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Guide for Adaptation and Resilience Finance

Foreword

Standard Chartered, KPMG and the United Nations Office for Disaster Risk Reduction (UNDRR), with contributions from more than 20 additional organisations, have collaborated to develop the Guide for Adaptation and Resilience Finance.

"The imperative to invest in resilience is undeniable. Daily news reports showcase how disasters are erasing development gains worldwide. Breaking this cycle of disasters demands investment. This is urgent, especially as climate change is increasing the frequency and intensity of hazards.

While government actions are critical, the finance community must play a greater role in advancing financial solutions for adaptation and resilience. This Guide aims to support this objective by providing further clarity on what constitutes adaptation and resilience-building investment.

I urge banks and other financial actors to take advantage of this guidance to develop financial products, such as adaption and resilience loans and bonds, that can mobilise private capital. I also encourage the financial community to use this opportunity to set targets for themselves in terms of investment portfolios allocated to these objectives."

Sujit Kumar Mohanty
Chief of Branch, Intergovernmental Processes,
Interagency Cooperation and Partnerships,
United Nations Office for Disaster Risk Reduction (UNDRR)

"Climate change is transforming the risk profile of nations, communities, natural systems, and businesses. The UAE Framework for Global Climate Resilience recognises that adaptation is essential for protecting lives, livelihoods, and economies. Implementing measures that both directly and indirectly reduce vulnerability and bolster resilience to climate and other natural hazards is critical. There needs to be a rapid move towards adaptation and resilience action.

This urgency is particularly pronounced for vulnerable groups and populations in emerging markets and developing economies. These economies have a disproportionate risk of exposure to the negative effects of rising temperatures and extreme weather, and in many cases fewer resources and less capacity to respond.

We need capital to move in the right direction and to mainstream natural and climate hazard resilience into financial flows. Commercial banks and private investors have an opportunity to lead in meeting the adaptation challenge within EMDEs and globally. Lending and investment in adaptation should be seen as both a credit against contingent disaster risk liability as well as being a potential new path to profit. I encourage the banking and investment community to use this Guide as a key resource when considering how and where to invest more proactively and ambitiously in a resilient future."

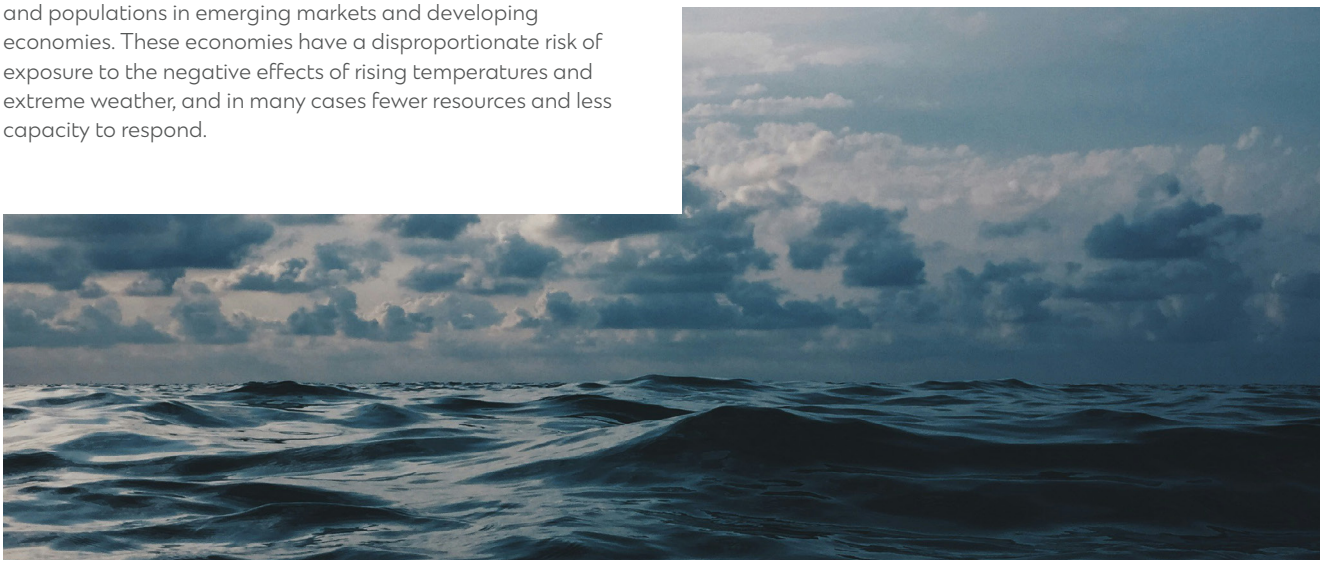
David Greenall
Global Managing Director – Climate Risk, Decarbonization,
Nature & Adaptation,
KPMG International

"We need to embed adaptation and resilience into financial decision-making to manage risks and identify new opportunities, given that every dollar spent on adaptation could generate up to USD 12 of economic benefit this decade.[1]

Recognising the potential of adaptation and resilience as an investable asset class is critical if we want to attract and unlock further investment from commercial banks, private equity, and asset managers. Market clarity on what qualifies as an adaptation-aligned investment comes through coherent, consistent, and standardised definitions and terminology.

I'm delighted that in creating this Guide - we are able to provide confidence to investors looking to allocate capital to adaptation projects, as well as to companies seeking to raise capital for adaptation and resilience products, solutions, or other investment opportunities."

Marisa Drew
Chief Sustainability Officer,
Standard Chartered



[1] Standard Chartered Bank (2022), Adaptation Economy, https://www.sc.com/en/campaigns/adaptation-economy/

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This Guide benefited from extensive discussions and consultations with a broad range of stakeholders, who provided valuable inputs and suggestions. The conclusions and views are those of the authors and do not necessarily represent those of the entities listed below.

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Executive summary

Responding to a global call to action

At COP28 in Dubai, the UAE Framework for Global Climate Resilience recognised that the current levels of finance for adaptation were insufficient and called for larger and more flexible financing from a diverse range of public, private, and philanthropic sources. A Call for Collaboration was issued by a broad stakeholder group, with the objective of accelerating the mobilisation of private finance for adaptation and resilience. To support this aim, the Call asked for private finance and supporting partners to, "ideate, pilot and promote existing frameworks and taxonomies to encourage assessment of physical climate risks and resilience, protection from physical climate risks and investments into adaptation and resilience."[2]

In response to this call, Standard Chartered, KPMG and the United Nations Office for Disaster Risk Reduction (UNDRR), with contributions from more than 20 additional organisations, (refer to "Contributors" section on Page 3) have collaborated to develop the Guide for Adaptation and Resilience Finance ("the Guide").

Objective of the Guide for Adaptation and Resilience Finance

The Guide aims to unlock private sector capital flows into adaptation and resilience in emerging markets. It sets out, for the first time, an indicative list of adaptation and resilience activities alongside guidance on the process for assessment of this. The Guide aims to accelerate the development and structuring of financial products focused on adaptation and resilience, such as loans, bonds, private placements, structured notes, letters of credit, and deposits.

A practical guide for the market to mobilise finance

The Guide is a practical tool and sets out a blueprint for financial market participants that brings clarity to - and simplifies - the decision-making process when financing adaptation and resilience. It considers both climate-related (including meteorological and hydrological events) and non-climate-related natural hazards (such as geophysical events).

The Guide focuses on activities that can be financed through private lending and investment arrangements, and through public market capital raising. It includes assessment steps and accompanying guidance covering consideration of substantial contribution to adaptation and resilience objectives, risk of potential for maladaptation, avoidance of significant harm to other sustainability objectives, and consistency with national and local adaptation and resilience strategies.

The Guide provides a list of eligible financeable themes and activities, and identifies associated environmental and social co-benefits, with the ambition of standardising understanding of adaptation and resilience opportunities for financial institutions. The list is not exhaustive and focuses primarily on activities which address the needs of emerging markets and developing economies and are financeable by the private sector.

Primarily, the Guide was designed for Financial Institutions (by this we mean commercial banks, development finance institutions, and investors). However, it has a broad applicability for other financial institutions and investors engaging their clients in financing and investment opportunities related to natural hazard adaptation and resilience, including private lending and investment arrangements and public market capital raising.[3]

Similarly, although focused on the needs of emerging markets and developing economies due to the stark and increasing need for adaptation finance in these markets, the themes and activities included within have relevance for fast-growing and developed markets, with additional scrutiny around consideration of substantial contribution. This is a dynamic tool for the market which will continue to evolve as financing adaptation and resilience grows and the market develops.

Climate change adaptation is recognised as an eligible project category by various voluntary process guidelines (e.g. Green Bond Principles and Green Loan Principles) and within national and regional taxonomies (e.g. EU Sustainable Finance Taxonomy; Singapore-Asia Taxonomy for Sustainable Finance, ASEAN Taxonomy for Sustainable Finance and the Common Framework of Sustainable Finance Taxonomies for Latin America and the Caribbean). However, these guidelines and standards address adaptation at a high-level, where there is a pressing need for more detailed guidance to specify eligible activities within these categories and to define potential co-benefits for people and the planet.

The Guide provides an indicative list of financeable adaptation and resilience themes and activities, forming a classification framework, and outlines a step-by-step process that provides accompanying guidance so financial institutions can:

- Identify the eligible use of proceeds for financing and investment opportunities in adaptation and resilience in emerging markets and developing economies;[4]
- Map the co-benefits of these investments beyond climate adaptation;
- Screen investment opportunities for substantial contribution and risk of maladaptation as well as consider potential for significant harm to other sustainability objectives through reference to international standards on social and environmental safeguards;
- Consider how the impact of these investments could be measured and reported on, including providing an indicative list of impact indicators.

[2] Adrienne Arsht-Rockefeller Foundation Resilience Centre (2023), Call for Collaboration: Enhancing the enabling environment to accelerate the mobilisation of private finance for adaptation and resilience, Call for Collaboration (onebillionresilient.org)

[3] While the target audience of the Guide is commercial banks and broader financial institutions and actors, the role of government, central banks, and the capacity of local actors is critical to enable accelerate adaptation financing

[4] While the focus of the Guide is on accelerating flows of adaptation finance to emerging markets and developing economies, it also has broader applicability to a developed country context

Introduction

Every region is facing increased natural hazards

Extreme weather and climate-related natural hazards have increased in frequency and intensity over the last decade, negatively impacting communities, businesses, financial and natural assets. Economic losses resulting from natural hazard events in 2023 are estimated to be USD 250 billion.[5] However, the true toll of climate-related disasters will be much higher, as a number impacts are not included in these estimates, such as the impact of slow-onset and small-scale events, the knock-on effects of broken supply chains, losses in productivity, compromised physical and mental health, and the enduring impacts of disrupted education.[6]

Exposure and vulnerability to such hazards, along with their subsequent impacts, are being amplified by a combination of factors and interacting risk drivers. These include population growth and poorly planned urban development, weak governance, poverty and inequality, loss of biodiversity, regional conflicts, environmental degradation, mass migration and economic instability. Climate change[7] is exacerbating and compounding these factors, resulting in increased risks and losses and making resilience efforts harder to implement.

Globally, every region of the world faces natural hazard impacts and risks, but the impacts and response challenges are particularly acute in emerging markets and developing economies (EMDEs), especially in the Least Developed Countries (LDCs) of Asia, Africa, the Middle East, and Small Island Developing States (SIDS). This is due to countries having both low adaptive capacity and high vulnerability.[8]

Table 1. Definition of natural hazards

A hazard is a process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation.

While a broad range of hazards exists, this Guide is concerned with natural hazards i.e. those belonging to the following three categories as defined by the UNDRR:[9]

1. **Meteorological and hydrological:** Extreme weather /climate events such as drought, heat (extreme heat, heatwave), cold, precipitation (riverine and pluvial flooding), wind (tornadoes, tropical storms), snow and ice, and coastal/oceanic (storm surge, ocean heatwave). Slow onset processes such as heat (increased average temperature, wet bulb temperature), increased aridity, variable precipitation, decreasing glaciers/snow cover/permafrost, and coastal/oceanic (sea level risk, ocean warming, acidification).
2. **Geological/geophysical:** Rapid onset events such as earthquakes, landslides, tsunamis, and volcanic activity.
3. **Environmental:** Slow onset processes such as biodiversity and ecosystem loss, deforestation, soil degradation, desertification, land salination, loss of permafrost and sea ice, and disturbance (wildfire, forest dieback, eutrophication).

Hazards may be single, sequential or combined in both their origins and their effects.

Climate change is considered an underlying driver of risk for meteorological, hydrological and environmental hazards and can exacerbate the impacts of these hazards as well as those which are geological/ geophysical. Climate related hazards impact natural assets, and degradation of natural assets in turn increases the frequency and impact of climate-related hazards. Climate change is altering the frequency and intensity of hazard events, affecting vulnerability, and changing exposure patterns.

[5] https://www.munichre.com/en/company/media-relations/media-information-and-corporate-news/media-information/2024/natural-disaster-figures-2023.html

[6] https://www.undrr.org/explainer/uncounted-costs-of-disasters-2023

[7] IPCC (2022), Climate Change 2022: Impacts, Adaptation and Vulnerability, https://www.ipcc.ch/report/ar6/wg2/

[8] The IPCC AR6 report defines Adaptive Capacity as "the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences," and Vulnerability as "the propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt."

[9] https://www.undrr.org/publication/hazard-definition-and-classification-review-technical-report

Even at levels under 1.5°C of global heating, the health-related risks of climate change are rapidly growing, and already costing lives and livelihoods.[10] Health systems are increasingly strained, and failure to support equitable adaptation has left populations unprotected in the face of increased climate hazards.

Addressing the adaptation and resilience finance gap

The economic costs of natural hazard are clear, even if the world succeeds in limiting temperature rises to the Paris Agreement goals, the world will face billions in damages and lost economic growth by 2030, increasing to trillions by 2050.[11]

Adaptation and resilience finance, which should be accelerating to catch up with rising natural hazard impacts, continues to fall short despite clarity on adaptation measures needed, the benefits they provide, and clarity on where they are needed.

Today, less than 10 per cent of all climate finance is allocated for adaptation.[12] The annual climate adaptation financing gap in developing countries is between USD 194-366 billion, approximately 10-18 times more than current financing flows.[13] This gap is expected to increase to USD 315-565 billion by 2050.[14] Further, development financing for disaster risk reduction as a whole has barely increased over the past 30 years.[15]

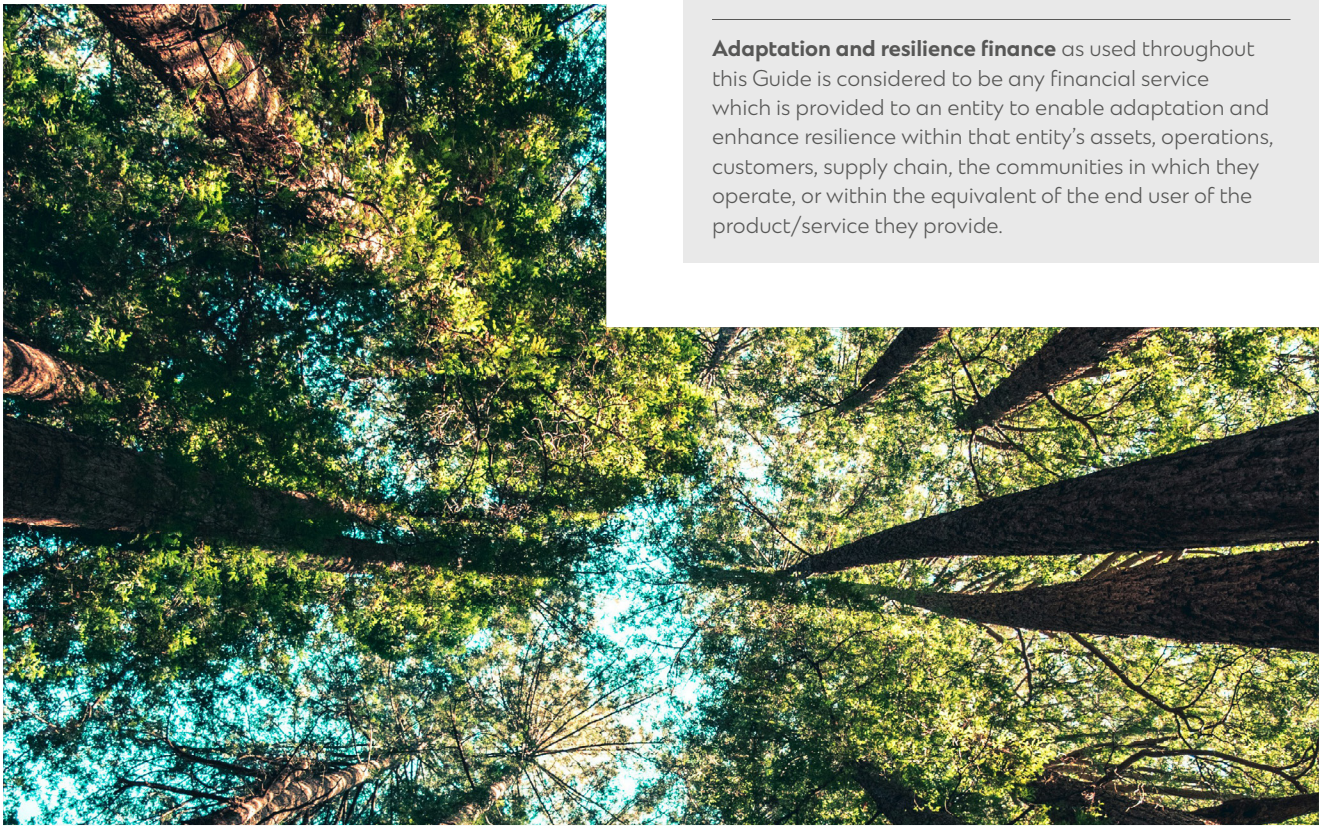
Table 2. Definition of adaptation and resilience

Adaptation and resilience are similar concepts – but not exact substitutes for each other - that when taken together aim to manage and minimise risk, reduce vulnerability and enhance the capacity of systems (whether social, economic or environmental) to deal with the impacts of natural hazards and climate change. This Guide uses the Sendai Framework for Disaster Risk Reduction ("Sendai") definitions of the two concepts as follows:[16]

Adaptation: the process of adjusting practices, systems and structures to moderate potential damage and cope with the consequences of natural and climate-related hazards. This includes adjusting socio-economic and environmental practices to limit damage.

Resilience: the ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including the preservation and restoration of its essential basic structures and functions through risk management. The terms "adaptation and resilience" are used in this Guide to refer to adaptation and resilience to the natural hazards identified in Table 1.

Adaptation and resilience finance as used throughout this Guide is considered to be any financial service which is provided to an entity to enable adaptation and enhance resilience within that entity's assets, operations, customers, supply chain, the communities in which they operate, or within the equivalent of the end user of the product/service they provide.



[10] As we are not on track for 1.5°C of global warming, the benefits of action could be greater

[11] Standard Chartered Bank (2022), Adaptation Economy, https://www.sc.com/en/campaigns/adaptation-economy/; Note: Even if the world succeeds against the odds in limiting temperature rises to the Paris agreement goals, the 10 markets identified in SCB's Adaptation Economy report could be facing an estimated cost of USD 377 billion in damages and lost economic growth by 2030. This rises to USD 1.4 trillion between now and 2050

[12] Climate Policy Initiative (2023), Global Landscape of Climate Finance, https://www.climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2023/

[13] UNEP (2023), Adaptation Gap Report, https://www.unep.org/resources/adaptation-gap-report-2023

[14] UNEP (2023), Adaptation Gap Report, https://www.unep.org/resources/adaptation-gap-report-2023

[15] UNDRR (2023), The Report of the Midterm Review of the Implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030, https://sendaiframework-mtr.undrr.org/publication/report-midterm-review-implementation-sendai-framework-disaster-risk-reduction-2015-2030

[16] UNDRR (2015), Sendai Framework for Disaster Risk Reduction 2015-2030, https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030

The economic opportunity in adaptation and resilience finance

Investment in natural hazard adaptation and resilience extends beyond avoiding loss and damage. Research conducted by Standard Chartered, published in the Adaptation Economy Report, found that for every USD 1 spent on adaptation this decade, an economic benefit of USD 12 could be generated.[17] The report highlights the significant economic pay-off of early action toward adaptation and the potential gains for investors.

This significant economic opportunity should act to incentivise the market, especially when compared to the cost of inaction. Aggregating over the period 2025-2100, the total cost of inaction is estimated at USD 1,266 trillion, that is, the difference in losses under a business-as-usual scenario and those incurred within a 1.5°C pathway. This figure is, however, likely to be a significant underestimate.[18]

Funding flows for natural hazard and climate adaptation come from public, private, and alternative capital providers, often through combined investments.[19] Public finance represents the most significant share of the capital allocation. Private capital providers – including banks, institutional investors, and private equity – contribute just 2 per cent of the tracked finance for climate adaptation.[20]

A range of barriers have historically limited private finance flows and reduced the perceived attractiveness of investing in adaptation and resilience (as detailed in Table 3). To close the finance gap and meet the needs of natural hazard adaptation and resilience, an increase in private investment is essential. Financial institutions and investors, especially those operating in emerging markets and developing economies (EMDEs), are increasingly recognising their role in directing capital towards the markets that are particularly vulnerable to the impacts of natural hazards.

Table 3. Real and perceived barriers to private finance for natural hazard adaptation and resilience[21]

Perceived barriers	Real barriers
• Limited revenue streams for many adaptation and resilience investments[22] (mainly generating avoided losses). • Long investment horizon and size of adaptation and resilience projects.	• Short-term perspectives and market inefficiencies that affect the accurate pricing and adequate consideration of natural hazard and climate-related risks. • A lack of country-specific data and asset-level data on natural hazard and climate risk and vulnerability which impedes informed investment decisions. • The private sector's challenge in understanding the environmental and social benefits of investing in adaptation and resilience.[23] • Information disparities and gaps in knowledge, including understanding the extent of potential environmental and social benefits, which influence the assessment of public-private investment returns and decision-making processes. • Inaction by financial regulators and policy makers to incorporate natural hazard and climate-related risks into their activities and policies. • The absence of common market language, standard definitions and classification frameworks for adaptation and resilience-building investments and transactions.

[17] Standard Chartered Bank (2022), Adaptation Economy, https://www.sc.com/en/campaigns/adaptation-economy/

[18] World Meteorological Organization (2023), Climate change indicators reached record levels in 2023: WMO

[19] Climate Policy Initiative (2023) State and Trends in Climate Adaptation Finance 2023, State and Trends in Climate Adaptation Finance 2023 (climatepolicyinitiative.org); UNFCC (2023) Synthesis report on existing funding arrangements and innovative sources relevant to addressing loss and damage associated with adverse effects of climate change, TC2_SynthesisReport.pdf (unfccc.int)

[20] Climate Policy Initiative (2023), Global Landscape of Climate Finance, https://www.climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2023/

[21] There has been a significant amount of research on the barriers to private finance for natural hazard adaptation and resilience which this table is informed by. By separating this table into real and perceived barriers, it attempts to challenge existing perceptions around the adaptation opportunity. Relevant papers include research by Nicola Ranger, Oxford Martin School as referenced below.

[22] https://www.smithschool.ox.ac.uk/sites/default/files/2023-06/Mission-Climate-Ready-Unleashing-finance-and-investment-REPORT.pdf

[23] GCA (2019), Adapt Now: A Global Call for Leadership on Climate Resilience, https://gca.org/reports/adapt-now-a-global-call-for-leadership-on-climate-resilience/

To boost private investment in natural hazard adaptation and resilience, Standard Chartered, KPMG and the UNDRR have identified the following measures, which need to be considered and implemented across the financial system:

- Integration of natural hazard risk measurement and management into the mandates and decisions of central banks and other financial and regulatory authorities to incentivise investments in risk reduction and resilience.
- Utilisation of a diverse range of financial tools, such as blended finance, to mobilise finance for natural hazard adaptation and resilience on a large scale, including collaboration with multilateral development banks (MDBs) and governments.
- Development of enhanced frameworks for hazard and disaster information, including data, disclosures, metrics, and alignment strategies, to promote market transparency, integrity, and scalability. This should involve an adaptation and resilience finance taxonomy or classification system that provides a consistent and common language for the economic activities considered applicable for adaptation and resilience finance in greater detail than those already available.
- Clear presentation of the business case for financial institutions and investors to align their ambitions, policies, and capital allocation with natural hazard adaptation and resilience needs and opportunities.
- Financial product innovation such as disaster, adaptation and resilience bonds, catastrophe bonds, and parametric insurance products.
- Engagement with governments and regulators to promote adaptation and resilience financing, business models, and data collection.
- The use of philanthropic capital as a source of funding to blend with private capital, for investment into adaptation and resilience.

Investment criteria

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Investment criteria

To categorise and screen natural hazard adaptation and resilience investments, this Guide builds on accepted market frameworks, such as the EU Sustainable Finance Taxonomy and the UNDRR-Climate Bonds Initiative Designing a Climate Resilience Classification Framework whitepaper, and the MDB Group Joint Methodology for tracking climate change adaptation finance.[24, 25] A full list of foundational frameworks is presented in Annex 1.

Types of adaptation/resilience investments

This Guide categorises natural hazard adaptation and resilience investments as follows:[26]

Adapted (or type 1) investments: These investments minimise the direct impact of natural hazard and physical climate risks to the asset, activity, or entity being invested in by directly responding to the climate change impacts (e.g. upgrading an irrigation system to improve water efficiency and reduce water losses).

Enabling (or type 2) investments: These investments create the conditions or capacities needed to facilitate adaptation and resilience of other assets, activities, or entities by reducing pressures that exacerbate and/or are exacerbated by climate change impacts (e.g. constructing coastal defenses to protect communities, businesses, and infrastructure from increasing flood risk). These investments do not always have immediate, direct impacts on resilience and the benefits may only be realised over time.

Investments may also be considered both adapted and enabling. Such investments may address immediate needs for adaptation while simultaneously strengthening conditions or capacity to adapt over time. For example, an investment in a sustainable water management system in a drought-prone area could be considered as both adapted and enabling – it ensures near-term water availability and reduces vulnerability to drought, while also improving longer-term water management capacity.

Screening principles for adaptation and resilience finance

1. Substantial contribution to adaptation and resilience

Establishing whether an investment substantially contributes to adaptation and/or resilience requires defining the conditions under which the investment qualifies. Regulations and standards such as the EU Sustainable Finance Taxonomy require the assessment of substantial contribution in relation to climate adaptation but do not mandate assessment criteria, thus leaving room for interpretation.[27]

Given the highly complex, localised and context-specific nature of natural hazard risks, impacts and adaptation responses, it is very difficult or nearly impossible to define a single, universally accepted measure of adaptation benefits/outcomes by investment category or type. What constitutes a substantial contribution in one context may be insufficient in another.

Investors need to assess - on a specific investment basis and supported by local stakeholders - simple, easily measurable threshold indicators that are relevant and reflective of considerations such as the:

- investment's specific hazard risk materiality (e.g. vulnerability to, or impacts of one or more risks);
- anticipated timing of realisation of adaptation benefits (e.g. at investment outset or in the longer-term) and the sustainability of benefits over the long-term; and/or
- potential for scalability and/or transformational outcomes.[28] Indicators may be both quantitative (numeric) or qualitative (non-numeric), and may describe how the investment significantly contributes to reducing vulnerability, enhancing capacity, and achieving adaptation outcomes.

[24] MDB Group (2021), Joint methodology for tracking climate change adaptation finance, https://thedocs.worldbank.org/en/doc/20cd787e947dbf44598741469538a4ab-0020012022/original/20220242-mdbs-joint-methodology-climate-change-adaptation-finance-en.pdf With reference to the MDB Joint Methodology, as defined by this Guide, Adapted Investments correspond to Type 1 adaptation activities, while Enabling Investments correspond to Type 3 adaptation activities. With reference to the WBG Resilience Rating Guide, Adapted Investments correspond to "resilience to" investments, and Enabling Investments correspond to "resilience through" investments.

[25] These definitions are aligned with those included in UNDRR and Climate Bonds Initiative (2023), Designing a Climate Resilience Classification Framework, https://www.undrr.org/publication/designing-climate-resilience-classification-framework-facilitate-investment-climate

[26] UNDRR and Climate Bonds Initiative (2023), Designing a Climate Resilience Classification Framework, https://www.undrr.org/publication/designing-climate-resilience-classification-framework-facilitate-investment-climate

[27] For information, the EU Sustainable Finance Taxonomy Regulation defines a substantial contribution to climate adaptation as either (i) a significant reduction in the risk of adverse current or future climate impacts, or (ii) a substantial decrease in those adverse impacts, both without increasing the risk to people, nature, or assets.EU Technical Expert Group on Sustainable Finance (2020), Taxonomy Report: Technical Annex, https://finance.ec.europa.eu/system/files/2020-03/200309-sustainable-finance-teg-final-report-taxonomy-annexes_en.pdf

[28] The World Bank's Resilience Rating System (2021) defines 'transformational' investments as those that "affect upstream policies, country-level strategic plans or frameworks, system-level change, or technology and data enhancements that help remove obstacles to resilience building."p.68

Substantial contribution

Examples of indicators to assess the substantial contribution of a specific investment:

- Quantitative – e.g. Anticipated percentage reduction in the value of assets at risk from pluvial flooding due to an investment in flood protection infrastructure; or, increase in crop yields (kg/ha) due to an investment in agricultural crop irrigation technologies.
- Qualitative – Perceived degree of effectiveness (e.g. high, medium, low) of the investment at reducing the expected impact of hazards. This could include reduced impact of flooding events due to rapid emergency response enabled by investment in early warning systems.
- Process-based – Adaptive measures which change how a process works in response to climate change (e.g. changes to industrial processes to account for increased heat during particular parts of the day/year).

2. Avoidance of maladaptation and significant harm to sustainability objectives

In addition to ensuring substantial contribution, investments must also be assessed to avoid risk of potential for maladaptation and significant harm to other sustainability objectives, as aligned with the concept of 'do no significant harm'.[29]

Defining maladaptation

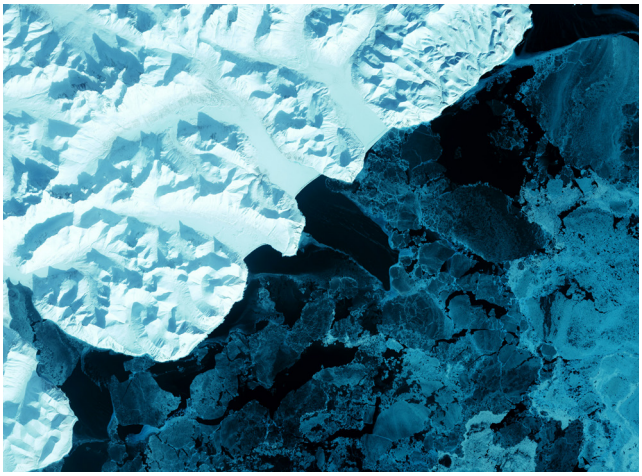
Maladaptation is defined by the IPCC in their latest synthesis report as "actions that may lead to increased risk of adverse climate-related outcomes, including via increased greenhouse gas emissions, increased or shifted vulnerability to climate change, more inequitable outcomes, or diminished welfare, now or in the future. Most often, maladaptation is an unintended consequence."[30]

Maladaptation and significant harm to other sustainability objectives for any party as a result of the eligible investment are important considerations to ensure that improved adaptation and resilience outcomes for one party do not: i) result in increased vulnerability; ii) lead to unintended negative outcomes; or iii) undermine capacity for future adaptation.

Key questions to consider in ensuring that maladaptation risk is adequately avoided or mitigated:

- Are environmental, social, and governance safeguards applied, such as those referenced in the IFC Performance Standards?[31]
- Does the activity introduce risks that could hinder progress on other sustainability objectives (e.g. Sustainable Development Goals, Paris Agreement, Sendai Framework for Disaster Risk Reduction)?
- Does the activity create lock-in effects that create societal dependencies that may be difficult or costly to change in the future?
- Does the activity redistribute existing or introduce new sources of vulnerability?
- Does the activity disproportionately benefit certain groups while neglecting or harming other stakeholder groups, in particular, vulnerable populations? Are equity and social justice considerations accounted for? Does the adapted solution represent a higher cost to populations?
- Are future risks considered and incorporated into planning (including long term impacts, externalities and system wide impacts)?

Alignment of the investment with the issuer/borrower's climate transition plan, including identified areas of physical risk, is also an important consideration. When there is inconsistency between the transition plan and the investment, further assessment of the implications of the investment for the broader sustainability objectives of the issuer/borrower should be made and considered in the context of maladaptation and do no significant harm.



[29] E.g., The EU Sustainable Finance Taxonomy and the Singapore Asia Taxonomy for Sustainable Finance, ASEAN Taxonomy for Sustainable Finance and the Common Framework of Sustainable Finance Taxonomies for Latin America and the Caribbean.

[30] IPCC (2023), Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 35-115, doi: 10.59327/IPCC/AR6-9789291691647

[31] IFC (2021), Performance Standards on Environmental and Social Sustainability, https://www.ifc.org/content/dam/ifc/doc/2010/2012-ifc-performance-standards-en.pdf

Example: Assessing maladaptation risks and substantial contribution associated in desalination facilities.

As populations grow and develop, demand for clean, accessible water is escalating whilst climate change is increasing the frequency, intensity and geographical occurrence of drought events.[32] With this, a greater number of people are facing water stress – an estimated 2.4 billion in 2022.[33]

Desalination facilities provide an answer to falling stocks of freshwater as they can provide reliable supply independent of the impacts of climate change and of the demand on freshwater supplies. In doing so, they can protect existing freshwater and groundwater stores to the positive benefit of both nature and society.

The desalination process is however, very energy intensive. Standards for 'green' desalination facilities require these to be powered by low carbon sources of energy (emissions intensity of >100g CO_2e/kWh).[34] In some locations this may be easily implementable, but where desalination facilities are reliant on power from the grid, meeting this threshold may not be possible. Assessing the maladaptation risk of higher-emissions intensity desalination alongside the potential for substantial contribution to adaptation and resilience in areas of water stress is essential. This should consider co-benefits arising from avoidance of the negative impact of continued freshwater or groundwater extraction on nature. Such investments should ensure detailed environmental and social risk assessment, risk mitigation and ongoing monitoring plans.

Whilst desalination may provide answers, we acknowledge there is no perfect solution and note the possibility of unintended consequences. This should accordingly be assessed against the Do No Significant Harm (DNSH) principle included as part of the flow chart on Page 16.

[32] IPCC (2023), Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)].

[33] United Nations (2022) Drought in Numbers 2022: Restoration for readiness and resilience. https://www.unccd.int/sites/default/files/2022-06/Drought%20in%20Numbers%20%28English%29.pdf

[34] Examples include the Climate Bonds Initiative (2022) Water Infrastructure Criteria under the Climate Bonds Standard. https://www.climatebonds.net/files/files/Water%20Criteria%20Document%20Final_100822.pdf

3. Consistent with locally and/or nationally defined adaptation and resilience strategies, and Sharm-El-Sheik Adaptation Agenda and Sendai Framework for Disaster Risk Reduction targets, where appropriate.[35]

Adaptation and resilience investments should be consistent with national and local priorities and plans, such as those formally codified in Adaptation Communications, Nationally Determined Contributions (NDCs), National Adaptation Plans (NAPs), or National Disaster Risk Reduction Strategies. For many countries such plans may not exist or do exist but do not have sufficient detail about priorities and needs to allow an issuer or borrower to determine consistency of an individual investment with that plan. In such instances - engagement should take place between the financing entities and local bodies that have a good understanding of adaptation priorities and needs of the local areas and communities to ensure alignment.

4. Enhance adaptation and resilience in key vulnerability areas

This Guide aligns with the seven adaptation and resilience themes outlined in the UNDRR-Climate Bonds Initiative Climate Resilience Classification Framework in order to promote interoperability with future guidance from the Climate Bonds Initiative. As such, the investment should contribute to adaptation and resilience outcomes in one or more of the following themes:[36]

- **Resilient agrifood systems** - Systems for the production and provision of food and other related products, encompassing primary production, processing, logistics, storage, wholesaling and retail, including the capacities and knowledge of policymakers, service providers (public and private) and populations
- **Resilient cities** - Human settlements whether large (e.g. cities) or small (e.g. villages), urban or rural, encompassing buildings (residential, commercial and public), planning, development and management of urban areas and settlements, and cultural heritage
- **Resilient health** - Systems, facilities, services and capacities for protecting and improving human health and for pre-empting and responding to new health challenges and health-related emergencies, including the capacities and knowledge of policymakers, service providers (public and private) and populations
- **Resilient industry and commerce** - Industrial and commercial operations encompassing extractive industries, manufacturing and service-based industries (e.g. professional services, financial services, tourism, leisure, etc.)
- **Resilient infrastructure** - Infrastructure that provides essential services on which populations and wider economic activity depend, e.g. water and wastewater, transportation, information and communication technology (ICT) and electricity
- **Resilient nature and biodiversity** - Terrestrial, freshwater, coastal or marine ecosystems and the biodiversity they support and the natural capital and ecosystem services (e.g. freshwater provision, flood management, oxygen replenishment, etc.) that they provide
- **Resilient societies** - Systems and services for ensuring social well-being, safety and the creation/protection of social capital across populations, covering social protection, education, financial inclusion, digital inclusion, disaster risk (Disaster Risk Reduction (DRR) and emergency services), and including the capacities and knowledge of policymakers, service providers (public and private) and populations

Nature-based solutions (NbS) contribute to the achievement of outcomes across all seven themes. Specifically, NbS can can play an important role in protecting the resilience of natural systems via the restoration, conservation or sustainable management of ecosystems (i.e. working with nature for positive nature outcomes).

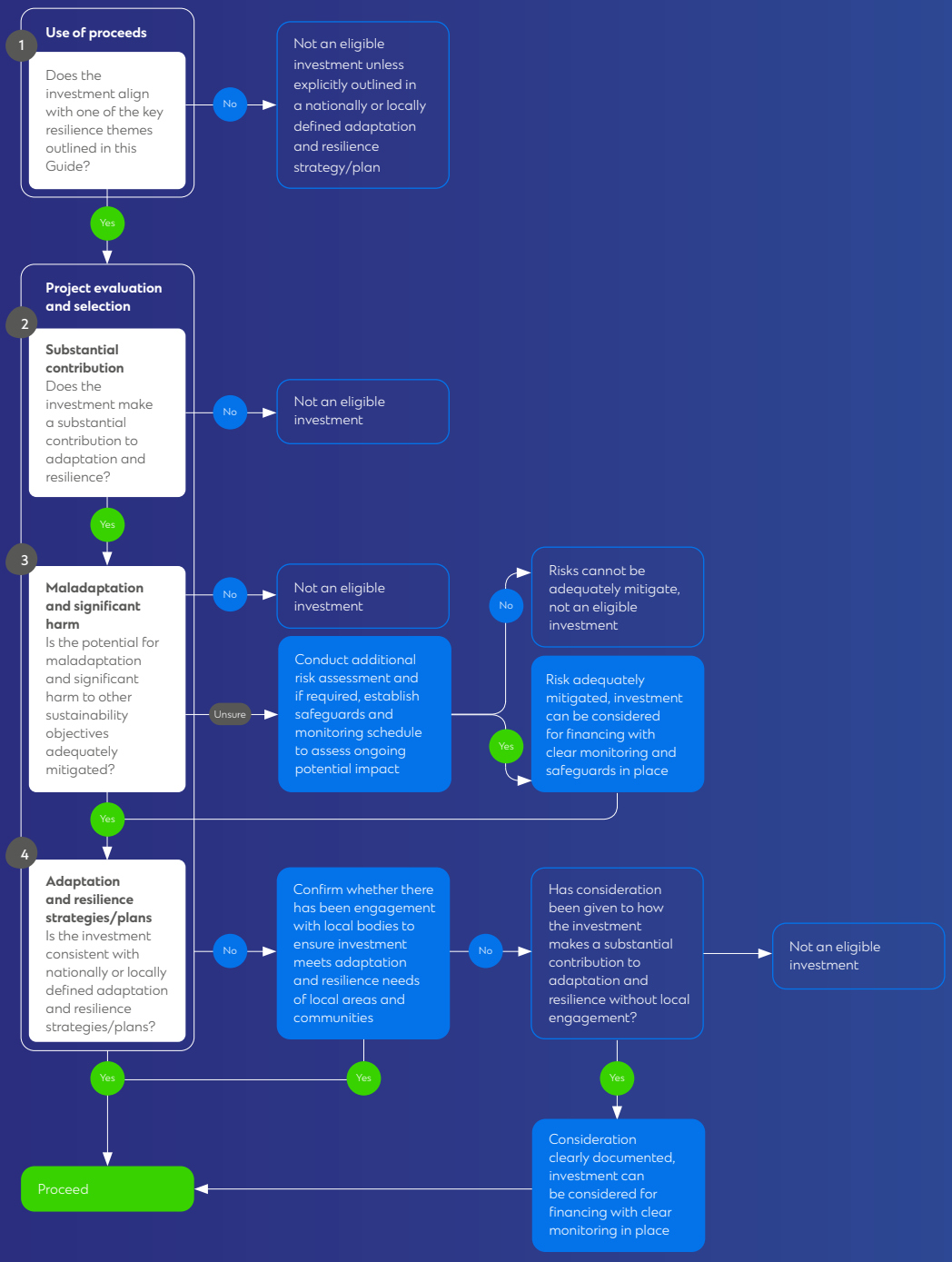
[35] See Appendix 1 for the detailed targets set out by the Sharm-El-Sheik Adaptation Agenda

[36] UNDRR and Climate Bonds Initiative (2023), Designing a Climate Resilience Classification Framework, https://www.undrr.org/publication/designing-climate-resilience-classification-framework-facilitate-investment-climate

Guidance for adaptation and resilience financing – key stages to assess and manage eligible investments

i Use of proceeds and ii Project evaluation and selection

This process should happen in parallel to commercial screening, due diligence and credit assessment.



- An investment should meet the definition adopted by this Guide for substantial contribution, and the conditions under which the investment qualifies should be documented
- Indicators of substantial contribution should be captured as well as the expected timing for benefits to materialise

- Environmental and Social risks should be assessed using international frameworks such as the IFC Performance Standards by individuals with appropriate expertise
- ESG safeguards should be set out
- Do No Significant Harm (DNSH) thresholds should be clearly defined, with monitoring and measurement on an ongoing basis
- There should be clear accountability for management and escalation of Environmental and Social (E&S) risks at investment level

- The investment should align to one of the indicative eligible activities set out in this Guide or otherwise be clearly stated as part of a national or local adaptation strategy /plan
- Engagement should take place between financing entities and local bodies that have a good understanding of the adaptation priorities of the local areas and community
- Note: Majority of countries don't have NAPs, and most of them are too high level to be able to answer alignment of investment with strategy, so further assessment may be required

iii Management of proceeds

If the above assessment results in the project proceeding, the next steps are to:

1. Establish consistent results framework for monitoring, evaluating, tracking and reporting adaptation and resilience performance of investment in alignment with sources of guidance on relevant impact metrics. This is to ensure substantial contribution can be effectively assessed during the lifetime of the transaction.
2. Confirm with the issuer or borrower that they have the ability to segregate proceeds from adaptation and resilience finance.

This process should happen prior to transaction close and requirements reflected in legal documentation. The results framework should link into the substantial contribution assessment made as part of the project evaluation and selection process.

iv Reporting

Reporting should be made available on allocation of the proceeds against eligible activities on at least an annual basis or until the proceeds from the financing have been fully allocated.

Impact reporting, aligned with the results framework set out above, should also be made available on an annual basis. Obtaining an independent review and verification of the framework is considered best practice.

This process should be ongoing post transaction close and throughout the tenor of transaction.

Adaptation and resilience investment framework

02

Adaptation and resilience investment framework

To align with current market practices, borrowers and issuers of adaptation and resilience financial products, including bonds, loans and structured financing, should develop a framework detailing the use of proceeds for adaptation and resilience activities. This framework should include the following elements:[37]

- **Use of proceeds:** Investments contributing to adaptation and resilience objectives and objectives aligned with the eligible project categories of the Green/Social Bond Principles, Green/Social Loan Principles and the UNDRR-CBI Climate Resilience Classification Framework, drawing on the activities set out in this Guide.
- **Project evaluation and selection:** The process for assessing and selecting eligible investments, including assessment of substantial contribution, avoidance of maladaptation and significant harm to sustainability objectives.
- **Management of proceeds:** The approach to managing the proceeds from the financing in accordance with the framework's requirements.
- **Reporting:** The methods for measuring, monitoring, evaluating and reporting the outcomes and impact of the allocation of the proceeds to adaptation and resilience activities, including the indicators used.

Obtaining an independent review and verification of the framework is considered best practice.

Use of proceeds

This Guide offers an indicative list of adaptation and resilience investments relevant for financial institutions and investors (Please refer to the Grid from Page 19 to 28) – issuers or borrowers should apply this list to help determine eligible uses of proceeds that contribute to enhanced adaptation and resilience outcomes.

Adaptation and resilience investments included are those which belong to two categories (adapted and enabling) as set out above.[38] They are presented as aligned with the seven Climate Resilience themes and have been mapped to the Green Bond/Loan Principles' Environmental Objectives and the Social Bond/Loan Principles' Social Outcomes to ensure consistency with broader market practice on aligning sustainable debt capital raising with the International Capital Markets Association (ICMA)/Loan Market Association (LMA)/Asia Pacific Loan Market Association (APLMA) and Loan Syndications and Trading Association (LSTA) principles and guidance. All activities are considered to contribute to Adaptation and Resilience objectives as defined by this Guide. Reference to 'Climate Change Adaptation' relates to the definition used in the Environmental Objectives of the ICMA/LMA/APLMA/LSTA principles to enable alignment with all ICMA/LMA/APLMA/LSTA recognised green project categories.[39]

This list of indicative activities has purposefully not captured all of the detailed requirements as set out above to enable simplicity and ease of use for the reader. Each investment should still be assessed for substantial contribution, maladaptation and significant harm to other sustainability objectives, and alignment to nationally defined adaptation and resilience strategies.

[37] In line with the Green Loan Principles [https://www.lma.eu.com/application/files/8916/9755/2443/Green_Loan_Principles_23_February_2023.pdf], the Green Bond Principles [https://www.icmagroup.org/assets/documents/Sustainable-finance/2022-updates/Green-Bond-Principles-June-2022-060623.pdf], the Social Loan Principles [https://www.lma.eu.com/application/files/9416/9755/3230/Social_Loan_Principles_23_February_2023.pdf], the Social Bond Principles [https://www.icmagroup.org/assets/documents/Sustainable-finance/2023-updates/Social-Bond-Principles-SBP-June-2023-220623.pdf].

[38] These definitions are aligned with those included in UNDRR and Climate Bonds Initiative (2023), Designing a Climate Resilience Classification Framework, https://www.undrr.org/publication/designing-climate-resilience-classification-framework-facilitate-investment-climate

[39] "Climate change adaptation (including efforts to make infrastructure more resilient to impacts of climate change, as well as information support systems, such as climate observation and early warning systems)"

Indicative eligible investments (Use of proceeds)

The following list of eligible activities is not intended to be exhaustive. It focuses primarily on investments that can be considered commercially viable within the context of adaptation and resilience needs in emerging markets and developing economies. Eligible activities may be relevant to one or more themes i.e. themes are not mutually exclusive and can overlap and intersect one another. Organisations should use this Guide for the following purposes:

- Financing of eligible projects and activities which align to adaptation and resilience activities based on the Grid below;
- General purpose loans to corporations where at least 90 per cent of the company's revenues are derived from adaptation and resilience activities based on the Grid below.

As more organisations engage on the topic of adaptation and resilience, we look forward to increased development of products and services; as well as continued collaboration to expand the list of eligible activities below.

			Adaptation and resilience type		Green Bond/Green Loan Principles' environmental objectives					Social Bond/Social Loan Principles' social outcomes					
Climate resilience themes	**Sub-theme**	**Examples of eligible investments**	Type 1: Activities that are adapted	Type 2: Activities that enable adaptation	Climate change adaptation	Climate change mitigation	Biodiversity	Pollution prevention and control	Natural resource conservation	Affordable basic infrastructure	Access to essential services	Affordable housing	Employment generation	Food security and sustainable food systems	Socioeconomic advancement and empowerment
Resilient agrifood systems	Primary production	Climate resilient crops (e.g. drought resistant seeds, new varieties including research and development expenditures)		×	×		×							×	
		Vertical farming	×		×		×				×			×	
		Drip irrigation/more efficient irrigation for agricultural production systems (e.g. pressurised irrigation technologies)		×	×				×					×	
		Drainage and stormwater diversion and storage		×	×			×	×					×	
		Climate resilient livestock infrastructure (e.g. temperature regulation technologies - cooling sheds***, emergency shelters etc.)		×	×									×	
		Climate-smart agriculture infrastructure and/or technology, including measures to improve soil health		×	×				×					×	
		Climate-smart sustainable fisheries management (e.g. biodiverse agroeconomic systems, aquatic food systems)		×	×		×	×							
		Infrastructure to prevent runoff of agrochemicals and sediment into rivers or coastal basins during flooding/heavy rainfall (e.g. high precision laser land levelling)		×	×		×	×							

			Adaptation and resilience type		Green Bond/Green Loan Principles' environmental objectives					Social Bond/Social Loan Principles' social outcomes					
Climate resilience themes	**Sub-theme**	**Examples of eligible investments**	Type 1: Activities that are adapted	Type 2: Activities that enable adaptation	Climate change adaptation	Climate change mitigation	Biodiversity	Pollution prevention and control	Natural resource conservation	Affordable basic infrastructure	Access to essential services	Affordable housing	Employment generation	Food security and sustainable food systems	Socioeconomic advancement and empowerment
	Processing, logistics, storage	Construction/retrofit/ expansion/operation/ upgrade to enhance resilience against natural hazards (storm damage, earthquakes, flooding, extreme heat etc.)	×		×									×	
	Wholesaling and retail	Resilient retail centres (e.g. retail infrastructure able to withstand extreme heat, heavy rainfall and/or flooding events)	×		×					×				×	
	Financing and insurance	Parametric insurance schemes for agriculture		×	×									×	×
Resilient cities	Residential, commercial and public buildings	Green spaces including roofs, walls and gardens	×		×	×	×		×						
		Water retention gardens and systems	×		×	×	×		×						
		Measures to reduce localised air temperatures including painting buildings white, adding trees to streets		×											
		Construction/expansion /operation/upgrade /retrofit to enhance resilience against natural hazards (storm damage, earthquakes, flooding, extreme heat, wildfires, etc.)	×		×							×			
	Planning, development and management of urban areas and settlements	Construction of sea walls (concrete)		×	×										
		Construction of sea walls (nature-based)	×	×	×	×	×	×							
		Stormwater management		×	×			×	×	×					
		Flood management systems		×	×			×	×	×					
		Flood management system (nature based)	×	×	×	×	×	×	×	×					
		Relocation of settlements including building of new settlements		×	×					×	×	×			
		Desalination plants in areas of water stress due to climate change		×					×		×				

			Adaptation and resilience type		Green Bond/Green Loan Principles' environmental objectives					Social Bond/Social Loan Principles' social outcomes					
Climate resilience themes	**Sub-theme**	**Examples of eligible investments**	Type 1: Activities that are adapted	Type 2: Activities that enable adaptation	Climate change adaptation	Climate change mitigation	Biodiversity	Pollution prevention and control	Natural resource conservation	Affordable basic infrastructure	Access to essential services	Affordable housing	Employment generation	Food security and sustainable food systems	Socioeconomic advancement and empowerment
		Desalination plants in areas of water stress due to other factors**		×					×		×				
		Water reclamation plants in areas of water stress		×	×		×	×	×		×				
		Nature based solutions in areas of heat stress (e.g. trees, vegetation, green infrastructure (walls, roofs))	×	×	×	×	×								
		Porous pavements	×		×		×			×					
	Cultural heritage	Protection of cultural heritage sites against natural hazards	×		×			×		×					
Resilient health	Systems and facilities for protection and improvement of health	Resilient public hospital infrastructure	×								×				×
	Pre-empting and responding to health challenges and emergencies	Health products and equipment essential for disaster response (including medical devices, protective equipment, vaccines)		×	×						×				×
		Health surveillance technologies to identify and pre-empt natural hazard driven disease patterns		×	×						×				×
		Health information management systems (incl. inventory mgmt.) specifically for disaster response situations		×	×						×				×
		Virtual healthcare and digital health technologies available to all and specifically designed for deployment in disaster situations		×	×						×				
		Research and development for medicines targeting emerging diseases		×	×						×				×

			Adaptation and resilience type		Green Bond/Green Loan Principles' environmental objectives					Social Bond/Social Loan Principles' social outcomes					
Climate resilience themes	**Sub-theme**	**Examples of eligible investments**	Type 1: Activities that are adapted	Type 2: Activities that enable adaptation	Climate change adaptation	Climate change mitigation	Biodiversity	Pollution prevention and control	Natural resource conservation	Affordable basic infrastructure	Access to essential services	Affordable housing	Employment generation	Food security and sustainable food systems	Socioeconomic advancement and empowerment
	Healthcare services	Financing to equip, operate and add capacity and efficiency to essential healthcare facilities such as hospitals, clinics, healthcare centres, acute care, emergency care, diagnostics, laboratory facilities, nursing home and rehabilitation facilities which are facing increase demand due to natural hazard driven diseases		×	×						×			×	×
		Manufacturing, logistics and distribution of medical products and supplies essential to medical response in disaster situations, disease control services and vaccinations which cover climate-sensitive diseases		×	×						×				×
		Financing to equip, operate and add capacity to facilities that house healthcare professionals in disaster response or hazard-driven outbreak situations		×	×						×				×
	Healthcare supplies and equipment	The conversion of facilities or equipment to produce supplies or equipment needed for the prevention or treatment of diseases or health emergencies due to climate or natural hazards		×	×						×				×
	Pharmaceuticals	Financing the subsidisation of provision of pharmaceuticals needed in the treatment of diseases or health emergencies due to climate or natural hazards		×	×						×				×

			Adaptation and resilience type		Green Bond/Green Loan Principles' Environmental Objectives					Social Bond/Social Loan Principles' Social Outcomes					
Climate resilience themes	**Sub-theme**	**Examples of eligible investments**	Type 1: Activities that are adapted	Type 2: Activities that enable adaptation	Climate change adaptation	Climate change mitigation	Biodiversity	Pollution prevention and control	Natural resource conservation	Affordable basic infrastructure	Access to essential services	Affordable housing	Employment generation	Food security and sustainable food systems	Socioeconomic advancement and empowerment
		Financing the production and distribution of pharmaceuticals needed in the treatment of diseases or health emergencies due to climate or natural hazards		×	×						×				×
Resilient industry and commerce (*some industries are covered under other themes and therefore not repeated here)	Cross-cutting (buildings and physical assets relevant to all industries – also see resilient infrastructure)	Strengthening of buildings, infrastructure, plant and equipment	×		×					×					
		Emergency onsite backup power (e.g. generator, battery storage, CHP with fuel storage)		×	×					×					
		Fire security measures	×		×										
		Measures to reduce building heating and cooling demand***	×	×	×	×									
		Siting cabling and electrical equipment above likely flood levels	×		×										
		Improving site drainage and roof water conveyance	×		×										
		Civil engineering measures to combat landslide, subsidence, heave or wind damage	×		×					×					
		Sustainable water use technologies (e.g. rainwater harvesting systems, water recycling)	×		×				×	×					
	Cross-cutting (Materials, consumer discretionary, consumer staples, industrials)	Emergency heating source input to effluent discharge system	×		×			×							
		Cooling systems for stocks of raw materials (e.g. chemicals) that deteriorate during hot weather***		×	×										
		Water-efficiency technologies and systems	×	×	×				×						

			Adaptation and resilience type		Green Bond/Green Loan Principles' environmental objectives					Social Bond/Social Loan Principles' social outcomes					
Climate resilience themes	**Sub-theme**	**Examples of eligible investments**	Type 1: Activities that are adapted	Type 2: Activities that enable adaptation	Climate change adaptation	Climate change mitigation	Biodiversity	Pollution prevention and control	Natural resource conservation	Affordable basic infrastructure	Access to essential services	Affordable housing	Employment generation	Food security and sustainable food systems	Socioeconomic advancement and empowerment
		Flexible logistics, inventory and supply chain management technologies and systems to build resilience to natural hazard-induced supply chain disruptions (e.g. AI, Machine learning for stock management and pricing)		×	×										
	Energy	Smart grid technologies	×		×	×				×					
		Energy efficiency measures that free up resource for adaptation and resilience		×	×	×									
		Energy storage solutions	×		×	×				(×)					
		Advanced weather forecasting systems to manage supply and demand	×		×						×				×
		Closed-loop water cooling systems and alternative cooling technologies	×		×										
	Consumer discretionary	Resilient IT infrastructure for online sales platforms and digital services	×		×										
	Information technology	Innovative cooling systems and technologies for data centers/server farms (e.g. ambient air cooling, liquid cooling, use of AI to optimise cooling efficiency)***	×		×										
		Research and development for new climate adaptation tech (e.g. advanced weather forecasting tools, climate modelling software)													
	Communication services	Innovative cooling systems and technologies for data centers/server farms (e.g. ambient air cooling, liquid cooling, use of AI to optimise cooling efficiency)	×		×										

			Adaptation and resilience type		Green Bond/Green Loan Principles' environmental objectives					Social Bond/Social Loan Principles' social outcomes					
Climate resilience themes	**Sub-theme**	**Examples of eligible investments**	Type 1: Activities that are adapted	Type 2: Activities that enable adaptation	Climate change adaptation	Climate change mitigation	Biodiversity	Pollution prevention and control	Natural resource conservation	Affordable basic infrastructure	Access to essential services	Affordable housing	Employment generation	Food security and sustainable food systems	Socioeconomic advancement and empowerment
	Utilities	Enhanced water management strategies and technologies (e.g. water recycling, desalination plants, watershed and aquifer management)	×		×				×		×				×
Resilient infrastructure	Cross-cutting	Construction/expansion /operation/upgrade to enhance resilience against natural hazards (storm damage, earthquakes, flooding, extreme heat, gradual heat etc.)	×		×	(×)				×					
		Mechanical or structural strengthening of infrastructure to enhance resilience against natural hazards (storm damage, earthquakes, flooding, extreme heat etc.)	×		×					×					
		Land-use buffers and vegetation management around infrastructure (including vegetated drainage basins)	×		×	×	×								
		Flood defences (strengthening, elevating structures; geosynthetics - geotextiles and geomembranes)	×		×			×		×	×				
		Drainage and stormwater diversion and storage		×	×			×	×						
		District cooling***		×	×						×				
		Air conditioning in areas prone to high heat stress	×	×	×					×					
		Relocation of infrastructure or key equipment	×		×						×				
		Off-grid energy use (renewables, batteries etc.)		×	×	×					×				
		Off-grid use where renewables is not a viable alternative and where there is significant risk of energy shortage during disaster recovery (generators, non-renewable)		×	×						×				

			Adaptation and resilience type		Green Bond/Green Loan Principles' environmental objectives					Social Bond/Social Loan Principles' social outcomes					
Climate resilience themes	**Sub-theme**	**Examples of eligible investments**	Type 1: Activities that are adapted	Type 2: Activities that enable adaptation	Climate change adaptation	Climate change mitigation	Biodiversity	Pollution prevention and control	Natural resource conservation	Affordable basic infrastructure	Access to essential services	Affordable housing	Employment generation	Food security and sustainable food systems	Socioeconomic advancement and empowerment
		Backup storage for critical systems		×	×	(×)					×				
		Localised power sources which provide backup power during grid outages		×	×	(×)					×				
	ICT infrastructure	Underground telecommunication lines	×		×						×				
		Wireless connectivity for locations vulnerable to weather-induced disruption	×		×						×				
		Redundancy and back up connectivity infrastructure	×		×						×				
	Transport infrastructure	Height adjustment (e.g. raising road or train tracks above flooding lines)	×		×					×					
		Improvements to road infrastructure (e.g. porous roads)	×	×	×					(×)					
		Breakwaters		×	×										
		Drainage		×	×			×							
		Flood pathways and mitigation measures that prevent plastic, solid waste, or pollutants runoff	×		×			×							
		Emergency response capabilities		×	×						×				×
	Water and wastewater infrastructure	Overflow reservoirs and drainage systems		×	×			×	×	×					
		Water storage: Rainwater harvesting, groundwater storage		×	×				×		×				
		Water conservation and efficiency measures leading to 20% minimum saving, such as water metering, water resource monitoring equipment, leak detection equipment and automated water and pressure control systems		×	×				×		×				
		Wastewater treatment and recycling		×	×			×	×		×				

			Adaptation and resilience type		Green Bond/Green Loan Principles' environmental objectives					Social Bond/Social Loan Principles' social outcomes					
Climate resilience themes	**Sub-theme**	**Examples of eligible investments**	Type 1: Activities that are adapted	Type 2: Activities that enable adaptation	Climate change adaptation	Climate change mitigation	Biodiversity	Pollution prevention and control	Natural resource conservation	Affordable basic infrastructure	Access to essential services	Affordable housing	Employment generation	Food security and sustainable food systems	Socioeconomic advancement and empowerment
	Coastal and riverine infrastructure	Coastal and riverine flood protection: Levees, floodgates, sand dams, surge barriers, pumps		×	×		×	×	×	×					
		Coastal pumping stations in areas of water stress		×	×		×				×				
	Energy generation, transmission and distribution infrastructure	Hydropower: Adjusted reservoir/spillway/ turbine capacity for fluctuating water levels		×	×						×				
		Wind: Shorter blade design	×		×						×				
		Thermal power: Resized cooling units, dry cooling systems***	×		×						×				
		Mini-/microgrids		×	×	×				×	×				
		Energy storage		×	×					×	×				
Resilient nature and biodiversity nature-based solutions	Nature-based solutions	Afforestation and reforestation, incl. restoring drylands		×	×	×	×								
		Mangrove conservation and replanting		×	×	×	×								
		Seagrasses and kelp conservation and (re-planting)		×	×	×	×								
		Restoration of salt marshes or peatlands		×	×	×	×								
		Conservation or rehabilitation of wetlands		×	×	×	×								
		Conservation or rehabilitation of coral reefs to reduce storm surges and flooding		×	×	×	×								
Resilient societies	Social protection and education	Data driven climate monitoring solutions, such as climate observation		×	×										×
		Early warning systems		×	×				×						×
		Monitoring, forecasting and modelling solutions of changes to the natural environment, and early warning systems for extreme weather events		×	×				×						

			Adaptation and resilience type		Green Bond/Green Loan Principles' environmental objectives					Social Bond/Social Loan Principles' social outcomes					
Climate resilience themes	**Sub-theme**	**Examples of eligible investments**	Type 1: Activities that are adapted	Type 2: Activities that enable adaptation	Climate change adaptation	Climate change mitigation	Biodiversity	Pollution prevention and control	Natural resource conservation	Affordable basic infrastructure	Access to essential services	Affordable housing	Employment generation	Food security and sustainable food systems	Socioeconomic advancement and empowerment
		Air quality forecasting system, monitoring of fire propagation and smoke transport systems		×	×			×			×				×
		Wildfire safety infrastructure and equipment such as hd cameras, and weather stations		×	×					×	×				×
	Financial and digital inclusion	Climate change adaptation insurance in line with the EU Taxonomy[40]		×	×										×
		Financial products e.g. catastrophe bonds, insurance linked securities		×	×										×
		Parametric insurance schemes for green/blue infrastructure such as coral reefs, fisheries, and coastal protection		×	×		×								×

* X indicates high likelihood of co-benefit arising from adaptation and resilience investment; where brackets are used to indicate a co-benefit, e.g. (x), this co-benefit may only arise in certain instances of that eligible investment (e.g. when deployed using renewable energy).

** Refers to adaptation to other non-climate related natural hazards (see Table 1).

*** Eligible investments related to cooling align with the Montreal Protocol.

[40] EU Taxonomy, Technical Screening Criteria, Document C(2021)2800, p19, Paragraph 46

Project selection

The issuer or borrower should apply the Guide to help identify and classify eligible investments. Eligible investments should clearly describe the significance of their contribution to adaptation and resilience, co-benefits, prevention of maladaptation, and avoidance of significant harm to other sustainability objectives.

Investments should have sufficient information to objectively describe the use of proceeds and enable impact reporting. These activities should also align with existing local adaptation regulations, National Adaptation Plans and DRR targets[41] where applicable, and adhere to stringent environmental and social standards.

Management of proceeds

The issuer or borrower should have the ability to segregate the proceeds from adaptation and resilience finance and allocate them solely to eligible measures and activities, as defined in their use of proceeds framework.

If an investment has multiple components, only those eligible should be counted as adaptation and resilience finance. In practice, it is recognised that the adaptation/resilience component may only be a small part of an overall package of financing. Where it is not possible to establish a separate tranche of financing for adaptation and resilience purposes, it is suggested that efforts are made to estimate and recognise only the share of financing going towards adaptation and resilience end use. Where it is not separable, this should be made clear in reporting. Components not eligible under this framework must not contribute to avoidable negative impacts on adaptation or environmental or social outcomes.

Impact reporting

The issuer or borrower should develop a consistent results framework for monitoring, evaluating, tracking and reporting the adaptation and resilience performance of the investment. There should be a clear and logical connection between indicators used to assess substantial contribution (i.e. expected impact) and indicators used to assess adaptation and resilience realised impact. Alignment between impact indicators and any adaptation outcomes and indicators as set out in local or national adaptation strategies, and disaster risk reduction strategies is strongly encouraged. Indicators used may:

- be qualitative and quantitative,
- measure the instrumental or intrinsic value of the investment, and
- measure capacity or contributions to resilience, intermediate outcomes or ultimate impacts.

Collaboration with other financial institutions, adaptation experts, and affected stakeholders and rightsholders may be necessary to define suitable impact indicators including those that measure short-term effects (e.g., within the investment duration) and those that may not be measurable within but have benefits that extend beyond the investment duration. As an example, the benefits of an investment to reduce chronic (i.e. annual/bi-annual) flood damage may be amenable to short-term measurement, whereas the benefits of an investment to address 1-in-50 or 1-in-100 year flood event risk or slow-onset stresses such as gradual rise in sea level and associated salt water intrusion may be more difficult to measure within the investment time frame (i.e. over decades).

Measuring adaptation and resilience impact
Examples of indicators to assess adaptation and resilience impact of a specific investment:[42]

Climate resilience themes	Examples of impact indicators	Source
Resilient agrifood systems	• Increase in agricultural land using more drought resistant crops (ha, m^2 or km^2) • Area cultivated by precision agriculture (ha, m^2 or km^2) • Area under climate-smart sustainable fisheries management (ha, m^2 or km^2) • Reduced/avoided loss of livestock and/or crops (#, valorised, %) • Decrease in climate-related risk insurance premiums (valorised $/€/£ etc or %)	ICMA Harmonised Framework for Impact Reporting 2022 (link)

[41] UNDRR (2015), Sendai Framework for Disaster Risk Reduction 2015-2030, https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030
[42] Adapted from UNDRR (2020). Budget Tagging for Disaster Risk Reduction and Climate Change Adaptation, p.32-40.

Climate resilience themes	Examples of impact indicators	Source
Resilient cities	• Reduction in flood damage costs (valorised $/€/£ etc) • Reduction in number of operating days lost to floods (#) • Reduction in land-loss from inundation and/or coastal erosion (ha, m^2 or km^2) • Reduction in repair costs due to storms (to all kinds of infrastructure and assets) (valorised $/€/£ etc) • Increased number of urban residents with access to thermally safe conditions in buildings/transport systems (#) • Increased number of households with access to resilient energy systems (#) • Increased number of people/businesses/acres with secure water supply (#) • Reduced number of people evacuated/injured/displaced/economically unproductive due to climate-related hazards (#) • Decrease in the number of days between a disaster and the related response and recovery (#) • Reduction in share of cultural and recreation sites damaged after extreme weather events (%) • Number/extent of nature-based solution projects in areas of heat stress to support flood water retention, cooling measures and biodiversity (#) • Number of properties protected by existing flood protection measures (#)	ICMA Harmonised Framework for Impact Reporting 2022 (link) Donatti et al (2019) "Indicators to measure the climate change adaptation outcomes of ecosystem-based adaptation" (link)
Resilient health	• Share of hospital or healthcare infrastructure damaged after extreme weather events (%)/Number of destroyed or damaged health facilities attributed to disasters (#) • People's years lost or deaths due to vector borne diseases of various demographic groups within the population after extreme weather events (#) • People's years lost or deaths due to vector borne diseases related to climate change, respiratory distress and heat stroke, of various demographic groups within the population during extreme weather events (#) • Reduced number of people suffering from flood-related infections (#) • Reduced number of people suffering from water-borne diseases/ reported cases of water-borne diseases (#)	ICMA Harmonised Framework for Impact Reporting 2022 (link) Donatti et al (2019) "Indicators to measure the climate change adaptation outcomes of ecosystem-based adaptation" (link)
Resilient industry and commerce	• Prevalence of moderate or severe food insecurity in the population after extreme weather events or through time (%) • Increase in grid resilience, energy generation, transmission/distribution and storage (MWh) • Reduction in repair costs and/or operating days lost due to landslides (valorised $/€/£ etc) • Reduction in repair costs due to storms (to all kinds of infrastructure and assets) (valorised $/€/£ etc)	ICMA Harmonised Framework for Impact Reporting 2022 (link)

Climate resilience themes	Examples of impact indicators	Source
Resilient infrastructure	• Length of road, rail or other infrastructure adapted (km) • Increased number of urban residents with access to thermally safe conditions in buildings/transport systems (#) • Increased number of households with access to resilient energy systems (#) • Increased number of people/businesses/acres with secure water supply (#) • Share of population with access to enough and clean drinking water under extreme events (%) • Increase in grid resilience, energy generation, transmission/distribution and storage (MWh) • Reduction in the number of wildfires, and/or in the area damaged by wildfires (ha or km^2) • Reduction in length of emergency and unplanned rail and tarmac replacement (km) • Reduction in the number of customers/employees suffering loss of power/transport services (#) • Reduction in the number of power lines incapacitated due to storms (#) • Number of people and/or enterprises (e.g. companies or farms) benefitting from measures to mitigate the consequences of floods and droughts (#) • Number of sustainable (urban) drainage systems (SUDs) in place (#) • Annual absolute (gross) water use before and after the project in (m3/year) • Reduction in water use (%) • Annual absolute (gross) amount of wastewater treated, reused or avoided before and after the project (m3/year and as %) • Share of critical infrastructure damaged after extreme weather events (e.g., % houses or schools damaged, % of km of roads damaged, % of protected area damaged, % of hectares of agriculture damaged) • Length of underground telecommunication lines constructed (km) • Share of transport infrastructure that include height adjustment to protect against flood risk (%) • Area/extent of infrastructure protected by land-use buffers and vegetation management (ha, m^2 or km^2)	ICMA Harmonised Framework for Impact Reporting 2022 (link) UNDRR Sendai Framework Indicators (link) Donatti et al (2019) "Indicators to measure the climate change adaptation outcomes of ecosystem-based adaptation" (link) EPA Ireland, Report 379 on Selecting and Using Indicators of Climate Resilience (link)
Resilient nature and biodiversity	• Increase in area under sustainable or certified management (ha, m^2, km^2 and/or %) • Area of peatland/wetlands restored/under conservation practices (ha, m^2 or km^2) • Number of sustainable farms/wetland areas/conservation centres created or financed (#)	ICMA Harmonised Framework for Impact Reporting 2022 (link)
Resilient ocieties	• Number of people per 100,000 that are covered by early warning information through official dissemination mechanisms (#) • Number of people per 100,000 that have accessible, understandable, usable and relevant disaster risk information and assessment available at the national and local levels (#) • Share of population exposed to or at risk from disasters protected through pre-emptive evacuation following early warning (%) • Decrease in climate-related risk insurance premiums (valorised or %)	ICMA Harmonised Framework for Impact Reporting 2022 (link) UNDRR Sendai Framework Indicators (link)
Cross-cutting	• Investment in [type of climate adaptation/mitigation measure] to mitigate against [type of climate risk] (valorised $/€/£ etc)	EPA Ireland, Report 379 on Selecting and Using Indicators of Climate Resilience (link)

Selected adaptation and resilience indicators should align to established principles and guidance for adaptation finance measurement and reporting (e.g., transparent, coherent, feasible, sensitive to local context).[43] The analysis of performance and benefits could be conducted on an ex-ante (pre-investment) and/or ex-post (after-investment) basis.

To support assessment of entity-level adaptation and resilience investments, individual measures or activity-level metrics/indicators should be amenable to aggregation to determine the entities' overall alignment with positive adaptation and resilience outcomes.

Metrics/indicators should be included in annual impact reporting, including, where possible, independent third-party review to assess alignment with the use of proceeds framework and to assess the attainment of investment objectives and adaptation and resilience benefits.

[43] Examples include:
IDFC (2023), Common Principles for Climate Adaptation Finance Tracking, https://www.idfc.org/wp-content/uploads/2023/11/idfc-2023-common-principles-adaptation.pdf
IPAM (2021), Adaptation Metrics Mapping Evaluation Framework, https://adaptationmetrics.org/sites/AMME-Framework.pdf
ICMA (2023), Handbook – Harmonized Framework for Impact Reporting, https://www.icmagroup.org/assets/documents/Sustainable-finance/2023-updates/Handbook-Harmonised-framework-for-impact-reporting-June-2023-220623.pdf; GIIN IRIS+ Impact measurement & management system https://iris.thegiin.org/

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Approach:

The Guide builds from the Climate Resilience Classification Framework that was advanced in the White Paper: Designing a Climate Resilience Classification Framework (2023) published by the United Nations Office for Disaster Risk Reduction (UNDRR) and the Climate Bond Initiative (CBI). By aligning to the classification structure and definitions as presented in the White Paper, this Guide promotes consistency and common understanding across market participants in what constitutes Adaptation and Resilience Finance. The Guide also builds on a comprehensive range of market, regulatory, and voluntary guidance, standards, frameworks, and tools, including:

- ACT Adaptation Methodology (ACT)
- Adaptation Performance Measurement Framework (Green Climate Fund)
- Adaptation Solutions Taxonomy (IADB and GARI)
- Climate Adaptation and Resilience Principles (Climate Bonds Initiative)
- Common Principles for Climate Change Adaptation Finance Tracking (IDFC)
- DAC Rio Markers for Climate: Handbook (OECD)
- DRR[44] and Climate Change Adaptation Taxonomy for Public Budget Tagging (UNDRR)
- EU Taxonomy for Sustainable Activities (Adaptation)
- FAST-Infra Sustainable Infrastructure Label
- Framework and Principles for Climate Resilience Metrics in Financing Operations (IADB)
- Green/Social Bond Principles and associated resources e.g., the Green/Social Bond Principles Handbook (ICMA)
- Green/Social Loan Principles (LMA, APLMA and LSTA) and associated guidance
- Joint Methodology for Tracking Climate Change Adaptation Finance (MDBs)
- Resilience Rating System (World Bank)
- Sustainable Development Goals Finance Taxonomy (UN)
- UK Green Taxonomy (UK GTAG)

[44] UNDRR (2015), Sendai Framework for Disaster Risk Reduction 2015-2030, https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030

Acknowledgments

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We are active in over 30 countries that receive official development assistance, including seven of the least developed countries. Given the vulnerability of our markets and the lack of finance flowing towards them or towards much-needed adaptive measures – these will be the hardest hit by climate change. This will affect economies, productivity, livelihoods and health.

Adaptation has been a key area of focus for Standard Chartered, and our 2022 adaptation economy report[45] noted the need for adaptation finance in 10 of our key markets, and also noted the multiplier effect on economies that such finance would have. This Guide will serve as the blueprint for how the private sector can help to do this. It is our hope that any institution wishing to define and drive capital towards adaptation and resilience can pick up this Guide and use it as their own.

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About UNDRR

The UN Office for Disaster Risk Reduction (UNDRR) works with countries to help them better understand and act on risks before they lead to disasters. It does this by supporting governments and partners to implement the Sendai Framework for Disaster Risk Reduction 2015-2030, which was the first major intergovernmental agreement of the post-2015 development agenda. As the lead agency within the United Nations system for the coordination of disaster risk reduction, UNDRR uses its authoritative expertise and presence in five regional offices to build and nurture relationships with national and local governments, intergovernmental organisations, civil society, and the private sector.

[45] https://www.sc.com/en/campaigns/adaptation-economy/;

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