

# Underfinanced. Underprepared.

Inadequate investment and  
planning on climate adaptation  
leaves world exposed

## Executive Summary



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## **Adaptation Gap Report 2023**

## Executive summary

Despite the clear signs of accelerating climate risks and impacts worldwide, the adaptation finance gap is widening and now stands at between US\$194 billion and US\$366 billion per year. Adaptation finance needs are 10–18 times as great as current international public adaptation finance flows – at least 50 per cent higher than previously estimated.

This is the main conclusion of a comprehensive assessment of the literature and new analyses to provide updated estimates of the costs and needs of adaptation in developing countries, as well as the international finance flows required to address these needs. The report also provides updates on adaptation planning and implementation and concludes that global progress on adaptation is slowing rather than showing the urgently needed acceleration.

In view of ever-increasing weather extremes such as a multi-year drought in East Africa, flooding in China and Europe, and extreme heat and wildfires in the United States of America and Canada, among others, narrowing the adaptation finance gap is of particular importance because of the high benefits that investments in adaptation can offer in terms of reducing climate risks and improving equity and climate justice. Left unchecked however, increasing climate risks will inevitably lead to more climate-related losses and damages. Therefore, the Adaptation Gap Report 2023 (AGR 2023) also focuses on loss and damage to support Parties in the negotiations following the decision at the twenty-seventh session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 27) in Sharm El-Sheikh to establish a loss and damage fund and funding arrangements for vulnerable developing countries.

### **Global temperatures and climate impacts and risks continue to rise, highlighting the urgent need for rapid acceleration of global adaptation action.**

Current climate action is woefully inadequate to meet the temperature and adaptation goals of the Paris Agreement. While global average temperatures are already exceeding 1.1°C above pre-industrial levels, current plans reflected in the nationally determined contributions (NDCs) are putting us on a path towards 2.4°C–2.6°C by the end of the century.

Even if the rise in temperature eventually slows as a result of more ambitious collective climate change mitigation efforts, climate risks will accelerate with every fraction of a degree because of the compounding and cascading nature of climate-related impacts.

In addition, the Intergovernmental Panel on Climate Change (IPCC) concludes that residual climate risks – that is risks remaining after ambitious adaptation efforts – will persist even if the Paris Agreement goals are reached. Residual climate risks, in turn, will inevitably lead to both economic and non-economic losses and damages (figure ES.1). This demonstrates the importance of accelerating and scaling up both mitigation and adaptation action, to respectively avert catastrophic climate change and minimize the climate impacts that remain. In addition, more focus must be placed on anticipatory, just and effective adaptation action and support.

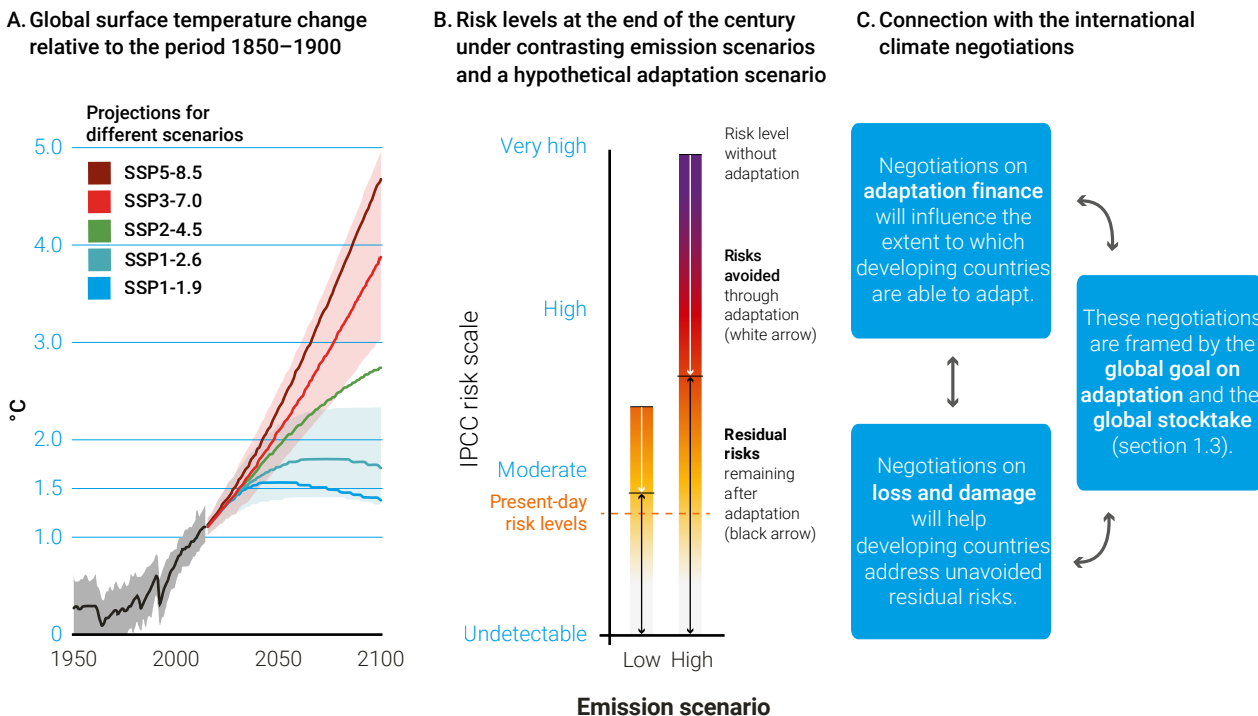
### **One out of six countries still does not have a national adaptation planning instrument and more must be done to close the remaining gap.**

Five out of six Parties to the United Nations Framework Convention on Climate Change (UNFCCC) have established at least one national adaptation plan, strategy or policy, and just under half of them have two or more national-level instruments, which serve to replace or update the initial ones (figure ES.2). Moreover, 25 per cent of countries have put in place legal instruments that require national governments to plan for adaptation. There has also been significant improvement in certain aspects of the potential adequacy and effectiveness of adaptation planning<sup>1</sup> since 2021. Both findings suggest a growing determination to address climate risks, but more needs to be done to ensure implementation of planning instruments. Meanwhile, 15 per cent of Parties still do not have a national adaptation planning instrument, and the rate of increase dropped from 4 per cent to 1 per cent in 2022. While half of the 29 countries without any such instrument are in the process of developing one, most of them are particularly vulnerable to climate impacts, and more must be done to support them to close the remaining gap faster.

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<sup>1</sup> In the absence of an agreed definition, potential adequacy and effectiveness of national adaptation planning processes are assessed through using comprehensiveness, inclusiveness, implementability, integration, and monitoring and evaluation as proxy metrics.

**Figure ES.1** The conceptual landscape of the Adaptation Gap Report series: connecting temperature change and levels of climate risk and adaptation with the international climate negotiations



Source: Panel A inspired by IPCC (2022, 2023). <https://www.ipcc.ch/report/ar6/syr/figures/figure-spm-4> and <https://www.ipcc.ch/report/ar6/wg1/figures/summary-for-policymakers/>. Panels B and C: Authors' own elaboration.

Note: SSP stands for shared socioeconomic pathway.

**Figure ES.2** Number of national adaptation planning instruments published globally each year, as at 5 August 2023



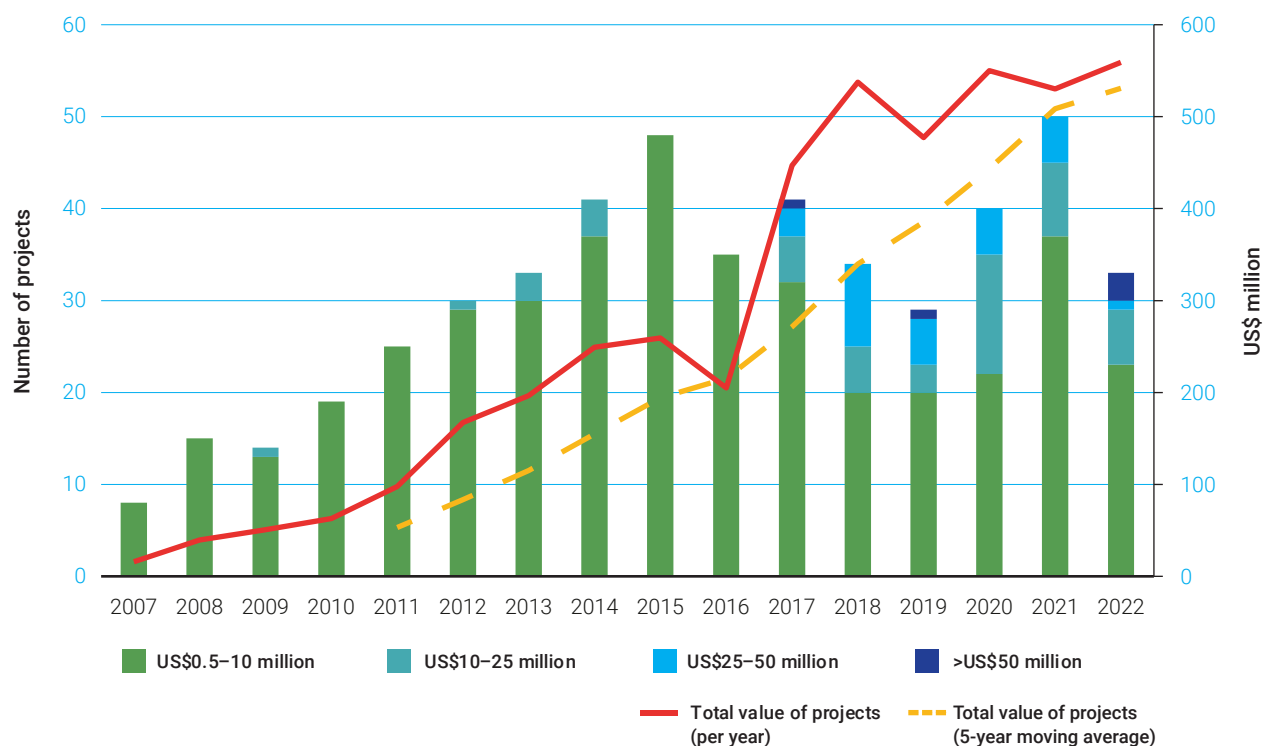
**Progress in adaptation implementation in developing countries is plateauing.**

The number of adaptation actions supported through the four international climate funds<sup>2</sup> was lower in 2022 than in the previous year but their value has been rising due to investments in very large projects (figure ES.3). This probably does not reflect a trend, but rather points to fluctuations driven by non-climate-related events such as COVID-19 and the war in Ukraine. While there is significant variability in both value and number of new projects, the financial value continues to grow whereas the number of new projects appears to have stagnated for the past decade.

This means that the gap between implementing adaptation actions and the accelerating climate risks is widening.

Considering that the AGR’s first detailed analysis of adaptation communications shows that a majority of actions implemented by developing countries depend on external financial support, failure to reinvigorate investments in adaptation action will inevitably lead to more unabated climate impacts and subsequent loss and damage. This will make debt-ridden developing countries even more vulnerable to climate-related extreme events and slow onset changes and is particularly true for least developed countries (LDCs) and small island developing States (SIDS).

**Figure ES.3** Number of new adaptation projects funded through the UNFCCC climate funds



**Estimated adaptation costs and needs for developing countries are significantly higher than previous estimates, with a plausible central range of US\$215 billion to US\$387 billion per year this decade.**

This year’s AGR has undertaken a comprehensive assessment of the literature and has commissioned new studies to provide updated estimates, using two major evidence lines. First, based on modelling analysis, the AGR 2023 estimates the costs of adaptation for developing countries (i.e. non-Annex I countries) in this decade at approximately US\$215 billion per year (range: US\$130 billion

to US\$415 billion). These adaptation costs are projected to rise significantly by 2050 because of growing climate risks. Second, the AGR 2023 has also assessed the adaptation finance needed to implement domestic adaptation priorities, based on extrapolation of costed NDCs and national adaptation plans (NAPs) to all developing countries. These are estimated to be US\$387 billion per year (range: US\$101 billion to US\$975 billion) in this decade. The estimated new range of US\$215 billion to US\$387 billion per year is significantly higher than earlier AGR estimates and is equivalent to between 0.6 per cent and 1.0 per cent of all developing countries’ gross domestic product (GDP) combined.

<sup>2</sup> Adaptation Fund, Green Climate Fund, and the Global Environment Facility’s Least Developed Countries Fund and Special Climate Change Fund.

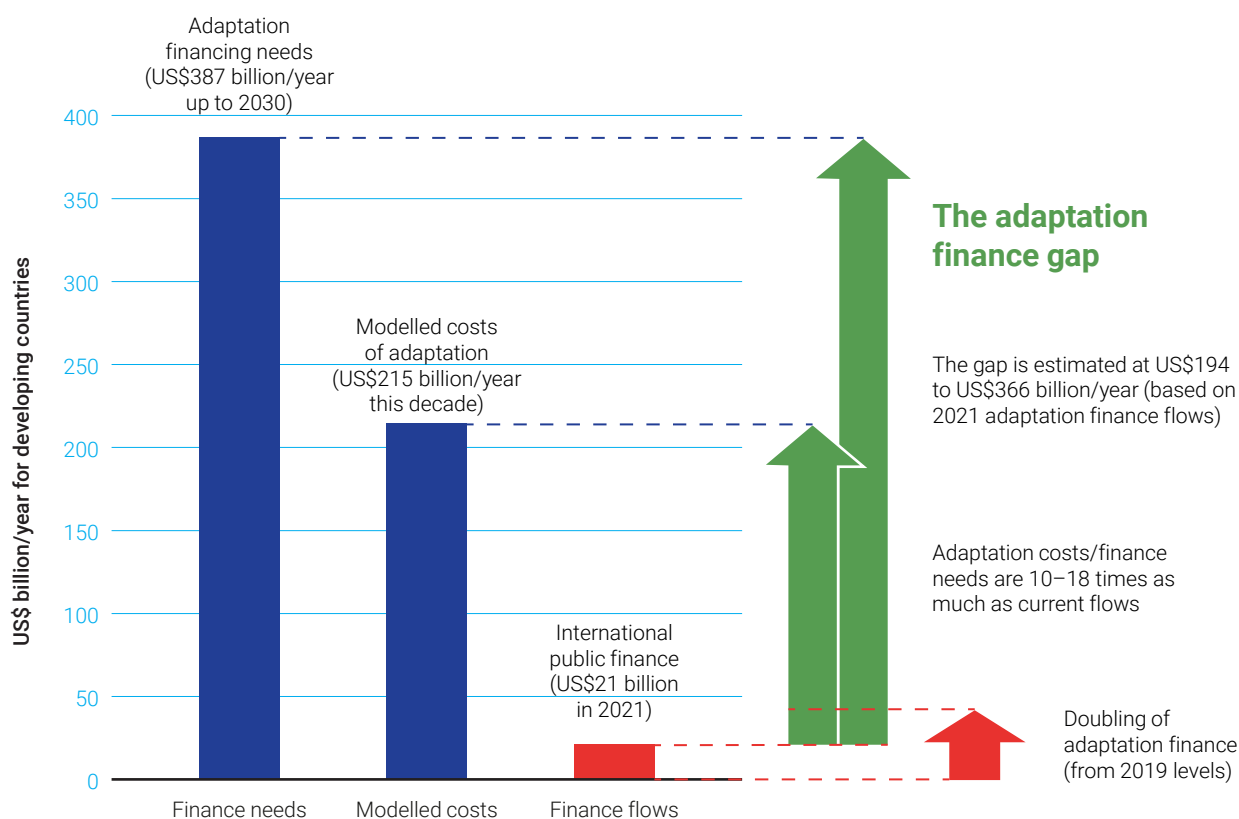
Despite the urgent need to accelerate and scale up international public adaptation finance to developing countries, these flows have declined since 2020.

International public climate finance flows to developing countries decreased by 15 per cent to US\$21.3 billion in 2021 after having increased to US\$25.2 billion between 2018 and 2020. In contrast, mitigation finance continuously increased over the same period, setting an important precedent. Meanwhile, international public adaptation finance over the past five years has also suffered from a low disbursement ratio, at 66 per cent, as compared to the overall development finance disbursement ratio of 98 per cent. This indicates that there are barriers specific to adaptation, such as low grant-to-loan ratios, and lack of knowledge about adaptation policies. To ensure adaptation finance flows from developed to developing countries double to reach about US\$40 billion by 2025 as pledged at COP 26 in Glasgow, finance providers must on average increase annual adaptation flows by at least 16 per cent between 2022 and 2025.

The adaptation finance gap is likely 10–18 times as great as current international adaptation finance flows – at least 50 per cent higher than previous range estimates.

The adaptation finance gap – that is the difference between estimated adaptation financing needs and costs (US\$215 billion to US\$387 billion) and finance flows (US\$21.3 billion) – has grown. The AGR 2023 estimates that the plausible central adaptation finance gap for developing countries is currently in the range of US\$194 billion to US\$366 billion per year. While the doubling of adaptation finance by 2025 and the new collective quantified goal for 2030 that is under deliberation will be instrumental in helping to close this finance gap, the increase in international public finance alone is unlikely to close it. For example, achieving the goal of doubling adaptation finance (by 2025) would only reduce the gap by between 5 per cent and 10 per cent.

Figure ES.4 Comparison of adaptation financing needs, modelled costs and international public adaptation finance flows in developing countries



Note: Values for needs and flows are for this decade, while international public finance flows are for 2021. Domestic and private finance flows are excluded.

Nonetheless, greater international public adaptation finance could still effectively reduce climate risks and deliver high benefits. For instance, studies indicate that US\$16 billion

invested in agriculture per year would prevent about 78 million people from starving or chronic hunger because of climate change impacts. Similarly, every US\$1 billion

invested in adaptation against coastal flooding leads to a US\$14 billion reduction in economic damages. Therefore, more must be done to bridge the adaptation finance gap. However, due to budgetary constraints, countries are often inactive, adapt reactively and/or rely on international support, causing overall costs to rise, limiting effectiveness and leading to maladaptation.

### Gender equality and social inclusion are inadequately included in adaptation finance needs and flows.

There is global recognition that climate change can exacerbate inequality in multiple dimensions of social identity, including gender, indigeneity, age, ethnicity, migrant status or disability. At the same time, adaptation activities considering gender and other social identities are linked with higher effectiveness in achieving their objectives. The AGR 2023 has analysed the integration of gender equality and social inclusion<sup>3</sup> in costed NDCs and NAPs. It finds that only 20 per cent of these plans have a dedicated budget for such activities, and that the amount allocated is generally low, averaging 2 per cent. Of the international public finance for adaptation that is also tagged with gender equality as a principal objective, only 2 per cent is assessed as gender-responsive, with a further 24 per cent considered gender-specific or integrative. Other aspects of social inclusion also receive little attention among both finance flows and needs. These findings highlight the need for greater transparency and consistency in the reporting of gender equality markers, and that climate finance providers must increase adaptation funding that is responsive to gender and social inclusion in order to support more equitable and effective adaptation.

### Bridging the adaptation finance gap requires more international, domestic and private finance, ideally a reform of the global financial architecture and better international cooperation.

Domestic expenditure and private finance are potentially important sources of adaptation finance, but quantitative estimates are not yet available because their flows remain difficult to track. Nonetheless, domestic budgets are likely to be a large source of funding for adaptation in many developing

countries, ranging from 0.2 per cent to over 5 per cent of government budgets. There is also fragmented evidence of increasing private-sector adaptation interventions all over the world and in most sectors (e.g. water, food and agriculture; transport and infrastructure; tourism). These include 'internal investments' by large companies, financial institutions' provision of finance for activities that contribute to adaptation, and companies' provision of adaptation goods and services. In addition, non-financial private-sector actions could have substantial impacts in reducing risks over time. For example, engineering, design, insurance, and lending practices and standards are moving towards incorporating climate science into their benchmarks, requirements and guidelines. However, neither domestic expenditures nor private finance flows are likely to bridge the adaptation finance gap alone, especially in low-income countries including LDCs and SIDS, and there are important equity issues related to using these flows to fill the gap in these countries.

This report identifies seven ways to bridge the adaptation financing gap (figure ES.5). The core continues to be dominated by (i) **international public adaptation finance**, (ii) **domestic expenditure on adaptation** and (iii) **private-sector finance for adaptation**, even if relative contributions to closing the adaptation finance gap remain uncertain. Four additional potential approaches to bridge the finance gap are identified: (iv) **remittances** by migrants to their home countries which often contribute significantly to GDP, (v) **increasing finance tailored to small and medium-sized enterprises** since they comprise the bulk of the private sector in many developing countries, (vi) **reform of the global financial architecture**,<sup>4</sup> for instance as proposed by the Bridgetown Initiative, which has enormous potential to support developing countries in boosting their resilience against future climate shocks, including through changes in managing vulnerable countries' debt burden, and (vii) **implementation of article 2.1(c) of the Paris Agreement** on making finance flows consistent with a pathway towards low-carbon and climate-resilient development.

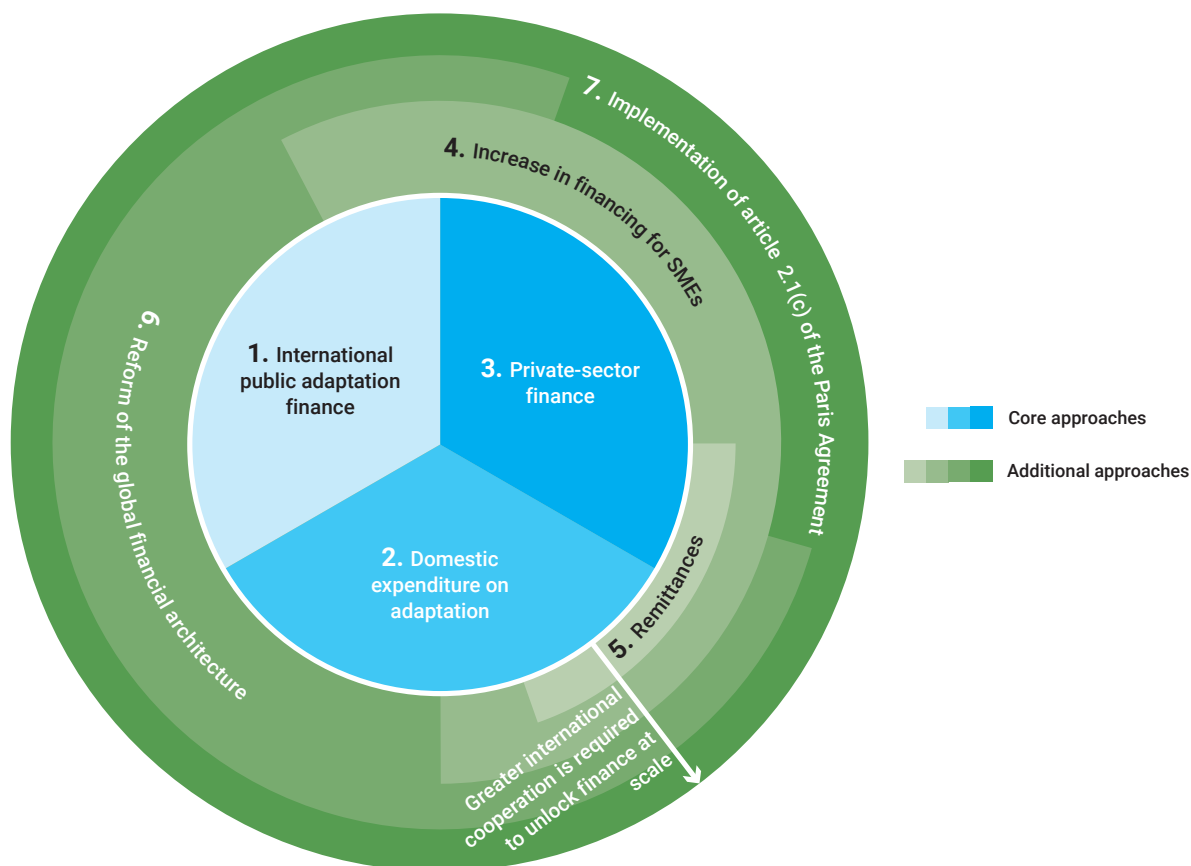
It is important to note that these seven ways offer different opportunities and constraints across countries – for example, LDCs rely most heavily on international support, in particular grants – and bridging the adaptation finance gap requires attention to both quantitative and qualitative aspects such as access to finance and equity.

<sup>3</sup> Gender equality and social inclusion (GESI) was analysed based on an approach that included four categories of progressively greater gender and social inclusion: blind; specific; integrative; and responsive.

<sup>4</sup> This includes the Bretton-Woods Institutions (World Bank and International Monetary Fund) and the World Trade Organization, together with other international financing institutions, such as multilateral development banks.



Figure ES.5 Seven ways to bridge the adaptation finance gap



**Slow and insufficient action on mitigation and adaptation is increasingly translating into soft and hard limits to adaptation, some of which may have already been reached.**

One of the ways in which loss and damage from climate change arise is when efforts to avoid or minimize climate impacts through mitigation and adaptation fail. The points at which adaptation fails to avert climate impacts are called the limits to adaptation, which can be ‘hard’ or ‘soft’.

Hard limits are those that arise in systems and that can only be averted through mitigation of greenhouse gases. Climate-sensitive ecosystems, such as coral reefs and the cryosphere, may be among the first to experience hard adaptation limits leading to both intrinsic and instrumental loss and damage.<sup>5</sup>

Soft limits are those that can be avoided or minimized through more concerted efforts at adaptation, though the limits may change over time as a result of shifts in both climate acceleration and technological and political

development, or as the evaluation of trade-offs changes. By far the best and most cost-effective ways to reduce both hard and soft adaptation limits is through greatly accelerated investments in mitigation and adaptation but, considering the level of climate change already embedded in the system, some soft and even hard limits may be unavoidable.

**Lack of conceptual clarity is a clear barrier to making political and operational progress on loss and damage.**

While there is no universally agreed definition, conceptualizations range from considering all anthropogenic climate change impacts as loss and damage, to only considering impacts that occur after limits to adaptation have been reached as loss and damage. Justice is a major theme underpinning the conceptualizations of loss and damage, including by the UNFCCC, recognizing that losses and damages are experienced most harshly by those least responsible for or most sensitive to climate change: developing countries and vulnerable members of society.

<sup>5</sup> Intrinsic values are revealed, for example, in World Heritage listings and people’s connections to places and values, so there is no commensurable substitute to their loss or damage. Instrumental values are those that arise from the goods and services provided by ecosystems to those who depend on them directly or indirectly.

There is also general agreement that losses and damages can be categorized as economic or non-economic. Economic losses and damages (ELD) include impacts that can be assigned a monetary value, such as damages to infrastructure or loss of earnings or productivity. Non-economic losses and damages (NELD) encompass a wide spectrum of impacts that are not easily assigned a monetary value, such as loss of life, health or mobility; loss of territory, cultural heritage, or Indigenous or local knowledge; loss of biodiversity and so on. While there are well-established quantitative methods to assess ELD, for NELD the assessment is mainly qualitative, but it is important to avoid missing the climate impacts that cannot be priced. Because of this lack of clarity among stakeholders, there is an urgent need to reach international consensus on key concepts to ensure accelerated progress and operationalization of loss and damage, including the new loss and damage fund and funding arrangements agreed at COP 27 in 2022.

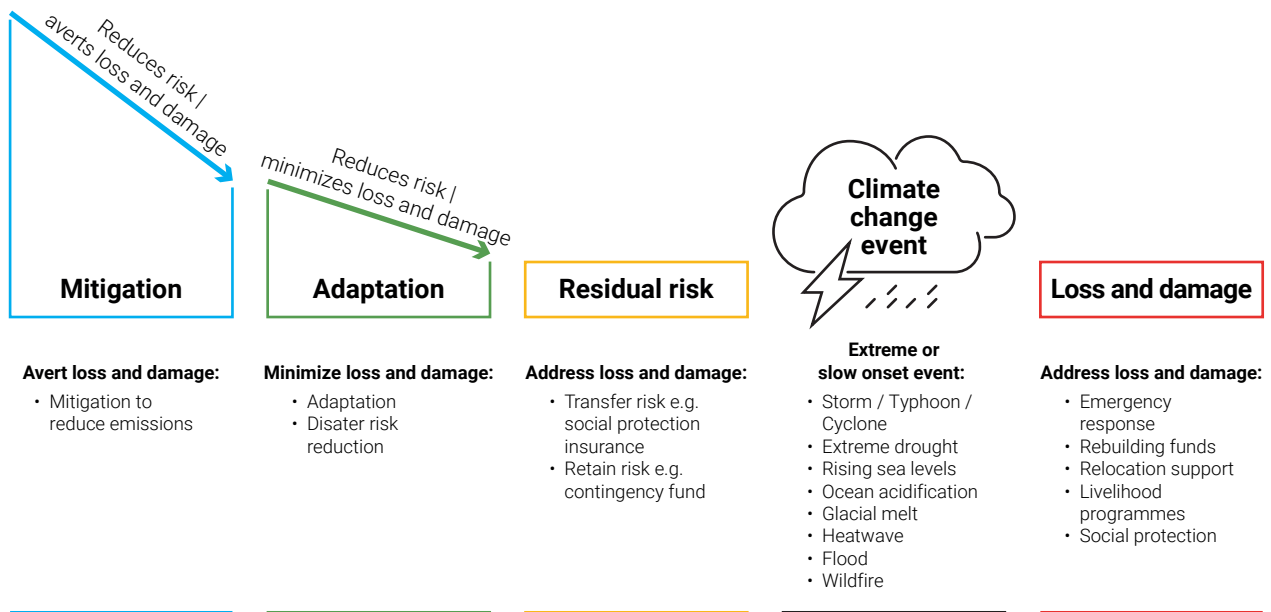
capacity-building, early warning systems, insurance, compensation, social protection measures, support for rebuilding livelihoods and for communities to preserve their culture, humanitarian response and forecast-based finance, reflecting the grey zone that exists in practice between adaptation and loss and damage. While countries capture ELD relatively well, only a handful of NAPs address NELD. Developing a list of measures addressing ELD and NELD, both ahead of and during/after events, will be important in the context of setting up the institutional framework for addressing loss and damage within the UNFCCC and at national levels.

Given the complex, compounding, cascading and transboundary nature of climate risk, coordination across global frameworks besides the UNFCCC, such as the Sendai Framework for Disaster Risk Reduction, and the Sustainable Development Goals, will contribute towards strengthening loss and damage management approaches. There is also a need for more regional and subnational cooperation on loss and damage with transboundary characteristics to take advantage of opportunities of scale and to overcome barriers to implementation. Finally, all responses must respect country ownership and be equitable, inclusive, accessible and adequate.

**Loss and damage is increasingly mentioned in NAPs and NDCs, but these documents say little about options to address loss and damage and largely miss NELD.**

Actions to address loss and damage include disaster risk management, assessment of losses and damages,

Figure ES.6 Averting, minimizing and addressing losses and damages



Adapted from: Richards, J.A. (2022). <https://www.lossanddamagecollaboration.org/stories-op/how-does-loss-and-damage-intersect-with-climate-change-adaptation-drr-and-humanitarian-assistance>

**Many uncertainties remain regarding the financial needs for addressing loss and damage, but innovative funding sources and governance structures must be found to reach the necessary scale.**

A recent study estimated that damages in the 55 most climate-vulnerable economies alone exceeded US\$500 billion over the past two decades. These costs will rise steeply in the coming decades, particularly in the absence of strong mitigation and adaptation, but more robust numbers are needed that underpin the urgency of addressing loss and damage. There is currently little evidence on the activities and associated costs of addressing loss and damage as it is a costly and time-consuming exercise requiring significant technical capacity, and most countries are yet to identify and assess their loss and damage risks and financial needs. Since the financial needs for addressing loss and damage are likely to grow significantly in the future,

exploring innovative sources of finance (such as marine shipping levies, aviation levies, taxation, debt relief, debt swaps and special drawing rights) besides grants, insurance and concessional loans will be essential to reach the necessary scale. As well as assisting developing countries particularly vulnerable to climate risks in coping with loss and damage, the finance must also be used for capacity-building, institutional strengthening, data collection and analysis, disaster preparedness, and management of the consequences of NELD while respecting the principles of equity, justice, inclusiveness and ownership. Governance arrangements to help deliver loss and damage finance could be built around the dedicated loss and damage fund, the Santiago Network for Loss and Damage (SNLD) and the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts (WIM) and could include existing institutions supporting humanitarian aid, disaster risk reduction, risk transfer, development finance and climate finance.

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