



PEDRR
Ecosystems for Disaster Risk Reduction
and Adaptation

FEBA
Friends of Ecosystem-based Adaptation

LOSS & DAMAGE, ECOSYSTEM INTEGRITY AND NATURE-BASED SOLUTIONS

FEBA-PEDRR ISSUE BRIEF FOR UNFCCC COP27

This brief provides an overview of the discussions regarding Loss & Damage (L&D) at UNFCCC COP27, with a focus on how the implementation and financing of Nature-based Solutions can contribute to averting, minimizing and addressing Loss & Damage. This brief meets a request from the FEBA and PEDRR networks to both provide clarity and elevate a collective voice of the adaptation and disaster risk reduction communities around key aspects of the issue, and how and where issues of ecosystem integrity and Nature-based Solutions are relevant in the negotiations.

Disclaimer

This paper is presented as a contribution to the ongoing negotiations on Loss & Damage under the UNFCCC. The views presented herein do not necessarily represent the official position of any organisations listed. The content of this document does not preclude the debates to be held in and the outcomes of the meetings related to UNFCCC negotiations.

INTRODUCTION: WHAT IS LOSS & DAMAGE?

The term Loss & Damage (L&D) is used in UN climate negotiations to refer to the effects of climate change that are beyond current means of adaptation, reflecting the significant impact climate change is already having on livelihoods, infrastructure, and ecosystems around the world¹. Millions of people are facing the immediate and unavoidable impacts of climate change through both slow onset events (such as sea level rise, increasing temperatures, droughts, ocean acidification, loss of biodiversity and ecosystem services and glacial retreat) and rapid onset events (such as floods, wildfires, hurricanes and cyclones), leading to economic and non-economic losses. The loss and degradation of ecosystems, exacerbated by climate change, is a major component of L&D.

Loss & Damage, at its core, is an issue of climate justice – defined by the fact that global action on mitigation is not sufficient nor rapid enough – and that the responsibility for historic global emissions is starkly disproportionate, and that unequal vulnerabilities result in certain countries, regions, communities, and particularly marginalized groups bearing an excessive share of climate impacts.

Insufficient mitigation and adaptation actions and investment, coupled with limits of adaptation, requires global recognition and associated support for L&D. Actions to avert, minimize and address L&D – particularly those underpinned by the conservation, restoration, and sustainable management of ecosystems – can support vulnerable communities to mitigate risks and adapt to and cope with climate hazards. Investment in Nature-based Solutions (NbS)² provides one of the most cost-effective means to create climate resilience for vulnerable and marginalized communities and the ecosystems they depend on, and offers one pathway to averting, minimizing and addressing L&D.

However, L&D is also experienced by the ecosystems at the core of NbS, reducing their capacity to achieve intended results. For instance, the effects of climate change on [agricultural sectors, including crop, livestock, forestry, and fishery and aquaculture](#), have been [significant](#), representing up to 26 percent of the overall impact caused by medium- to large-scale disasters in low- and lower-middle-income

¹ <https://www.wri.org/insights/loss-damage-climate-change>

² *UNEA Resolution (UNEP/EA.5/Res.5) defines Nature-based Solutions (NbS) as ‘actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services, resilience and biodiversity benefits’. This definition directly builds on and incorporates the IUCN definition of NbS that was adopted by IUCN’s 1,400+ State and NGO Members at the 2016 IUCN World Conservation Congress.*

countries. Given these challenges, we emphasize that the losses of ecosystems and their services from disasters, and the resulting effect on future risk reduction, are neglected in L&D negotiations, and requires additional recognition and evidence-based research.

LOSS & DAMAGE IN THE UNFCCC PROCESS & BEYOND

Since the formation of the UNFCCC, the most climate-vulnerable countries have called for both recognition of and technical and financial assistance for L&D. Although countries have noted that financing for L&D is important for vulnerable communities to mitigate risks and adapt to and cope with climate hazards, there are divergent views on both historical responsibility and principles of equity. L&D first appeared in a negotiated outcome in 2007 within the Bali Action Plan³, and gained additional traction in 2013 with the establishment of the Warsaw International Mechanism on Loss & Damage (WIM). The adoption of the Paris Agreement in 2015 recognized L&D in [Article 8](#), with a caveat that it does not involve nor provide a basis for any liability or compensation. This rule, in addition to the overall ambiguity of L&D throughout the UNFCCC negotiations, has stymied action for finance⁴.

COP26 saw increased momentum on providing L&D finance. The [Glasgow Dialogue](#) on L&D was established and set to convene from 2022 to 2024⁵. Additionally, the [Glasgow Climate Pact](#) strengthened the Santiago Network to advance the work of L&D assistance, and “urges developed country Parties” among other entities “including non-governmental organizations and private sources, to provide enhanced and additional support for activities addressing loss and damage⁶.” It also calls on Parties to provide support to the network in its commitment to increase technical assistance for L&D. Since then, several developed countries have committed finance, including Canada, Denmark, Germany, New Zealand, and Scotland. The hope from many is that a specific finance mechanism will be established at COP27 in Egypt this November to support countries coping with the current and emerging impacts of L&D.

³ UNFCCC (United Nations Framework Convention on Climate Change). (2008). *Report of the Conference of the Parties on its Thirteenth Session, held in Bali from 3 to 15 December 2007. Addendum. Part Two. Action taken by the Conference of the Parties at its Thirteenth Session (FCCC/CP/2007/6/Add.1)*.

⁴ Matthew Lai, Stacy-ann Robinson, Emmanuel Salas, William Thao & Anna Shorb (2022): *Climate justice for small island developing states: identifying appropriate international financing mechanisms for loss and damage*, *Climate Policy*.

⁵ See also, *Glasgow Climate Dialogue Event Report: Loss & Damage*

⁶ UNFCCC. (2021). *Glasgow Climate Pact. Section IV*

EVALUATING LOSS AND DAMAGE OF ECOSYSTEM INTEGRITY

The extent of L&D from climate change depends on several factors including vulnerability due to ecosystem loss and degradation. The relationship between climate vulnerability and ecosystem health is reciprocal: while healthy ecosystems enhance climate resilience, the effects of climate change typically reduce the ability of ecosystems to provide these services. While NbS can act as a robust tool for averting, minimizing and addressing L&D, the ability to achieve all the benefits of NbS is also at risk from unmitigated climate change given its detrimental effects on ecosystems. For example, sea level rise threatens mangrove ecosystems because their sensitivity to inundation rates and salinity⁷, which can lead to reduced productivity⁸ and decreased capacity to provide protection from storm surges and erosion.

Environmental degradation due to climate change increases the challenge of establishing equitable L&D financing given the non-monetary, incommensurable, and context-dependent values of these effects. The intrinsic value of biodiversity, for instance, or the material and cultural losses of land and livelihoods for those that depend on and live in affected environments is not easily translated into a simple economic value. Even where L&D is more readily calculable, there are still challenges in accurately quantifying the amount. Given that L&D is covered in Article 8 of the Paris Agreement, it is possible that it will be a component of the Global Stocktake, but the extent of this evaluation is unclear⁹. What is clear so far is that there are significant gaps in adaptation finance and action, and climate related losses in productive landscapes. Moreover, losses of ecosystems and their services from disasters, and the resulting effect on future risk reduction, are neglected in the L&D negotiations and should receive additional recognition and investment in evidence-based research¹⁰.

⁷ Ball, Marilyn C., Io Ro Cowan, and Graham D. Farquhar. "Maintenance of leaf temperature and the optimisation of carbon gain in relation to water loss in a tropical mangrove forest." *Functional Plant Biology* 15, no. 2 (1988): 263-276.; Friess, Daniel A., Ken W. Krauss, Erik M. Horstman, Thorsten Balke, Tjeerd J. Bouma, Demis Galli, and Edward L. Webb. "Are all intertidal wetlands naturally created equal? Bottlenecks, thresholds and knowledge gaps to mangrove and saltmarsh ecosystems." *Biological Reviews* 87, no. 2 (2012): 346-366.

⁸ Castañeda-Moya, Edward, Robert R. Twilley, and Victor H. Rivera-Monroy. "Allocation of biomass and net primary productivity of mangrove forests along environmental gradients in the Florida Coastal Everglades, USA." *Forest Ecology and Management* 307 (2013): 226-241.

⁹ Calliari, Elisa, Sergio Castellari, McKenna Davis, Joanne Linnerooth-Bayer, Juliette Martin, Jaroslav Mysiak, Teresa Pastor et al. "Building climate resilience through nature-based solutions in Europe: A review of enabling knowledge, finance and governance frameworks." *Climate Risk Management* (2022): 100450; Thomas, A., Serdeczny, O. & Pringle, P. Loss and damage research for the global stocktake. *Nat. Clim. Chang.* 10, 700 (2020).

¹⁰ Walz, Yvonne, Janzen, Sally, Narvaez, Liliana, Ortiz-Vargas, Andrea, Woelki, Jacob, Doswald, Nathalie and Sebesvari, Zita, (2021). Disaster-related losses of ecosystems and their services. Why and how do losses matter for disaster risk reduction?. *International Journal for Disaster Risk Reduction*, 63(102425), 1-16

In addition to financing gaps, there are related issues of implementation, where focus on adaptation planning through National Adaptation Plans (NAPs) are not having ground-level effects at sufficient pace yet (see [Technical Dialogue of Global Stocktake](#))¹¹. Together with drastic cuts in global emissions, investing in NbS for climate action provides a critical pathway for enhancing the climate resilience for vulnerable and marginalized communities and the ecosystems they depend on. However, ecosystem integrity and the effectiveness of NbS interventions are also at risk from unmitigated climate change. The losses of ecosystems and their services from disasters, and the resulting effect on future risk reduction, are neglected in the L&D negotiations and requires additional recognition and evidence-based research¹².

AVERTING AND MINIMIZING LOSS AND DAMAGE THROUGH NBS

Nature-based solutions (NbS) – centered on the conservation, restoration and management of the world’s ecosystems – are an essential component of providing protection from climate change impacts (averting L&D) while also slowing further warming (minimizing L&D), together with supporting biodiversity and providing ecosystem services. Collectively, NbS have the potential to save up to 10GT of CO₂ per year, more than the emissions from the entire global transportation sector¹³. Together with the potential to reduce the intensity of climate hazards by 26 percent, this represents protection against the economic cost of climate change by USD 104 billion by 2030 and USD 393 billion by 2050¹⁴.

In the same way that well-designed NbS can contribute to both climate adaptation and mitigation, investment in NbS can offer one means to avert and minimize L&D. When implemented properly and following [robust standards and criteria](#), NbS can

¹¹ *Linking policy and implementation efforts: From UNEP-EbA Supplementary EbA Guidelines (p.56): "As most (EbA) implementation will be local, at the subnational level, link the NAP strategies and plans to local climate change action plans and subsector plans, while identifying specific ecosystems for implementing the national strategies, policies and programmes. As most adaptation is localized, local governments and stakeholders need to be fully engaged in implementing EbA measures that are appropriate for the local context. Ensure that all local stakeholders are fully empowered to participate in implementation, as their buy-in may be essential for the long-term sustainability of EbA measures long after a specific project is implemented. As funding for the local government often depends on national allocations, also examine budget applications for local climate projects to identify possible EbA approaches"*

Source:

United Nations Environment Programme (2021). *Guidelines for Integrating Ecosystem-based Adaptation into National Adaptation Plans: Supplement to the UNFCCC NAP Technical Guidelines*. Nairobi.

¹² Walz, Yvonne, Janzen, Sally, Narvaez, Liliana, Ortiz-Vargas, Andrea, Woelki, Jacob, Doswald, Nathalie and Sebesvari, Zita, (2021). *Disaster-related losses of ecosystems and their services. Why and how do losses matter for disaster risk reduction?. International Journal for Disaster Risk Reduction*, 63(102425), 1-16.

¹³ *Nature-based solutions can help cool the planet – if we act now*. Girardin et al, 2021.

¹⁴ *IFRC and WWF, 2022. Working with Nature to Protect People*.

enhance the resilience of ecosystems and the societies that depend on them to respond to climate hazards such as sea level rise and more frequent and intense flooding, droughts, heatwaves and wildfires. These NbS strategies should also deliver significant biodiversity benefits in a manner that safeguards and promotes the rights and interests of vulnerable and historically marginalized communities.

A recent review of evidence for NbS found that they can offer the following climate benefits:

- “(i) protecting, restoring or managing natural forests and wetlands in catchment areas (for example, in headwaters and along rivers) in many cases can secure and regulate water supplies, reduce flood risk and/or reduce exposure to soil erosion and landslides;
- (ii) restoring coastal ecosystems (i.e. mangroves, coral reefs, oyster beds and saltmarshes) protects communities from coastal flooding, reduces damages caused by storm surges and limits coastal erosion;
- (iii) nature-based agricultural practices such as agroforestry (planting trees among crops or crops among trees) can maintain and in some cases enhance yields in drier, more variable climates; and
- (iv) creating green roofs and walls, and/or planting trees and increasing green space in and around urban areas can moderate the impacts of heat waves and regulate water flow)”¹⁵

ADDRESSING LOSS & DAMAGE: FINANCE & ADDITIONAL SUPPORT

The challenge of negotiations on L&D hinges on unresolved issues of how it should be financed and who should pay. The primary tension involves those that see the issue as one of climate justice, calling for developed countries and high-emission industries to foot the bill versus the [negotiating position of states](#) who have pushed back against even using the term ‘Loss & Damage’ in IPCC reports. What is clear from current assessments of adaptation following the Global Stocktake’s Technical Dialogues is that both mitigation and adaptation actions have fallen short, and there are significant shortfalls in both adaptation and mitigation finance. Reducing these gaps are essential to preventing further L&D, but also highlights the need for additional support to address climate effects as they are experienced. Climate justice advocates argue that it should not fall on [frontline communities](#) – those who have

¹⁵ Seddon Nathalie, Chausson Alexandre, Berry Pam, Girardin Cecile A. J., Smith Alison and Turner Beth. (2020). *Understanding the value and limits of nature-based solutions to climate change and other global challenges Phil. Trans. R. Soc.*

contributed the least to global emissions – to take on the additional burden of financing recovery. The question of who should pay, what sort of finance structure should be established, and how the funds should be distributed is currently under negotiation. There is related research discussing and evaluating the most effective and equitable solutions to the question of finance¹⁶.

The impacts from climate change emphasize the links between the most vulnerable communities and the ecosystems they depend on. Accelerating climate change due to inadequate emissions reductions places extra strain on the work of conserving and restoring ecosystems for mitigation and adaptation. Therefore, investment in L&D, specifically that for L&D with no direct economic attribution (such as biodiversity loss, forest degradation, coastal erosion, land loss, etc.) is an essential component of maintaining and advancing progress on NbS for adaptation and mitigation.

NbS for climate change, especially nature restoration, are important to address L&D because they can help recover non-economic losses driven by climate change. The restoration of ecosystems can support the maintenance of biodiversity and ecosystem services, cultural heritage, livelihoods, and traditional ecological knowledge. NbS can also play a key role for places that under new climate conditions will become important habitat for species at risk of extinction or more suitable for agricultural activities. However, it is important to improve understanding and documentation of losses and damages related to nature, natural resources, and ecosystem services. This can be done through targeted natural capital valuation or environmental assessments that include the evaluation of social-ecological values, impacts and needs.

We recognize that the ideal mechanism for funding loss and damage is still unclear. However, we note that it is certain that the effects of climate change are accelerating and that actions on and finance for adaptation are falling behind. So far only 5% of global climate finance flows are spent on adaptation¹⁷, and only [1.4% of this on NbS for adaptation](#)¹⁸. Investment in NbS provides one of the most cost-effective means to build climate resilience for vulnerable and marginalized communities and the ecosystems they depend on. In the negotiations at UNFCCC COP27 and beyond, we encourage actions that (1) recognize the role of ecosystems; (2) increase overall investment on NbS for both adaptation and mitigation; (3) recognize urgent, fair and equitable responsibility for addressing, minimizing and averting L&D.

¹⁷ UNEP, UNEP DTU Partnership, World Adaptation Science Programme (WASP). “Adaptation Gap Report 2020.” (14, January 2021).

¹⁸ WRI. “Public International Funding of Nature-based Solutions for Adaptation: A Landscape Assessment.” (21, March 2021).

ABOUT FEBA AND PEDRR

FEBA

Friends of Ecosystem-based Adaptation (FEBA) is a global collaborative network of more than 100 agencies and organisations working on EbA working jointly to share experiences and knowledge, to improve the implementation of EbA related activities on the ground, and to raise awareness and understanding of nature-based solutions in adaptation planning processes and multilateral policy frameworks. The CBD COP recognizes FEBA as a key partner “to support Parties in their efforts to promote ecosystem based approaches to climate change adaptation” (Decision 14/5).”

PEDRR

The Partnership for Environment and Disaster Risk Reduction (PEDRR) is a global alliance of 27 UN agencies, NGOs and specialist institutes. PEDRR is the clearinghouse for knowledge, training, advocacy and practice on Ecosystem-based Disaster Risk Reduction.

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