji*), the Kenyan urban poor fund (Akiba Mashinani Trust), and the international NGO Slum Dwellers International (Muungano Wa Wanavijiji 2021), led the initial consultation process, during which thousands of households were asked for their views, and 250 community mobilisers were engaged to raise awareness of the project (Muiruri 2021). As part of the process, individual residents were tasked to represent a group of households, and residents collected data that mapped the entire settlement (Muiruri 2021).

Eventually, a needs-based plan was developed for improving the condition of the settlement. Development of the plan involved community members throughout the process. A consortium of 41 local and international organisations was formed (including civil society, academic institutions and the private sector) (Weru and Cobbett 2021). The consortium formed a partnership with the county government, and sectoral departments were brought together (Weru and Cobbett 2021). By 2017, Mukuru was deemed a special planning area by the Kenyan government with the intent to upgrade at scale (Muiruri 2021). A report found that Mukuru residents (under pressure from cartels) paid far more for basic services such as garbage collection, drinking water and electricity than people living in Nairobi's suburbs (Muiruri 2021). In 2021, Mukuru was under construction: the government has approved the construction of 13,000 new homes, the paving of roads (50km of which are still under construction), household connection to electricity, the construction of 1,000 flushing toilets, the building of stormwater drains and new hospitals (Muiruri 2021). Mukuru is an example of how underlying development factors such as lack of paved roads, drainage systems, running water, and extreme poverty and exploitation can compound the vulnerability of communities. Addressing these factors can make communities more resilient.

## 19. Disaster risk reduction and management in the Philippines

The Philippines is highly exposed to extreme weather events and experienced 565 disaster events from 1990 to 2019 (UNDRR 2019b). These events have caused loss of life, livelihoods and property, created food shortages, and an estimated US$23 billion in damages (UNDRR 2019b). Most of this loss and damage has resulted from recurrent massive-scale super typhoons: there were eight between 2009 and 2018. These super typhoons cause landslides, storm surges, and floods (UNDRR 2019b). Climate change will be a crucial factor contributing to stronger typhoons, elevated storm surges, and sea-level rise (UNDRR 2019b). With the Philippines having sensitive ecological systems and large coastal populations, they are one of the most at-risk countries to climate change as weather extremes increase in frequency and intensity (UNDRR 2019b).

In 2010, the Philippines enacted the Disaster Risk Reduction and Management Act as an all-hazard, multisectoral, inter-agency and community-based approach to disaster risk management (Grantham Research Institute on Climate Change and the Environment 2022). The Act shifted the paradigm from disaster response to a proactive disaster risk reduction and management approach (Grantham Research Institute on Climate Change and the Environment 2022). It provides for a national disaster risk reduction and management framework and institutionalises the national disaster risk reduction and management plan — becoming the country's guiding policy framework and legal instrument (UNDRR 2019b; Philippines Government 2010) sectors into physical and land-use planning, the budget, infrastructure, education, health, environment, housing, and other sectors (Grantham Research Institute on Climate Change and the Environment 2022).

The 2010 Act aimed to create an "enabling environment for substantial and sustainable participation of CSOs, private groups, volunteers and communities, and recognize their contributions in the Government's DRR efforts" (Philippines Government 2010). The Philippines also set up a National Disaster Reduction and Management Council, which comprises members from various government departments and agencies, CSOs and the private sector (UNDRR 2019b), and which serves as the highest decision-making body. The Philippines also looks to strengthen risk governance at the local level: it has taken steps to increase the capacity of local government units. Local government units remain integral across all phases of disasters — mandated by the Local Government Code of 1991 in facilitating the community during a disaster (Domingo and Manejar 2018). Starting in 2014, it established Disaster Risk Reduction and Management offices within Local Government Units (Philippines Government 2010).

## 20. Integrating risk into national policy in Vanuatu

Vanuatu, a South Pacific nation made up of roughly 80 islands, is highly vulnerable to climate change and other natural hazards. One of the SIDS, Vanuatu faces a set of climate risks common across the Pacific Islands, including sea-level rise, worsening cyclones, ocean heating and acidification, droughts and extreme precipitation (Vanuatu Government 2018).

Recognising that mobility would become more common as climate change worsens risks (and faced with non-climatic risks such as tsunamis and volcanic eruptions), Vanuatu in 2018 adopted a National Policy on Climate Change and Disaster-Induced Displacement (Vanuatu Government 2018). The first of its kind, this policy includes measures to integrate mobility into development planning, as well as actions on return and reintegration, and local integration (Vanuatu Government 2018). As part of the policy, after climate hazards or non-climatic hazards strike, communities are given support to either relocate and settle permanently or relocate and settle temporarily before returning to the impacted island at a later date (Anonymous Interviewee 25 2022). Of course, coordination of any policy at this scale comes with challenges, and coordination between national government, local governments, and local communities can be hindered by differences in expectation and institutional governance (Anonymous Interviewee 25 2022).

## 21. The resilient colline project in Burundi

With a history of ethnic-based civil conflict, Burundi is considered a fragile state, ranking 16th in the Fragile States Index 2021 country ranking (Fragile States Index 2021 n.d.). The history of conflict has resulted in communities being made up of internally displaced persons (IDPs), community returnees and host communities (Brown, CL 2020). In addition to this, Burundi faces vast poverty and land-use issues such as deforestation and soil erosion (Brown, CL 2020). Over 90% of Burundi's population relies on subsistence agriculture (Brown, CL 2020). These challenges make Burundi especially vulnerable to the impacts of climate change, with disenfranchised communities being hit by drought and flash flooding (Brown, CL 2020).

In late 2019, the Danish Refugee Council launched the resilient colline project. This project aimed to enhance the livelihoods, food security and climate resilience of the Giharo Commune in the ecologically degraded zone of Rutana Province through permaculture and agroecological-based resilience design (Brown, CL 2020). This included employing simple techniques such as stone works, water harvesting, crop diversification, permagardens and greywater recycling (Brown, CL 2020). IDPs, returnees, and host communities joined forces in training and implementing these components (Brown, CL 2020).

It is likely that communities in many at-risk countries will become displaced due to the increasing intensity and frequency of climate hazards. These communities, if displaced permanently, often lose their means of livelihood, their sense of place, their culture and the social cohesion on which they rely. Programmes looking to support these displaced communities cannot solely rely on quick fix 'handout' options such as one-off cash transfers but rather should work to strengthen a community's resilience and reinvigorate their livelihoods (Brown, CL 2020). Given that over 90% of Burundi's population relies on subsistence agriculture and communities are composed of various groups, bringing these groups together to reinvigorate the environment can work to build social cohesion as well as resilience, and be a means to a livelihood.

## 22. Sustainable solutions for women and mangroves in Papua New Guinea

Women in Papua New Guinea utilise mangrove forests to gather seafood for their families. As a result, women account for 60–80% of all food production (The Nature Conservancy 2020). Mangroves not only provide breeding and feeding grounds for fish and shellfish, but they also trap sediment and land runoff, protecting the coral reefs and seagrass (The Nature Conservancy 2020). Importantly, mangroves also work as a natural buffer against the impacts of king tides and storm surges — impacts that have worsened due to climate change (The Nature Conservancy 2020).

Mangroves around the world are under threat from climate change and anthropogenic factors. In response to this threat, women in Papua New Guinea have created the Mangoro Market Meri (Mangrove Market Women), a project led by women for women across Papua New Guinea that aims to manage mangroves in a sustainable way (The Nature Conservancy 2020). This project, which is supported by the Nature Conservancy Council, aims to increase education and awareness of the importance of mangroves, increase food security, create income-generating opportunities, and protect coastal communities from sea-level rise and storm surges (IPCC, 2012).

# Annex 2: Glossary of terms

**Acceptable loss and damage risks:** If loss and damage risks are acceptable, no further measures are required beyond those already implemented (Kreienkamp and Vanhala 2017).

**Adaptation:** Adjustment in natural or human systems in response to actual or expected climate stimuli or their effects, which moderates harm or exploits beneficial opportunities (IPCC 2007). Various types of adaptation can be distinguished, including anticipatory and reactive adaptation, private and public adaptation, and autonomous and planned adaptation

**Annex I Countries/Parties:** The group of countries included in Annex I (as amended in 1998) to the United Nations Framework Convention on Climate Change (UNFCCC), including all the developed countries in the Organization of Economic Co-operation and Development (OECD), and economies in transition.

**Annex II Parties:** The countries listed in Annex II to the UNFCCC, which have a special obligation to provide financial resources and facilitate technology transfer to developing countries. Annex II Parties include the 24 original OECD members plus the European Union.

**Anticipatory humanitarian actions:** Anticipatory humanitarian actions are actions taken in anticipation of a crisis, either before the shock or at least before substantial humanitarian needs have manifested themselves, which are intended to mitigate the impact of the crisis or improve the response (de Wit 2019). Anticipatory action is a proactive intervention, which takes place upon issuance of a warning or activation of a trigger. Effective anticipatory action requires robust forecasting and triggers/parameters linked to pre-agreed financing, along with risk monitoring and analysis, and groundtruthing capabilities

**Anticipatory cash transfers:** Delivery of cash transfers to households in advance of a shock to help them reduce the impact of it and to manage in the immediate aftermath; requires pre-arranged access to contingency finance that can be mobilised when shocks might tip households into crisis (Pople et al. 2021).

**Capacity building:** In the context of climate change, the process of developing the technical skills and institutional capability in developing countries and economies in transition to enable them to address effectively the causes and impacts of climate change.

**Contingency planning:** Contingency planning is a management tool that is used to prepare an organisation or community to be ready to respond effectively in the event of an emergency. Making a contingency plan involves making various decisions before an emergency happens. These decisions range from how to manage human and financial resources, how to best coordinate internally and with partners, and what communications procedures to put in place (IFRC 2012).

**Contingency finance:** Finance that is kept aside for the purposes of funding a disaster response in the future; contingency finance is usually disbursed using defined triggers (such as weather forecasts or normalised difference vegetation indexdata) to guide the release of funds.

**Disaster risk reduction:** Action taken to reduce the risk of disasters and the adverse impacts of natural hazards, through systematic efforts to analyse and manage the causes of disasters, including through avoidance of hazards, reduced social and economic vulnerability to hazards, and improved preparedness for adverse events (UNISDR 2009).

**Geographic information system (GIS):** A computer-based system designed to collect, store, manage and analyse spatially referenced information and associated attribute data.

**Global Environment Facility (GEF):** An independent financial organisation that provides grants to developing countries for projects that benefit the global environment and promote sustainable livelihoods in local communities. The Parties to the UNFCCC assigned operation of the financial mechanism to the GEF on an ongoing basis, subject to review every four years. The financial mechanism is accountable to the COP.

**Green Climate Fund (GCF):** An operating entity of the financial mechanism of the UNFCCC under Article 11. The GCF supports projects, programmes, policies and other activities in developing country Parties.

**Intergovernmental Panel on Climate Change (IPCC):** The international body for assessing the science related to climate change, set up in 1988 by the World Meteorological Organization and United Nations Environment Programme (UNEP) to provide policymakers with regular assessments of the scientific basis of climate change, its impacts and future risks, and options for action.

**Intolerable loss and damage risks:** As loss and damage risks become increasingly intolerable to affected communities, far-reaching 'transformative' measures may become necessary, such as voluntary migration or the development of new livelihoods (Kreienkamp and Vanhala 2017).

**Least Developed Countries (LDCs):** Generally taken to refer to the world's poorest countries. The criteria currently used by the Economic and Social Council (ECOSOC) for designation as an LDC include low income, human resource weakness and economic vulnerability. Currently, 48 countries have been designated by the UN General Assembly as LDCs. The LDCs are especially vulnerable to climate change but have done the least to cause the problem.

**Least Developed Countries (LDC) Group:** The grouping of 46 LDCs that negotiate as a bloc at the intergovernmental negotiations under the UNFCCC to represent their collective needs.

**Limits to adaptation:** The point at which adaptation to particular climate hazards is no longer possible. Limits to adaptation emerge as a result of the interactions among climate change and biophysical and socioeconomic constraints (medium evidence, high agreement). An adaptation limit occurs owing to the inability to avoid an intolerable risk to an actor's objectives and/or to the sustainability of a natural system (Klein et al. 2014). 'Hard' limits to adaptation occur when adaptive actions are no longer feasible to avoid losses and damages, which then become unavoidable. 'Soft' limits arise when technological and socioeconomic options are not immediately available or are not implemented in time to avoid risks through adaptive action, meaning that impacts and risks remain unavoided for the time being.

**Loss and damage**: According to the IPCC Working Group II report the term 'losses and damages' refers to "harm from (observed) impacts and (projected) risks and can be economic or noneconomic". The same report differentiates between 'losses and damages' and 'Loss and Damage', where 'Loss and Damage' refers to "political debate under the UNFCCC following the establishment of the Warsaw Mechanism on Loss and Damage in 2013".

**Loss and damage impacts:** The actual manifestation of losses and damages caused by climate change.

**Loss and damage risks:** The potential risks that losses and damages will be incurred in the future as a result of climate change.

**Maladaptation:** Actions that increase vulnerability to climate change. This includes making development or investment decisions while neglecting the actual or potential impacts of both climate variability and longer-term climate change (Burton, 1998).

**Mitigation:** Technological change and substitutions that reduce resource inputs and emissions per unit of output. Although several social, economic and technological policies would produce an emission reduction, with respect to climate change, mitigation means implementing policies to reduce greenhouse gas emissions and enhance carbon sinks (IPCC, 2007).

**Non-economic forms of loss and damage (NELDs):** Losses and damages that cannot be measured in purely economic terms. These may include loss of life, physical and mental health, culture, language and identity.

**Parametric insurance:** insurance policies that offer cover based on the probability of a pre-defined event taking place and that pay out according to a pre-defined scheme instead of requiring a lengthy claims adjustment process.

**Party:** A state (or regional economic integration organisation such as the European Union) that agrees to be bound by a treaty and for which the treaty has entered into force.

**Residual loss and damage risks:** Residual risk refers to the risk that losses and damages will occur even after adaptation and mitigation measures have been put in place.

**Resilience:** The ability of a system, community or society exposed to hazards to resist, absorb, accommodate and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions (UNISDR 2009).

**Risk transfer:** financial tools and mechanisms, often in the form of insurance, that allow individuals, households or countries to share the risk of future harmful events occurring.

**Risk pooling:** Risk pooling is a fundamental principle of risk management and insurance: by combining and spreading the risks faced by a large number of contributors into a single portfolio, pools ensure that each contributor's share of the portfolio is less risky than its initial share. Risk pooling does not reduce the underlying risk (which should be reduced through appropriate risk mitigation measures), but allows for improved spreading of risk, leading to reductions in the cost of risk, particularly for severe events (World Bank Group 2017).

**Small Island Developing States (SIDS):** The United Nations defines these as a distinct group of 38 UN Member States and 20 Non-UN Members/ Associate Members of United Nations regional commissions that face unique social, economic and environmental vulnerabilities.

**Tolerable loss and damage risks:** Tolerable loss and damage risks can be addressed through measures such as climate change adaptation or disaster risk reduction, however, capacity restraints will result in gaps between what is socially desirable and what is technically and financially feasible, highlighting the necessity of additional 'curative' measures to absorb remaining impacts (Kreienkamp and Vanhala 2017).

**Vulnerability:** The extent to which a natural or social system is susceptible to sustaining damage from hazards caused by climate change, and is a function of the magnitude of climate change, the sensitivity of the system to changes in climate, and the ability to adapt the system to changes in climate. Hence, a highly vulnerable system is one that is highly sensitive to modest changes in climate and one for which the ability to adapt is severely constrained (IPCC 2007).

# Further reading

### Publications

Tackling loss and damage: lessons from vulnerable countries, Simon Addison, Ritu Bharadwaj, Anna Carthy (2021), IIED Briefing

Loss and damage case studies from the frontline: a resource to support practice and policy, Ritu Bharadwaj, Clare Shakya (2021), Toolkit

Assessing vulnerabilities to disaster displacement: a good practice review. Sam Barrett, Dave Steinbach, Simon Addison (2021), Working Paper

Climate change loss and damage: 4th deliberative dialogue report, Ritu Bharadwaj, Clara Gallagher, Anna Carthy, Nora Nisi, Simon Addison, Clare Shakya (2021), Event report

Climate change loss and damage: 3rd deliberative dialogue report, Ritu Bharadwaj, Anna Carthy, Nora Nisi, Clara Gallagher, Simon Addison, Clare Shakya (2021), Event report

Climate change loss and damage: 2nd deliberative dialogue report, Ritu Bharadwaj, Nora Nisi, Clara Gallagher, Anna Carthy, Simon Addison, Clare Shakya (2021), Event report

Climate change loss and damage: 1st deliberative dialogue report, Ritu Bharadwaj, Clara Gallagher, Anna Carthy, Nora Nisi, Clare Shakya, Simon Addison (2021), Event report

Loss and damage in the Paris Agreement's global stocktake, Brook M Dambacher, Olivia Serdeczny, Ms Kunzang (2018), IIED Briefing

Connecting the dots: climate change, migration and social protection, Ritu Bharadwaj, Somnath Hazra, Mohan Reddy, Shouvik Das, Daljeet Kaur (2021), Working paper

Climate-induced migration and modern slavery: a toolkit for policymakers, Ritu Bharadwaj, Danielle Bishop, Somnath Hazra, Enock Pufaa, James Kofi Annan, (2021), Toolkit

### Additional resources

Press release: Low income countries urgently need finance, technology to address losses and damage due to climate change (October 2021)

Press release: Scotland pledges £6m for climate justice (October 2021)

Video: Tackling climate change in fragile states and protracted crisis situations (October 2021)

Event: Tackling climate change in fragile states and protracted crisis situations

Blog: Humanitarian action is part of climate response – but must be early and locally led, by Anna Carthy and Simon Addison (October 2021)

Podcast: Loss and damage – recognising the costs of climate change: Make Change Happen podcast episode 10 (March 2021)

Animation and blog series: Demanding attention for the loss and damage from climate change (2021)

Event: Loss and damage – research, policy and lived experience in least developed countries (September 2020)

### Web pages

https://www.iied.org/tackling-loss-damage-vulnerable-countries-improving-evidence-co-generating-pathways-impact

https://www.iied.org/demanding-attention-for-loss-damage-climate-change

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This paper presents a detailed overview of the nature of loss and damage risks that affect low-income countries, marginalised groups and people living in poverty in the global South, and how they might be addressed. Based upon a structured review of existing literature, and a series of deliberative dialogues, key informant interviews and consultations with representatives of affected communities and countries in LDCs and SIDS, we assess the current evidence on the key features of loss and damage risks. We then propose recommendations for policymakers and practitioners responsible for designing and delivering practical action to address loss and damage, especially those working at national and sub-national levels in LDCs and SIDS, and their international partners.



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