



A Real Mosaic of Solutions to Respond to Loss and Damage from Climate Change

Disaster Risk Reduction

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Introduction

This publication is part of a [series of briefs](#) unpacking the pieces of a fit for purpose “mosaic of solutions” to respond to loss and damage from climate change. This series expands on our earlier work which presented a five-year vision for Loss and Damage under the [United Nations Framework Convention on Climate Change \(UNFCCC\)](#) to look beyond the international climate regime at catalysing a wider mosaic of solutions.

In the [flagship paper](#) of the series, we unpack the pieces of the mosaic. In these thematic briefs we dive deeper into existing solutions and how they can be strengthened. We also consider any reforms needed and explore emerging solutions.

This brief unpacks the relationship between loss and damage and disaster risk reduction (DRR). It provides a short introduction to what DRR entails, highlights the challenges that developing countries face in implementing DRR, and how these challenges can be addressed.

What is disaster risk reduction?

Disasters are defined by the [United Nations Office for Disaster Risk Reduction \(UNDRR\)](#) as:¹

“A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to human, material, economic or environmental losses and impacts.”

DRR aims to prevent new disaster risk, reduce existing risk and manage residual risk (i.e. left over risk) that could not be prevented or reduced.² DRR is undertaken for all types of disaster risk and not just those related to climate change. For example, DRR covers risks related to water and weather (e.g. floods), geological events (e.g. volcanic activity), biological risks (e.g. pandemics), technological risks (e.g. nuclear emergencies), amongst others.

Even when DRR actions do not respond directly to climate risks, they can still help to prevent, reduce, and manage risks related to loss and damage. Key DRR actions include establishing early warning systems, conducting risk mapping, increasing the resilience of infrastructure, emergency planning and drills, stockpiling resources, such as food and medical supplies, and strengthening policy frameworks. Through effective DRR, risk reduction can be transformed into an opportunity to address root causes of vulnerability, such as poverty and inequality, and to advance sustainable development and justice.³

Studies show that every 1 USD invested in risk reduction and prevention can save up to 15 dollars in post-disaster recovery efforts.⁴ Thus, the more effective and extensive DRR is, the greater the prevention and reduction of loss and damage.

What are the existing solutions?

The Sendai Framework for Disaster Risk Reduction 2015-2030 (Sendai Framework) is the primary, non-binding global agreement guiding DRR.⁵ The framework has four key priorities for action:

1. Understanding disaster risk;
2. Strengthening disaster risk governance to manage disaster risk;
3. Investing in disaster risk reduction for resilience; and
4. Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation, and reconstruction.⁶

Under these priorities, Sendai Framework has outlined seven global targets to be achieved between 2015 and 2030.⁷ These targets include reducing global disaster mortality, costs, damage, and the number of people affected. Increasing the number of countries with national and local disaster risk reduction strategies.

Increasing finance and support for developing countries to implement DRR. As well as Increasing access to multi-hazard early warning systems, disaster risk information and assessments. Progress on achieving the targets of the Sendai Framework is tracked through the Sendai Framework Monitor, an online tool where countries report data on 38 indicators across the seven global targets.

Community-based disaster risk management (CBDRM) is critical for ensuring effective DRR. CBDRM is a participatory approach to DRR that equips at-risk communities to actively engage in the identification, analysis, treatment, monitoring, and evaluation of disaster risks. By centring local traditional and ecological knowledge, CBDRM can reduce vulnerabilities and enhance capacities to prevent and reduce loss and damage.⁸ Indigenous knowledge, particularly the accumulated experience that comes with the close relationship of Indigenous communities to their environment over generations, also has a critical role to play in CBDRM.⁹

What is the problem?

Climate change is increasing disaster risk by escalating the frequency, intensity, and duration of climate-related hazards like floods, droughts, and heatwaves.¹⁰ It is also increasing vulnerability to hazards through ecosystem degradation, reductions in water and food security, as well as by altering livelihoods.¹¹ With every increment of warming, risks will become increasingly complex and more difficult to manage, resulting in more loss and damage.¹²

Despite significant progress on DRR under the Sendai Framework, including a reduction in global average disaster-related mortality by 49 percent from 2005-2014 to 2014-2023,¹³ the number of people being affected by disasters worldwide has increased by 71 percent in the same period.¹⁴ Total disaster costs have exceeded 2.3 trillion USD annually and will likely continue to increase.¹⁵

Despite the money that can be saved through DRR, funding is not just lacking, it is not being allocated. Only 2 percent of official development assistance (ODA)¹⁶ and less than 3 percent of humanitarian assistance¹⁷ was invested in DRR between 2019-2023. Governments often allocate less than 1 percent of budgets to DRR.¹⁸ Disaster resilience is often not prioritised because it is wrongly perceived as politically risky – a cost for a disaster that might never happen within a political term.¹⁹ As a result, domestic and international spending is estimated to meet only 10 to 25 percent of needs for DRR and climate adaptation in most countries.²⁰

Other challenges include fragmented implementation of DRR within countries and gaps in data needed to plan and implement DRR, and track progress on the Sendai Framework's targets.²¹ CBDRM also faces significant challenges, including limited short-term funding, lack of technical capacity, and poor integration between local initiatives and national policies.²²

What do we need to see?

With a sharp rise in climate-related disasters, DRR must increase.²³ This will require solutions that deliver more coherent financing, enhanced data ecosystems, and stronger integration of risk assessments.²⁴ Developing countries must be supported by developed countries to meet the targets of the Sendai Framework by 2030. DRR data gaps must be closed to improve implementation and monitoring. DRR strategies must centre on CBDRM.²⁵ Communities must receive long term support for CBDRM, including capacity building support and accessible finance.

A [Treaty on the Protection of Persons in the Event of Disasters \(PPED\)](#) must be established by the end of 2027 to make DRR a compulsory legal requirement, supported by resources at the scale of the needs for developing countries to implement DRR actions.²⁶ The voluntary nature of the Sendai Framework's targets must be reviewed at a subsequent meeting of the [Global Platform for Disaster Risk Reduction \(GP\)](#).²⁷

The follow on from the Sendai Framework must retain a multi-hazard approach and embrace a broader vision of long term resilience building. It must prioritise systemic resilience²⁸ and risk-informed development that addresses both the root causes of vulnerability and cascading impacts.²⁹ This framework must be based on enforceable guidelines, rather than relying on aspirational goals.³⁰ Table 1 explores how these emerging and existing DRR solutions can be strengthened in greater detail.

Table 1 : Strengthening existing DRR solutions to prevent and reduce loss and damage.

CURRENT SOLUTIONS	HOW DOES IT WORK?	WHAT ARE THE ISSUES?	WHAT NEEDS TO CHANGE?
Sendai Framework for Disaster Risk Reduction	The Sendai Framework outlines seven global targets to be achieved between 2015 and 2030. ³¹ These targets include reducing global disaster mortality, costs, damage, and the number of people affected. They also include increasing the number of countries with national and local disaster risk reduction strategies, finance and support for developing countries to implement DRR as well as access to multi-hazard early warning systems and disaster risk information and assessments.	The world is largely not on track to meet the 2030 targets of the Sendai Framework. ³² The lack of progress is aggravated by the voluntary nature of the commitments. Finance is both lacking and not being allocated to DRR. ^{33,34,35,36,37}	Finance must increase and be allocated to DRR. Developing countries must be supported to meet the targets by developed countries. The voluntary nature of the targets should be reviewed at the next GP. ³⁸

CURRENT SOLUTIONS	HOW DOES IT WORK?	WHAT ARE THE ISSUES?	WHAT NEEDS TO CHANGE?
Treaty on the Protection of Persons in the Event of Disasters (PPED)	In 2024, the United Nations General Assembly (UNGA) agreed to elaborate and conclude a legally binding instrument by the end of 2027 on the PPED based on the International Law Commission's Draft Articles on the protection of persons in the event of disasters . ³⁹ A binding legal instrument would clarify and consolidate States' and other actors' obligations with respect to the management of disasters and disaster risk. It will also save lives by ensuring all people are protected in disasters, enhancing cooperation and ensuring DRR is prioritised. ⁴⁰	Opposition to a treaty on PPED is based on concerns regarding State sovereignty, the potential for political interference and the sufficiency of existing voluntary frameworks.	Legally binding frameworks will make DRR compulsory. For developing countries this must be accompanied by sufficient support from developed countries to achieve their DRR obligations. ⁴¹ The treaty on PPED could play an important role in achieving the targets of the Sendai Framework, and in establishing legally binding frameworks post-Sendai.
Community-Based Disaster Risk Management (CBDRM)	CBDRM is a participatory approach to DRR that empowers at-risk communities to actively engage in the identification, analysis, treatment, monitoring, and evaluation of disaster risks. By centring local knowledge, CBDRM can reduce vulnerabilities and enhance capacities to prevent and reduce loss and damage. ⁴² CBDRM that integrates Indigenous knowledge ensures that experience and solutions accumulated over generations through Indigenous Peoples' close relationship to their environment informs DRR activities. ⁴³	CBDRM faces significant challenges, including limited, short-term funding, lack of technical capacity, and poor integration between local initiatives and national policies. ⁴⁴ Other key barriers include low community engagement, failure to consider diverse local knowledge, ⁴⁵ and an over-emphasis on response rather than risk reduction.	Communities must receive long term support for CBDRM, including capacity building, technical assistance, and finance. Civil society networks including the Global Network of Civil Society Organisations for Disaster Reduction (GNDR) play a key role in championing CBDRM and must be supported to increase the capacities of communities and share best practices.

CURRENT SOLUTIONS	HOW DOES IT WORK?	WHAT ARE THE ISSUES?	WHAT NEEDS TO CHANGE?
Risk-informed Early Action Partnership (REAP)	The <u>Risk-informed Early Action Partnership (REAP)</u> brought together stakeholders from climate, humanitarian, and development sectors with the aim of making one billion people safer from disasters by 2025 through a shift towards early, risk-informed action. REAP integrated DRR with climate adaptation and humanitarian response, focusing on strengthening early warning systems, financing, and national policy frameworks.	REAP faced significant challenges in scaling up anticipatory action, primarily due to fragmented and insufficient financing, weak integration of early warnings into national policies, and a lack of, or, disjointed, coordination among stakeholders. ⁴⁶	REAP is continuing its mandate beyond 2025, aiming for 2030. The partnership is shifting focus towards embedding early action in local systems, increasing sustainable financing, and strengthening coherence between humanitarian, development, and climate communities. ⁴⁷ REAP and its partners must receive scaled up sustainable funding from developed countries. Developed countries must exceed the ODA target of 0.7 percent of gross national income.

Endnotes

- 1 United Nations Office for Disaster Risk Reduction (2017). The Sendai Framework Terminology on Disaster Risk Reduction. "Disaster risk reduction". *United Nations Office for Disaster Risk Reduction*. Available [here](#).
- 2 Ibid.
- 3 Thomalla, F. (2018). Transforming development and disaster risk. *White Rose Research Online*. Available [here](#).
- 4 United Nations Office for Disaster Risk Reduction (2025). Global Assessment Report on Disaster Risk Reduction. *United Nations Office for Disaster Risk Reduction*. Available [here](#).
- 5 United Nations Office for Disaster Risk Reduction (no date given). What is the Sendai Framework for Disaster Risk Reduction? *United Nations Office for Disaster Risk Reduction*. Available [here](#).
- 6 Ibid.
- 7 Prevention Web (no date given). Sendai Framework at a Glance. *Prevention Web*. Available [here](#).
- 8 National Disaster Management Authority (no date given). Community-Based Disaster Risk Management (CBDRM). *National Disaster Management Authority*. Available [here](#).
- 9 United Nations Office for Disaster Risk Reduction (2022). Words Into Action: Using Traditional and Indigenous Knowledges for Disaster Risk Reduction. *United Nations Office for Disaster Risk Reduction*. Available [here](#).
- 10 Wahlström, M. (2009). Disaster Risk Reduction, Climate Risk Management and Sustainable Development. *World Meteorological Organization*. Available [here](#).
- 11 Ibid.
- 12 Intergovernmental Panel on Climate Change (2023). AR6 Synthesis Report: Summary for Policymakers Headline Statements. *Intergovernmental Panel on Climate Change*. Available [here](#).
- 13 Average disaster-related mortality declined by 49 percent, from 1.62 per 100,000 population in 2005-2014 to 0.82 in 2014-2023. See: United Nations Office for Disaster Risk Reduction (2024). UNDRR Sendai Framework Monitor: Decrease in global disaster mortality, rise in affected populations. *United Nations Office for Disaster Risk Reduction*. Available [here](#).
- 14 The number of disaster-affected people increased by 71 percent, rising from 1,187 per 100,000 population in 2005-2014 to 2,032 in 2014-2023: See: United Nations Office for Disaster Risk Reduction (2024). UNDRR Sendai Framework Monitor: Decrease in global disaster mortality, rise in affected populations. *United Nations Office for Disaster Risk Reduction*. Available [here](#).
- 15 United Nations Office for Disaster Risk Reduction (2025). Global Assessment Report on Disaster Risk Reduction. *United Nations Office for Disaster Risk Reduction*. Available [here](#).
- 16 United Nations Office for Disaster Risk Reduction (no date given). Financing prevention and de-risking investment. *United Nations Office for Disaster Risk Reduction*. Available [here](#).
- 17 Ibid.
- 18 United Nations Office for Disaster Risk Reduction (2020). Disaster Risk Reduction investment in Africa – Evidence from 16 risk-sensitive budget reviews. *United Nations Office for Disaster Risk Reduction*. Available [here](#).
- 19 United Nations Office for Disaster Risk Reduction (no date given). Financing prevention and de-risking investment. *United Nations Office for Disaster Risk Reduction*. Available [here](#).
- 20 United Nations Office for Disaster Risk Reduction (2024). Resilience expenditure landscape: Tracking spending on disaster risk reduction and climate change adaptation. *United Nations Office for Disaster Risk Reduction*. Available [here](#).
- 21 Panwar, V. et al. (2023). Financial arrangements for addressing losses and damages: A disaster risk reduction primer. *ODI London*. Available [here](#).
- 22 Cvetković, V., Aleksova, B. et al. (2026). Community-Based Disaster Risk Reduction: Overcoming Barriers to Build Stronger Communities. *Research Gate*. Available [here](#).

- 23 United Nations Office for Disaster Risk Reduction (2020). The human cost of disasters: an overview of the last 20 years (2000-2019). *United Nations Office for Disaster Risk Reduction*. Available [here](#).
- 24 Panwar, V. et al. (2023). Financial arrangements for addressing losses and damages: A disaster risk reduction primer. *ODI London*. Available [here](#).
- 25 National Disaster Management Authority (no date given). Community-Based Disaster Risk Management (CBDRM). *National Disaster Management Authority*. Available [here](#).
- 26 United Nations Office for Disaster Risk Reduction (2024). One step closer to legal protection from disasters. *United Nations Office for Disaster Risk Reduction*. Available [here](#).
- 27 Ibid.
- 28 Gogerty, E. (2025). Ten years of Sendai: five big changes in disaster risk reduction and what comes next. *Prevention Web*. Available [here](#).
- 29 Ibid.
- 30 Ibid.
- 31 Prevention Web (no date given). Sendai Framework at a Glance. *Prevention Web*. Available [here](#).
- 32 Sendai Framework online Monitoring tool (2025). Measuring implementation of the Sendai Framework. *Sendai Framework online Monitoring tool*. Available [here](#).
- 33 United Nations Office for Disaster Risk Reduction (no date given). Financing prevention and de-risking investment. *United Nations Office for Disaster Risk Reduction*. Available [here](#).
- 34 Ibid.
- 35 United Nations Office for Disaster Risk Reduction (2020). Disaster Risk Reduction investment in Africa – Evidence from 16 risk-sensitive budget reviews. *United Nations Office for Disaster Risk Reduction*. Available [here](#).
- 36 United Nations Office for Disaster Risk Reduction (no date given). Financing prevention and de-risking investment. *United Nations Office for Disaster Risk Reduction*. Available [here](#).
- 37 United Nations Office for Disaster Risk Reduction (2024). Resilience expenditure landscape: Tracking spending on disaster risk reduction and climate change adaptation. *United Nations Office for Disaster Risk Reduction*. Available [here](#).
- 38 United Nations Office for Disaster Risk Reduction (2024). One step closer to legal protection from disasters. *United Nations Office for Disaster Risk Reduction*. Available [here](#).
- 39 Ibid.
- 40 International Federation of Red Cross and Red Crescent Societies (no date given). Treaty on the Protection of Persons in the Event of Disasters. *International Federation of Red Cross and Red Crescent Societies*. Available [here](#).
- 41 Global Network of Civil Society Organisations for Disaster Reduction (GNDR) (2025). GNDR: Call to Action for the 8th Session of the Global Platform for Disaster Risk Reduction (GPDRR). *Prevention Web*. Available [here](#).
- 42 National Disaster Management Authority (no date given). Community-Based Disaster Risk Management (CBDRM). *National Disaster Management Authority*. Available [here](#).
- 43 United Nations Office for Disaster Risk Reduction (2022). Words Into Action: Using Traditional and Indigenous Knowledges for Disaster Risk Reduction. *United Nations Office for Disaster Risk Reduction*. Available [here](#).
- 44 Cvetković, V., Aleksova, B. et al. (2026). Community-Based Disaster Risk Reduction: Overcoming Barriers to Build Stronger Communities. *Research Gate*. Available [here](#).
- 45 Trogrlić, S. Duncan, M. et al. (2022). Why does community-based disaster risk reduction fail to learn from local knowledge? Experiences from Malawi. *International Journal of Disaster Risk Reduction*. Available [here](#).
- 46 KPMG AS (2025). Early Action The State of Play 2024. *Risk-informed Early Action Partnership*. Available [here](#).
- 47 Risk-informed Early Action Partnership Secretariat (2025). COP30: Early Warning, Early Action and the Road Ahead for REAP. *Risk-informed Early Action Partnership*. Available [here](#).

