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Guide for Adaptation and Resilience Finance

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Foreword

Climate change is increasingly being experienced through its physical impacts. Across the markets we serve, businesses, communities and infrastructure face growing exposure to extreme weather, water stress and other climate-related risks. Building resilience is therefore becoming an economic imperative as much as an environmental one. Yet adaptation and resilience finance remains significantly underdeveloped relative to the scale of need. While awareness of physical climate risk has grown, mobilising capital at scale continues to be constrained by challenges around identification, measurement, investability and market confidence. The question is no longer whether adaptation matters, but how we create the conditions for capital to flow at the scale required.

This challenge sits at the heart of Standard Chartered's Sustainability Innovation Hub strategy. Our Innovation Hubs were established to help advance emerging areas of sustainability with significant potential for scale, developing new solutions and opportunities for our clients and markets. Adaptation and resilience finance is a clear example of where this approach is needed. To attract capital at scale, the market needs greater clarity on the investment case: how resilience creates or protects value, how those benefits can be evidenced, and how they translate into financial and investment decisions. GARF 2.0 has been developed with that challenge in mind. Building on the foundations of the original Guide for Adaptation and Resilience Finance, it marks an important evolution from establishing what constitutes adaptation and resilience finance towards helping the market understand value, investability and verifiability. But frameworks alone will not build this market. Banks, development finance institutions, insurers, asset managers, private investors, governments and companies each bring different forms of capital, expertise and risk-bearing capacity. Unlocking larger pools of finance will depend on how effectively those actors work together to develop investable opportunities and build market confidence.

Ultimately, frameworks only matter if they change decisions. Our ambition for GARF 2.0 is therefore not simply that it is read or referenced, but that it helps build the confidence, common language and collaboration needed to turn a growing recognition of physical climate risk into investment, and investment into greater resilience.

Marisa Drew
Chief Sustainability Officer, Standard Chartered

When we published the first Guide for Adaptation and Resilience Finance, our starting point was simple: if we want more capital to flow towards adaptation and resilience, the market needs greater clarity about what it can finance. That remains important, but the market has moved on. Physical climate risk is increasingly recognised as a financial issue, with the potential to affect revenues, asset values, operating costs, supply chains and long-term business performance. The challenge now is to translate that understanding into investment. GARF 2.0 is designed to help make that shift.

While retaining the practical classification framework at the heart of the original Guide, this refreshed edition moves the conversation from eligibility and credibility towards value, investability and verifiability. Adaptation has often been viewed principally as a cost, or as an area dependent on public or concessional finance. But resilience can have real economic value. Investments can preserve value by reducing losses, protecting revenues and assets, improving business continuity and strengthening supply chains. In some circumstances, they can also create value through greater productivity, lower costs and new commercial opportunities. But we also need to be clear about what constitutes genuine financial value. Not every resilience outcome translates directly into financial return. Understanding where value accrues, how it can be evidenced and how it can influence financial and investment decisions will be critical to building a credible market. GARF 2.0 therefore goes further in connecting resilience more directly to financial and investment decisions, providing practical approaches intended to help users move from identifying risk to financing solutions. That evolution also reflects what we have learnt by putting the original framework into practice. For me, that is where the opportunity now lies: establishing adaptation and resilience not only as a risk-management imperative, but as a source of long-term economic value and an investable market.

Our ambition is not simply that GARF 2.0 is read or referenced, but that it is used to: identify opportunities, engage clients, structure transactions, assess risk and allocate capital. The next phase of adaptation finance must be about execution: moving from risk awareness to investment, from frameworks to transactions, and from commitment to capital. We hope this Guide helps make that happen.

Alex Kennedy
Managing Director, Sustainable Finance Solutions

Foreword

Physical climate risk is already shaping business performance, asset values, supply chains, credit quality and investment outcomes. As climate-related disruptions intensify, the challenge is no longer recognising these risks, but incorporating them effectively into investment, lending and capital allocation decisions.

Adaptation and resilience have often been viewed as risk management and cost avoidance. These benefits remain critical, but they tell only part of the story. Resilience can also strengthen competitiveness, improve operational performance, enhance asset value and create growth opportunities, making it a core business and investment consideration. Yet translating resilience outcomes into credible, measurable and financeable investment propositions remains a major barrier. At KPMG firms, our work with clients worldwide at the intersection of climate risk, business strategy and capital allocation shows the need to connect physical risks with financial performance, investment priorities and sustainable growth. Scaling resilience requires more than better risk analytics and disclosure: it often requires stronger business cases, investable opportunities, innovative financing structures and clarity on how resilience creates and protects value.

GARF 2.0 seeks to help bridge this gap. Building on the first edition, it moves beyond eligibility to help financial institutions identify, assess and finance credible adaptation and resilience opportunities, understand metrics informing physical risk pricing models, and structure transactions that can reduce vulnerability while creating long-term financial value. Its contribution is to connect climate risk assessment more directly with investment decision-making.

The challenge is substantial, but so is the opportunity. Financial institutions, investors, corporations, governments and development organisations all have a role in accelerating adaptation and resilience investment. Strengthening the connection between physical climate risk, financial performance and capital allocation can help unlock investment at the pace and scale required.

Our goal is clear: move adaptation and resilience from a recognised necessity to an established component of investment and financial decision-making.

Blythe Chorn
Global Climate Leader, KPMG International

Building climate resilience starts with recognising that adaptation is always specific to its context. What protects one asset, business or community may be ineffective for another, or even cause harm. That is why one of the most important contributions of GARF 2.0 is the emphasis it places on establishing a clear line of sight from the climate risk an investment addresses, to the intervention chosen, to the resilience outcome it is designed to achieve and the value that follows.

That line of sight is what gives investors and lenders confidence. Labelling an investment as adaptation does not, on its own, show that it is technically credible, commercially viable or financeable. The seawalls in Fiji described in the Guide were built to protect coastal villages but ended up trapping floodwater in them, a reminder of what happens when local conditions are overlooked. GARF 2.0 asks a simple but demanding question of every investment: will it still make a real difference if climate change proves more severe than current projections suggest?

The Guide also brings clarity about the kind of value an investment delivers. Many resilience investments protect value by reducing losses and disruption, and some go further by creating new revenue or lowering costs. The Guide shows how to tell the two apart and how each can be reflected in a financing decision. That distinction aims to guard against overstated claims and can build trust in a market that is still taking shape.

Above all, GARF 2.0 offers a practical way to bring technical and financial expertise together. It can help lenders and investors ask the right questions of a proposal, and it helps those designing resilience measures present evidence in terms that finance teams can act on. The result should be more investments that are technically sound, honestly valued and ready to be financed. That is how a growing understanding of climate risk can translate into resilience on the ground.

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01

Executive summary

Executive summary

From frameworks to financial decisions: scaling adaptation and resilience (A&R) finance

Since the launch of the first Guide for Adaptation and Resilience Finance (GARF 1.0) in 2024, the global context for A&R finance has shifted decisively. As physical climate risks intensify, demand for A&R investments is growing across corporates and micro, small and medium-sized enterprises (MSMEs). Private-sector engagement is also becoming increasingly evident. Recent MSCI Institute analysis found that 89% of listed companies assessed show evidence of hazard-specific resilience actions, while 47% generate revenues from products and services that help customers adapt to physical climate risks. These trends reinforce A&R as both a risk-management imperative and a growing commercial opportunity.

Policy ambition has also intensified. The call at COP30 in Belém to triple annual A&R finance by 2035 underscores the need to move from conceptual alignment to measurable capital allocation. For financial institutions, this presents a significant opportunity to support growing client demand for A&R investments. Realising this opportunity will require greater clarity and confidence to deploy capital at scale, particularly in emerging markets and developing economies, where needs are greatest and investable opportunities are often least visible. Banks will also need stronger origination capabilities, sector expertise, and risk frameworks to identify, structure, and finance A&R investments, helping overcome barriers to capital mobilisation and deployment arising from market constraints or limited visibility of potential returns.

GARF 1.0 helped advance the market by providing a practical approach that financial institutions and their clients could apply in real-world settings. More importantly, it shifted the conversation from defining what qualifies as A&R finance to identifying and financing investable opportunities. At Standard Chartered, application of GARF 1.0 has enabled the group to identify, assess, and originate A&R finance opportunities, review existing transactions against the framework, complete innovative transactions (please refer to the case study reflected on Page 60), and build a growing pipeline of opportunities.

GARF 2.0: From Adaptation Eligibility to Investment Decision-Making

Building on the foundation established by GARF 1.0, this 2026 refresh (GARF 2.0 or the "Guide") is designed to support financial institutions in moving beyond A&R eligibility and credibility towards value, investability and verifiability. It aims to help financial institutions identify, assess and finance credible A&R finance opportunities, understand metrics that feed into physical risk pricing models, and structure transactions that reduce vulnerability while creating long-term financial value. Recognising that A&R criteria and requirements differ across financial institutions and financial instruments, GARF 2.0 continues to provide a principles-based framework that can be applied across a range of activities and financing structures. The key enhancements and objectives are summarised below.

Figure 1: Key Enhancements and Objectives of GARF 2.0



Key objectives of GARF 2.0

First, it strengthens market clarity on what qualifies as A&R finance.

The refreshed classification framework goes beyond listing eligible activities. Drawing on updated market evidence, it expands and rebalances the activity list and places greater emphasis on financeable opportunities that can support both resilience outcomes and commercial returns. It also introduces clearer activity-level indicators and decision-useful metrics to help users assess contribution, understand the underlying business model, monitor performance, and report impact more consistently. GARF 2.0 also makes explicit how adaptation investments can support reducing the financial impacts of incurred losses and the exposure and vulnerability of assets; adapting business practices and increasing coping capacity; and improving supply chain resilience, risk transfer mechanisms, creditworthiness, and future profitability. By highlighting risk reduction, revenue protection, cost avoidance, productivity gains and new market opportunities, it challenges the perception of adaptation as primarily a cost or concessional activity and reframes it as an investment in resilient value creation that generates both monetary and non-monetary benefits.

Second, it bridges the gap between risk assessment and investment decision-making.

For more than five years, financial institutions have invested heavily in physical climate risk assessment in response to evolving disclosure frameworks and regulatory expectations. While these efforts have significantly improved understanding of climate-related exposures and made risk screening a standard component of investment and lending processes, they have yet to translate into A&R investment at the scale required. Without clearer evidence on costs, benefits and financial returns, many institutions continue to struggle to move from identifying risks to financing solutions. The strengthened investment assessment flowchart aims to address this challenge by outlining requirements for bankability and commercial feasibility while translating requirements around substantial contribution, maladaptation risk and do-no-significant-harm considerations into a sequenced pathway that can be integrated into existing credit, due diligence, investment committee and sustainable finance processes, to build a credible adaptation and resilience asset base. GARF 2.0 also provides practical guidance on applying these tests in context and navigating trade-offs that could create unintended negative outcomes. This is intended to support more informed investment decisions, credible use-of-proceeds allocations, and greater consistency in impact reporting and market claims.

Third, it reflects learning from real-world application.

The 2026 refresh introduces an end-to-end worked example on water security and energy resilience, demonstrating how investments can be screened, classified, assessed, tested against safeguards, linked to indicators and translated into monitoring and reporting requirements. By showing the framework in action, it shortens the learning curve and makes it more readily applicable to origination, structuring, approval, portfolio management and disclosure.

Intended users and applications

GARF 2.0 is designed primarily for commercial banks, development finance institutions, investors, insurers and other financial intermediaries seeking to identify, assess and finance A&R opportunities. It aims to provide a practical framework to support transaction screening, investment decision-making, portfolio management, monitoring and reporting, while helping institutions understand how A&R investments can reduce physical climate risks and support long-term financial performance. The Guide can be applied to:

- Use-of-proceeds financing for eligible A&R projects and activities at the asset or portfolio level.
- General purpose loans and working capital facilities for corporations deriving at least 90 per cent of revenues from A&R activities.
- Resilience-linked financing facilities, where key performance indicators (KPIs) are linked to measurable A&R outcomes such as reduced physical climate risks, enhanced asset resilience, lower expected climate-related losses or improved business continuity. Pricing incentives or financing terms may be linked to the achievement of these targets. This pathway helps capture A&R investments in existing assets and operations that may not be suitable for ring-fenced use-of-proceeds financing.

Supporting the development of A&R finance markets

While GARF 2.0 is primarily intended for financial institutions and investors, its broader objective is to support the development of more effective A&R finance markets. Achieving this will require collaboration across a wider ecosystem of stakeholders. (Table 1)

Policymakers, central banks and regulators can use the Guide to better understand how private capital can support national and local adaptation priorities. Public finance providers and philanthropies can use it to identify where concessional capital may help address affordability, risk or bankability constraints. Local financial institutions, specialist intermediaries, knowledge institutions, civil society organisations and community stakeholders can contribute expertise, implementation capacity and market insights that help translate adaptation needs into investable opportunities.

Although GARF 2.0 places particular emphasis on emerging markets and developing economies, where adaptation needs and financing gaps are often greatest, the framework is designed to be globally applicable across different markets, sectors and financial systems.

Table 1: How GARF 2.0 can be used by different stakeholders for systemic market change

Development banks and DFIs	Mobilise public and private capital towards adaptation and resilience priorities and structure blended finance solutions.
Commercial banks	Identify, assess and scale adaptation and resilience lending opportunities.
Corporate and investment banks	Integrate adaptation and resilience considerations into client origination, transaction structuring and risk assessment.
Asset managers, institutional investors and philanthropic organisatons	Assess resilience-related risks, opportunities and financing needs across assets and portfolios.
Insurers and reinsurers	Incorporate resilience considerations into risk assessment, insurability and pricing decisions.
Other financial intermediaries	Build capacity, expand market participation and facilitate capital mobilisation for adaptation and resilience.
SMEs and corporates	Identify resilience investment needs, assess financing requirements and communicate investment opportunities to capital providers.

Enhancing the A&R finance landscape through complementary guidance

GARF 2.0 complements existing taxonomies, standards, voluntary principles and other A&R guidance by helping financial institutions answer practical questions:

- What exactly can I finance?
- How do I assess it consistently?
- How does it affect risk, return, and resilience?
- How do I evidence contribution and avoid unintended harm?
- How do I report outcomes in a way that is credible and decision-useful?

The Guide complements the UK Climate Financial Risk Forum (CFRF) Adaptation Working Group (AWG) report "From Risk to Resilience: Integrating Adaptation into Finance" which provides practical guidance on integrating physical climate risks and resilience considerations into financial decision-making across institutions, sectors, and geographies. It focuses on utilising high-quality data and physical risk assessments to turn risk into opportunity through data integration into financial decision making. In 2026, the CFRF AWG, chaired by Standard Chartered, continues to advance the adaptation agenda through workstreams covering Credit Risk, Data, and Insurance.

GARF 2.0 is also complemented by "The CFO Playbook for Resilience Capital", a World Economic Forum white paper developed in collaboration with KPMG due to launch in November 2026. Where this Guide addresses the supply side of A&R finance, the playbook addresses the demand side: how chief financial officers and finance teams establish the mandate, evidence, business case and funding route needed to turn physical climate risk into approved resilience investment. Drawing on interviews and roundtable discussions with more than 40 finance leaders and experts, it is designed to help build the pipeline of investable resilience projects that lenders can finance.

A living resource for a rapidly evolving market

This Guide is not intended to be static. A&R finance is evolving rapidly, alongside advances in climate data, risk modelling, regulation, disclosure expectations, policy frameworks, and market practice. The 2026 refresh reinforces the Guide's role as a living, market-led tool that will continue to evolve as financial institutions deepen their engagement with A&R. By providing stronger evidence, clearer classification, more practical decision pathways, improved indicators, and a worked example that shows the framework in action, GARF 2.0 aims to equip the market to move decisively from commitment to capital, and from risk awareness to resilience driven investment.



Messages from our contributors

"At UNDP, we believe that investing in climate adaptation is not just about mitigating risk: it is a strategic opportunity to build stronger business and community resilience, ensuring we leave no one behind. By integrating climate considerations into everyday financial decisions, we can empower local communities to thrive, safeguard livelihoods, and ultimately accelerate progress toward the 17 United Nations Sustainable Development Goals (SDGs)."

"Much of the coastal adaptation investment that reaches financial close sits in the productive blue economy rather than in ecosystems: aquaculture resilience, fisheries cold chain and post-harvest loss, port and terminal continuity, and coastal water security. These carry identifiable revenues from identifiable payers, which coastal nature-based protection often does not, and they are already financed through existing channels and already sit on bank balance sheets across archipelagic and coastal markets. They are also tangible, discrete, and constructible, which is what a sukuk requires, since the instrument conveys ownership or usufruct in a named asset rather than a debt claim on the issuer. Malaysia and Indonesia hold the deepest sukuk markets in the world and some of its longest coastlines, and the Gulf combines the same structures with ports, desalination, and coastal infrastructure under acute water and heat stress. The investable opportunity is in applying resilience criteria to assets that are already being financed, rather than in creating a new asset class."

"Adaptation sits largely on sovereign and quasi-sovereign balance sheets: water, power, health, agriculture, transport. Across the Gulf, South East Asia, and Africa, those issuers fund through sukuk. The fit is structural. Adaptation returns are contingent and long-dated, a profile fixed-coupon debt prices poorly and participatory structures are designed for: Musharaka and Mudaraba share project risk rather than transfer it, and Takaful retains it in a participant fund rather than transferring it to a carrier. Sukuk documentation does not yet carry adaptation eligibility definitions, hazard materiality thresholds, or eligible cost treatment. The criteria in this Guide are directly portable into it, which would open the asset class to a one-trillion-dollar investor base."

"IFC, through the Scaling Adaptation and Resilience through Financial Institutions program, supported by the Global Environment Facility, works with financial institutions in emerging markets to promote A&R investments. One key barrier is the limited evidence proving the business case of A&R investments, as lenders struggle to translate climate risk into financial terms. IFC is addressing this by quantifying the revenue gains, cost savings, and avoided losses associated with A&R investments. Work is now underway to deepen this evidence with local data and explore how it can inform financial products and credit decisions."

"Mobilising finance for climate adaptation requires translating physical climate risks into investment priorities, resilience outcomes and financing solutions. The GARF provides a principles-based framework to help financial institutions identify, classify and finance adaptation and resilience investments. Complementing this approach, Marsh's Resilience Investment Framework highlights the role of insurance and other risk-transfer solutions and helps assess how investments can reduce climate risk exposure, strengthen resilience and improve project bankability. Together, the two frameworks support more informed capital allocation, risk management and financing decisions, helping to scale adaptation and resilience finance."

"Most assets that will meet the 2050 climate are already built, making the existing stock the largest adaptation opportunity in any loan book – and the hardest to finance. Above-code new construction returns around 11:1, retrofit around 4:1 (NIBS), and a resilience upgrade is typically 3–5% of an asset's capex.

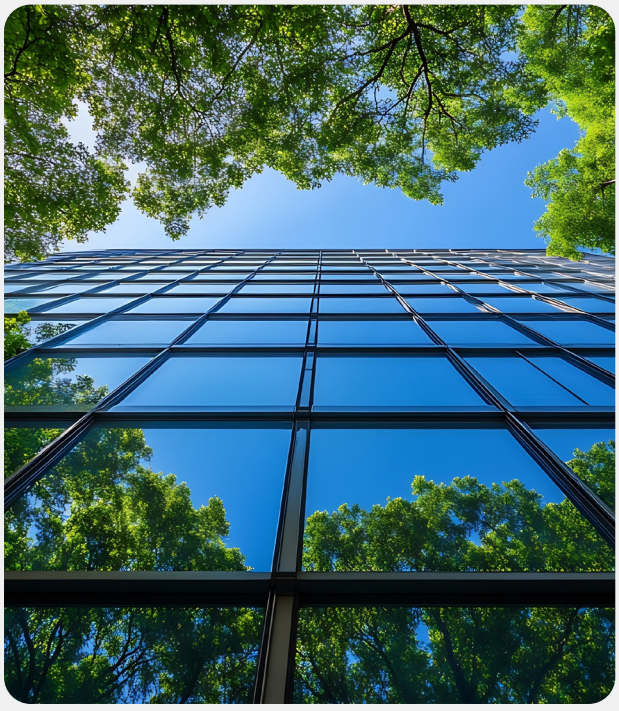
Treat resilience as a value and credit variable. Protected property commands premia of 5-20%, around 15% attributable to adaptation; beneath that, baseline versus post-measure expected loss feeds PD, LGD and insurability. Link Asset Management's HKD 5 million flood programme cut premiums 19% and climate damages 78% in one renewal cycle. Avoided loss becomes profit once monetised."

Every region is facing increased natural hazards

Extreme weather events have increased in frequency and intensity over recent decades, and exposure of people, businesses and assets to hazards has grown. As a result, natural hazards, including climate-related hazards such as floods, storms, droughts and heatwaves, are increasing physical risks for communities and economies by damaging businesses, financial and natural assets, disrupting operations, and undermining long-term resilience. **Economic losses resulting from natural hazard events in 2025 were estimated to be USD 224 billion, of which around USD 108 billion was covered by insurance.**[1] However, the true toll of climate-related disasters will be much higher, as many factors 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.[2]

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[3] 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.[4]



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:[4]

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.

Defining Physical Climate Risk

Risk is the potential for adverse consequences where something of value is at risk, with uncertainty being a key element. In this Guide, we define Physical Climate Risks as a dynamic interaction between climate-related hazards, and the exposure and vulnerability of affected human or ecological systems.[5]

[1] Munich Re (2026), Climate change presses on: Devastating wildfires and intense thunderstorms exacerbate losses for insurers

[2] UNDRR (2023), Uncounted costs - Data gaps hide the true human impacts of disasters in 2023

[3] 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."

[4] UNDRR (2025), Hazard definition and classification review: Technical report (2025)

[5] IPCC (2022), The concept of risk in the IPCC Sixth Assessment 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[6] Global temperature rise is set to cross 1.5°C within the next few years, with 2024 already the first calendar year in which average global temperature exceeded 1.5°C above pre-industrial levels. The most optimistic future scenario sees temperature rise peak at 1.8°C above pre-industrial levels and most other scenarios predict higher peaks. Above 1.5°C, "risks and impacts will intensify with every extra fraction of a degree and every year", and adaptation "must become transformational and responsive to evolving non-linear and abruptly arising risks".[7]

These create cascading effects on societal systems, corporates and FIs. For example, health systems are increasingly strained, and failure to support equitable adaptation has left populations unprotected in the face of increased climate hazards with expected costs estimated between USD 2-4 billion per year by 2030.[8] While climate disasters have raised bank non-performing loan (NPL) ratios by up to 0.6 percentage points within 3 years.[9]

These impacts underline the need to prepare for the future, including low-probability, high-severity tail risks: the Planetary Solvency report[10] finds that extreme impacts are eminently plausible without immediate action, with current climate policies potentially leading to a 50 per cent loss in global GDP between 2070 and 2090.

Addressing the A&R finance gap

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

A&R finance, which should be accelerating to keep pace with and help mitigate rising natural hazard impacts, continues to fall short despite clarity on the adaptation measures needed, the benefits they provide and where they are needed.

While tracking A&R finance has been challenging, as many relevant activities are not explicitly labelled as such, the scale of the financing challenge is clear. Today, less than 10 per cent of all climate finance is allocated to adaptation.[12] Adaptation financing needs in **developing countries are estimated at USD 310 - 365 billion per year, approximately 12 to 14 times current international public adaptation finance flows.**[13] Further, development financing for disaster risk reduction as a whole has barely increased over the past 30 years.[14]

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:[15]

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 the previous page.

A&R 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.

A&R finance has several outcomes which may overlap. The majority of investments are inherently derisking reducing impacts of natural hazards, or increase preparedness for the occurrence of such an event. These enable value preservation. Profitability activities drive financial returns associated with the investment through various monetisation pathways (such as revenue generation, asset values) supporting value creation. Naturally, these outcomes co-exist but some projects will fundamentally be focused on one more than others.

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

[7] Indicative pathways only - please note reference to outcomes in UNEP (2026), Limiting Overshoot - Navigating exceedance of 1.5°C and pathways towards return

[8] World Health Organisation (2026), Climate change and health

[9] World Bank (2023), Banking sector risks in the aftermath of climate change and environmental-related disasters

[10] Institute and Faculty of Actuaries / University of Exeter (2025), Planetary Solvency

[11] Standard Chartered Bank (2022), 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

[13] UNEP (2025), Slow climate adaptation threatening lives and economies

[14] UNDRR (2023), The Report of the Midterm Review of the Implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030

[15] UNDRR (2015), Sendai Framework for 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. A growing body of research shows that well-designed adaptation investments can create measurable financial value through avoided costs, preserved revenues, productivity gains, enhanced asset values, and strengthened competitiveness. Where these benefits can be captured, monetised and appropriately risk-adjusted, adaptation investments can generate attractive returns, strengthening the case for early adaptation.

The Economics of Climate Adaptation Investments

The economic case for adaptation is reflected in Standard Chartered's Adaptation Economy Report, which estimates that every USD 1 invested in adaptation this decade could generate up to USD 12 in economic benefits. The report highlights the significant economic value of early adaptation action and the potential opportunities for investors.

Research by the World Resources Institute found that every USD 1 invested in adaptation can yield over USD 10.50 in benefits over a 10- year period.[16] The study also found that adaptation investments create value beyond avoided losses, generating economic, social and environmental benefits even if climate shocks do not occur.

Further research from the McKinsey Global Institute estimates that achieving developed-country levels of climate resilience in a 2°C world would require around USD 1.2 trillion in annual adaptation spending by 2050.[17]

As highlighted by Bloomberg, climate adaptation and resilience is projected to become a USD 1.3 trillion market by 2030, creating investment opportunities across virtually every sector of the economy.[18]

Regardless of the methodology used, the research indicates that climate adaptation investments can generate significant economic value. In some cases, this may create compelling investment opportunities and provide incentives for greater market action, particularly when considered against the potential costs of inaction.

While A&R finance remains significantly underfunded, the costs of inaction continue to rise as climate-related physical risks intensify. In the UK alone, the Climate Change Committee (CCC) estimates that the cost to public welfare is projected to rise to between 1% and 5% of UK GDP at 2°C of global warming. Funding for natural hazard and climate adaptation comes from public, private and alternative capital providers, often through combined investments such as blended finance structures. Public finance represents the largest share of capital allocation. Private capital providers—including banks, institutional investors and private equity—contribute between 2% and 14% of tracked climate-adaptation finance, depending on the year (6.25% in 2024), while the majority is provided by bilateral, multilateral and national development finance institutions.

A range of barriers has historically limited private investment in adaptation finance. While these challenges are systemic and involve multiple actors, financial institutions can consider several potential solutions to address them and meet growing adaptation and resilience needs, as detailed in Table 2. Financial institutions and investors, particularly those operating in emerging markets and developing economies (EMDEs), are increasingly recognising their role in directing capital towards markets that are especially vulnerable to natural hazards. CPI's 2025 EMDE analysis records climate finance across EMDEs surpassing USD 1 trillion in 2023, with approximately 80% mobilised domestically. This indicates that greater international capital mobilisation is essential to finance A&R needs.



[16] World Resources Institute (2025), Strengthening the Investment Case for Climate Adaptation: A Triple Dividend Approach

[17] McKinsey (2025), Advancing adaptation to climate hazards

[18] Bloomberg (2026), Climate Adaptation Is Projected to Become a $1.3 Trillion Market

Table 2: Common barriers to private finance to Adaptation and Resilience and potential solutions

Macro-theme	Common barriers	Potential practical solutions	Why this matters for private investors
1. Market clarity and enabling policy	Inconsistent definitions and eligibility rules; unclear public-private roles; uncertain or fragmented policy and regulatory signals.	Use common principles with context-specific application; clarify which activities and costs qualify; align policy, supervision and public investment with national and local adaptation priorities.	Creates clearer market boundaries and more stable signals for identifying and financing credible opportunities.
2. Investment case and value capture	Benefits may be dispersed, difficult to monetise or realised beyond typical financing horizons; investment cases may rely on weak baselines or broad avoided-loss claims.	Identify who benefits, pays and bears risk; define a credible repayment or monetisation route; compare lifecycle costs and benefits against a no-action baseline; align tenor with asset life and benefit timing.	Connects resilience outcomes to borrower cash flow, debt-service capacity and risk-adjusted value without overstating profitability.
3. Risk, data and evidence	Limited local or asset-level data; weak evidence of intervention effectiveness; inconsistent metrics; physical risk not translated into transaction or portfolio decisions.	Use fit-for-purpose hazard, exposure and vulnerability data with local knowledge and transparent assumptions; test plausible scenarios; track resilience outcomes and relevant financial-risk indicators.	Supports credible assessment, pricing and monitoring while making uncertainty visible and avoiding false precision.
4. Pipeline, capabilities and market coordination	Too few finance-ready projects; high preparation and transaction costs; limited frontline expertise; fragmented actors and underfunded local intermediaries.	Fund project preparation and ecosystem builders; develop named opportunities with sponsors and financing needs; standardise and aggregate where appropriate; use tiered screening with specialist escalation.	Turns identified adaptation needs into investable transactions and embeds opportunity identification in routine origination.
5. Fit-for-purpose financing structures	Financing products, risk allocation, collateral, affordability or tenor may not match project economics; concessional support may be used without a clearly diagnosed need.	Select instruments after identifying the constraint, using loans, bonds, resilience-linked structures, guarantees, insurance, aggregation or blended finance as appropriate; target public support to the specific gap.	Improves bankability and uses scarce public or concessional capital where it is genuinely additional.
6. Governance, safeguards and market integrity	Weak ownership and decision rights; adaptation remains outside core credit and investment processes; benefits and risks may be unevenly distributed; impact or profitability claims may exceed the evidence.	Embed accountability in origination, approval and portfolio management; assess maladaptation and distributional effects; apply additionality, attribution, materiality, consistency, transparency and proportionate assurance.	Integrates adaptation into capital allocation, protects affected stakeholders and reduces resilience-washing risk.

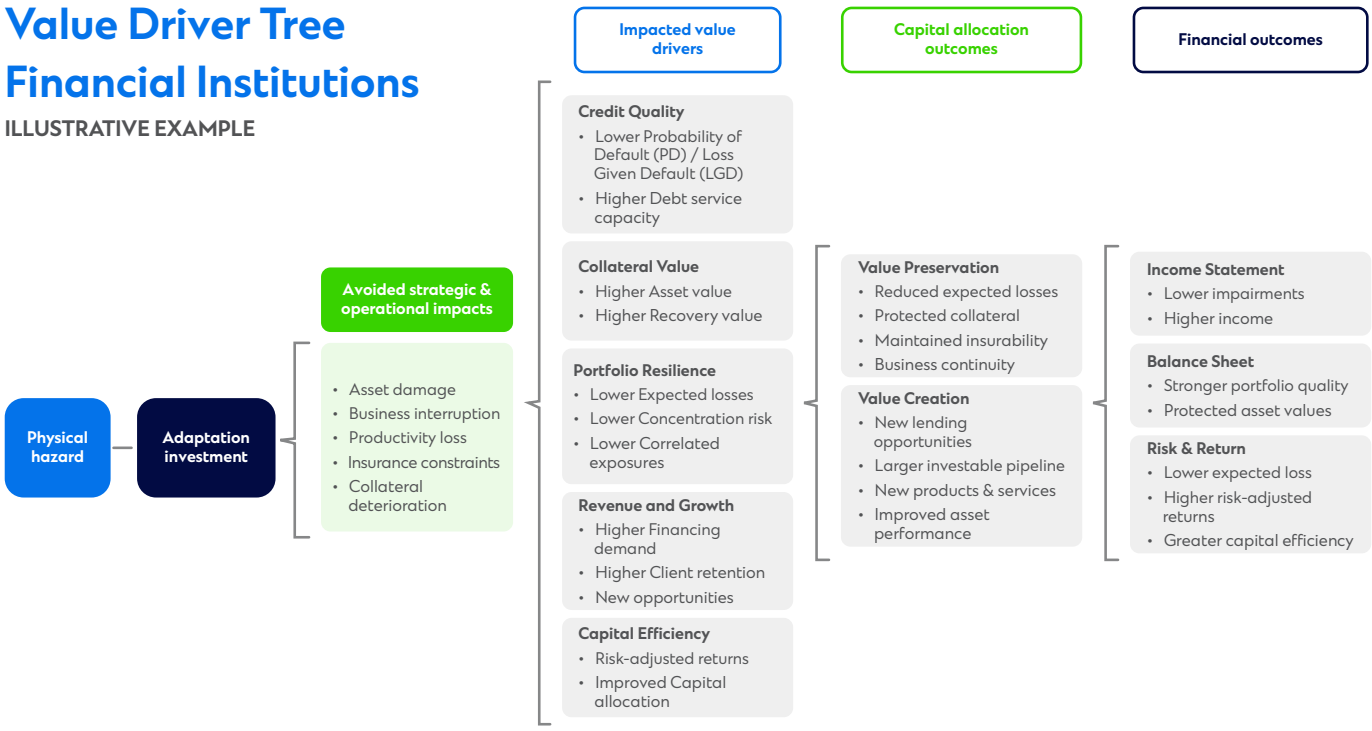
Linking Adaptation and Resilience to Business Value

Making adaptation and resilience investments more attractive to private investors requires demonstrating their financial and economic relevance. Adaptation and resilience investments can be material to businesses because climate-related hazards can affect the core drivers of enterprise value. Physical climate risks may increase operating costs, require additional capital expenditure, disrupt production, reduce revenue, affect asset performance, increase insurance costs, or change company valuation. Framing adaptation and resilience in these financial terms can help investors assess both the risks of inaction and the potential value created by investing in adaptation while improving returns through various means.

A value driver tree can help organisations make this link explicit by mapping how a climate hazard and the relevant response to it (e.g., an investment in an adaptation measure) can affect business activities, how those impacts flow through financial value drivers, and how they can support in risk reduction, value preservation and value creation, while also potentially making a financial institution's portfolio more resilient by reducing Expected Credit Losses (ECL) attributed to physical risks. The materiality of increased value will vary based on the size of the company, asset, climate value at risk and a variety of other metrics but fundamentally may be addressed by these five linked questions:

- What climate or natural hazard is material to the business, asset or activity?
- What type of adaptation investment could respond to that hazard?
- How would that change repayment risk, collateral value, portfolio resilience, financing demand or capital efficiency?
- Would financing the response protect existing value, create new opportunities, or both?
- What evidence would show a change in expected losses, income, asset values or risk-adjusted returns?

Figure 2: Value Driver Tree for Financial Institutions (KPMG, 2026)



The distinction between preserving and creating value matters. Some adaptation measures primarily preserve value by reducing losses, avoiding disruption, protecting assets, maintaining insurability and lowering insurance costs or improving supply-chain resilience. Others may also create value by improving productivity, reducing costs, enabling new products or services, expanding markets, or supporting more resilient business models. This may be the difference between an organisation's appetite to provide a line of credit given the financial performance linked to A&R related metrics or a business' own profitability.

Later sections of this Guide build on this logic. Once an activity has been assessed as eligible for adaptation or resilience finance, the Guide considers its core benefits and whether it also offers a credible route to commercial returns by driving profitability through additional revenue streams or value creation, which may arise alongside avoided losses and value preservation.

Adaptation and Resilience Profit and Loss Outcomes

Financial regulators are increasingly integrating both transition and physical climate risks into prudential stress-testing frameworks. For example, the European Banking Authority is expected to begin the partial integration of climate-related risks within supervisory stress-testing exercises from 2027. Financial impacts may already be impacting banks. Research conducted by the European Central Bank (ECB) found that firms located in flood-affected municipalities experienced increases in probability of default (PD) of approximately 0.1-0.2 percentage points over the subsequent two quarters relative to firms in unaffected areas, even after controlling for broader economic conditions.[19] The persistence of these effects across different time periods and event samples highlights the wider economic consequences of physical climate risks and their potential to influence credit quality at a regional scale.



[19] European Central Bank (2025), Integrating climate risk into the 2025 EU-wide stress test: the effects of climate risks for firms

[20] BIS (2025), Incorporating physical climate risks into banks' credit risk models

Physical climate risks are transmitted to banks through a range of credit and financial channels. Natural hazards such as floods, hurricanes, and droughts can impair the value of borrowers' physical assets reducing both collateral values and borrowers' capacity to generate income. These effects may weaken creditworthiness and increase the likelihood of default. Given that climate-related events frequently affect multiple borrowers within the same region, they can also increase portfolio-wide default correlations. Banks with concentrated lending exposures in high-risk areas may be particularly vulnerable to significant credit losses arising from physical climate risks.[20]

Resilience as a standalone thematic investment can impact P&L in different manners. Profit enhancement (e.g., value creation [asset value], profitability [revenue generation], monetisation [investor appeal]) or minimised losses (e.g., avoided losses [LGD reduction], risk exposure, reduction in PD), both add value to different positions of the banking ecosystem. Profitability and monetization adds value for opportunity scoping, engagement and deal flow to a frontline banker where A&R may be considered as an unconditional driver for revenue models (e.g., green desalination plants fees and taxes in regions exposed to heat stress and water scarcity constraints) or secondary revenue generation sources (e.g., tourism income from nature based flood protection). These categories will likely co-exist with other co-benefits for A&R (readiness/preparedness, de-risking solutions, social or biodiversity enhancements) and should be considered as such.

Reduction of losses potentially supports credit officer and risk teams when assessing a client's credit worthiness. These effects are currently not integrated but are expected to grow naturally with the occurrence of natural events, regulatory requirements around stress testing and liquidity coverage requirement.[21] The interaction between collateral and liquidity risk may be particularly significant in the context of physical climate hazards, as accelerated decline in asset values can simultaneously erode the quality of collateral pledged against exposures and constrain the stock of liquid assets available to meet short-term liquidity requirements. This has a cascading effect where there may be a deficit of quality assets eligibility to support funding and liquid coverage ratio requirements while simultaneously deteriorating loan performance through increase cash outflows associated with borrower distress, asset impairment, and market volatility leading to weaker debt-service capacity, resulting in higher rates of default, covenant breaches, loan restructurings and NPLs over the lifetime of lending exposures.



[21] European Central Bank (2026), Climate change, bank liquidity and systemic risk



Scaling private investment in adaptation and resilience can be supported by coordinated action across five system-wide enablers:

1. Market clarity and decision-useful frameworks

- Data providers, public agencies and financial institutions can help improve interoperable, location- and asset-relevant hazard, exposure, vulnerability, financial and impact data, metrics and disclosures, supporting more transparent and comparable decisions.
- Standard setters, governments and market participants can draw on practical adaptation and resilience taxonomies/ classifications grounded in common principles, with flexibility for sectoral and jurisdictional contexts while also enabling granularity and operationality.
- Financial institutions and businesses can strengthen the financial case for adaptation by demonstrating how such investments may reduce losses, protect revenues and assets, and support long-term performance.

2. Integration into financial and regulatory systems

- Central banks, supervisors, regulators and financial institutions can support the integration of physical climate risk and resilience into mandates, prudential frameworks, risk management, credit, underwriting and investment decisions.
- Governments and financial institutions can help translate national and local adaptation priorities into sector plans, project pipelines and financing strategies, supported by clearer responsibilities for implementation.

3. Scalable financing structures and products

- Public and development finance providers may consider blended finance selectively where a diagnosed constraint (such as tenor, affordability, risk allocation or transaction cost) limits an otherwise viable investment.
- Financial institutions, insurers and issuers can drive financial product innovation by exploring fit-for-purpose products, including resilience-linked instruments, guarantees, catastrophe bonds and parametric insurance, aligned with investee needs and risk profiles.
- Concessional and philanthropic capital can play a catalytic, time-bound role alongside technical, local and institutional capabilities, with a credible pathway towards replication and progressively more commercial finance.

4. Market coordination and ecosystem development

- Financial institutions, borrowers and issuers, public bodies, data providers and industry groups can coordinate to share knowledge, address information gaps, aggregate demand and develop credible investable pipelines that clearly outline the business case for investing in A&R.
- Funding for ecosystem builders, specialist advisers, local institutions and project-preparation capacity can help connect capital with opportunities and reduce transaction friction.

5. Coherent and enabling policy

- Financial institutions and industry groups can encourage governments to help with the provision of stable, coherent policy and regulatory signals, aligning public investment and procurement with adaptation priorities, and reviewing incentives or subsidies that may increase vulnerability.
- Financial institutions, public bodies and industry groups can collaborate to inform the scope of roles across national and subnational levels to foster enabling conditions that attract private investment while supporting equitable, locally appropriate outcomes.

The above is also supported by the University of Cambridge Institute for Sustainability Leadership (CISL) Resilience-Adjusted Credit Risk paper [22] which integrates climate adaptation into financial and regulatory systems by embedding resilience into credit risk assessment. It also highlights the need for coordination among banks, insurers, investors, and regulators to operationalise the framework. Together, these measures support market-wide adoption of climate resilience in financial decision-making.

[22] Resilience-Adjusted Credit Risk paper
For more on the topics of:
(a) Common taxonomy and frameworks - please refer Updated-Climate-Bonds-Resilience-Taxonomy-Methodology



02

Investment criteria

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 A&R finance.[23,24] A full list of foundational frameworks is presented in Annex 1.

Screening principles for A&R 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.[25]

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. Partial contributions or secondary contributions to A&R may be co-beneficial but should have clear and measurable A&R related metrics (e.g., water consumption in areas of heat stress) to show their contribution is aligned with that investment criteria (in instances where A&R is not the primary objective).

Banks and investors need to assess - on a specific investment basis (or collection of A&R investments) 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 over the longer term), the additionality of the adaptation benefits (where benefits go beyond a business-as-usual case in the absence of the investment), and the sustainability of benefits over the long term; and/or
- Potential for scalability and/or transformational outcomes.[26] 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.

A significant role in assessing an investment against its Substantial Contribution requires evaluating if it is

a. maintained over the full investment horizon under plausible future climate scenarios;

b. not contingent on conditions that may not hold; and

c. scalable or replicable if possible.

To do that, it is key to test the investment against at various climate scenarios (e.g., NGFS, SSP), ideally one high-emissions and another lower, over the relevant asset life and test whether the intervention remains effective under a higher-warming trajectory. This should ideally be completed alongside climate scenarios utilised for climate stress testing at an institutional level.

Investors need to be able to answer the question: 'Does the investment still contribute substantially if climate change intensifies beyond current projections?' If the answer is conditional, proportionate adaptive-management provisions must be embedded in the financing documentation.

[23] MDB Group (2022), Joint methodology for tracking climate change adaptation finance. 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.

[24] These definitions are aligned with those included in UNDRR and Climate Bonds Initiative (2023), Designing a Climate Resilience Classification Framework

[25] 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

[26] 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

Types of adaptation and resilience investments

Users of this guide can apply these categories to understand what is being made more resilient, who receives the main benefit, and what share of finance can be counted as adaptation and resilience finance.

A simple starting question is: Does this investment mainly protects the asset, activity, or entity being financed, or does it mainly help others to adapt?

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

Adapted investments: These investments include measures that reduce the direct impact of natural hazard and physical climate risks to the asset, activity, or entity being invested, so that it can continue to operate, maintaining and increasing its resilience. In simple terms, the investment protects itself. For example, in agriculture, investing in drought-resistant crops grown to protect a farm's own yields are adapted.

Enabling investments: These investments provide products, technologies, services, or dedicated infrastructure that help other economic entities, communities, or ecosystems adapt to the impacts of natural hazards and physical climate risks. In simple terms, the investment enables resilience beyond itself. For example, investments in developing and supplying drought-resistant crops seeds to a community of farmers is enabling.

An investment can be both adapted and enabling when it protects the financed asset, activity, or entity and increases the resilience of others as well. Organisations can apply two tests: (1) does it reduce the investment's own climate risk, and (2) does it provide a distinct resilience benefit beyond the investment? If both answers are yes, both functions may be recognised, provided they are clearly evidenced and not double counted.

Another key categorisation of investment types that can contribute to climate resilience include:

Activity: An (economic) activity that delivers goods or services.

Measure: A specific intervention within an asset, activity, or entity within a defined period of time that creates substantial additional climate resilience benefit or services for the asset/activity/ entity within which the measure is undertaken.

Asset: A specific physical or natural asset, such as a building, port, road, energy facility, or ecosystem

Entity: A company or other organisation considered as a whole. Classify at this level for general-purpose finance where the entity's business is substantially (e.g., 90 per cent revenues) focused on eligible adaptation and resilience activities.

As adaptation and resilience activities and measures are frequently embedded within larger capital projects rather than standalone transactions, it is important to take a proportional approach. A&R finance should be clearly ring-fenced and allocated only to eligible activities. Where adaptation components sit within broader investments, only the identifiable adaptation share should be counted; if this cannot be separated, reporting should clearly disclose this limitation.

Besides that, these classification matter as the records should state the level at which profitability accrues (asset / project / entity) and the beneficiary of the value. A benefit at asset or entity level does not, without structuring, become an investor return automatically.

Further guidance is provided in the Management of proceeds section.

This should provide a strong basis to support decision-making, backed by a statement that includes (i) scenario and time-horizons tested; (ii) investment horizon; (iii) assessment of continued effectiveness; (iv) any required adaptive management triggers.

2. Avoidance of maladaptation and significant harm to sustainability objectives

In addition to ensuring substantial contribution, investments must also be assessed to avoid the risk of maladaptation and significant harm to other sustainability objectives, in line with the concept of 'do no significant harm'.[27]

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:

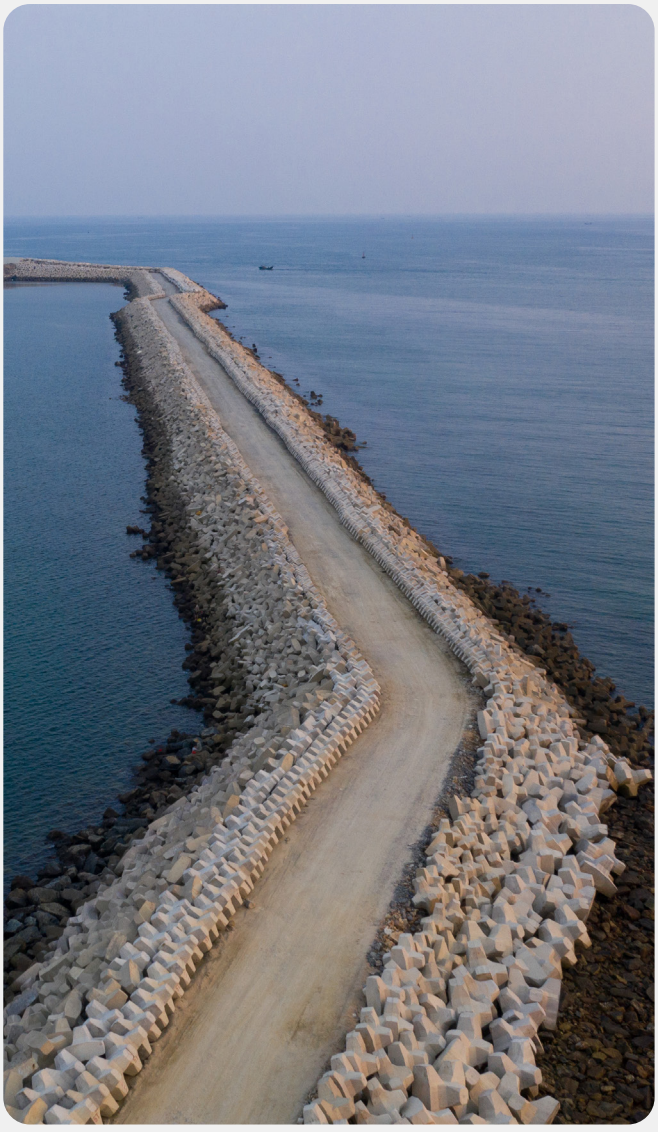
- Are environmental, social, and governance safeguards applied, such as those referenced in the IFC Performance Standards?[28]
- Does the activity introduce risks that could hinder progress on other sustainability objectives (e.g., Sustainable Development Goals, Paris Agreement, Sendai Framework for 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 (if available), 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.

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).



[27] For example, 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.

[28] IFC (2012), Performance Standards on Environmental and Social Sustainability

Example: Assessing maladaptation risks and substantial contribution related to seawalls in Fiji [29]

Small Island Developing States (SIDS) are among the most climate-exposed societies on Earth, yet the very measures deployed to defend them can deepen the disadvantages they were meant to relieve. Fiji offers an instructive case. In two remote coastal villages on Vanua Levu, Karoko and Korotasere, concrete seawalls were built to shield settlements from erosion and tidal flooding, a conventional "grey infrastructure" response often favoured for its visible solidity. A field assessment found, however, that the seawalls did not achieve their primary aim of safeguarding the communities and instead produced unanticipated negative outcomes for land and livelihood security. Owing to ineffective design, the walls trapped water along their landward side, functioning more like a dam. The result was aggravating flooding where households actually live, while shifting vulnerability to people and places elsewhere along the coast. [30]

The equity dimension is central. These are communities whose wellbeing depends directly on coastal land, gardens and fishing grounds; rather than reducing their exposure, the seawalls reinforced and redistributed it, a pattern termed "rebounding vulnerability." A capital-intensive defensive investment thus failed the people it was meant to protect, whereas lower-cost, ecosystem-based alternatives such as mangrove restoration are increasingly advocated for such settings. [31]

The lesson for practitioners is clear: hard defences designed top-down, without adequate hydrological analysis or genuine community participation, can transfer climate burdens onto those least able to bear them converting a protective investment into a driver of injustice.



[29] Examples include the Climate Bonds Initiative (2022) Water Infrastructure Criteria under the Climate Bonds Standard. Water Infrastructure Criteria under the Climate Bonds Standard

[30] Piggott-McKellar, A.E., Nunn, P.D., McNamara, K.E. & Sekinini, S.T. (2020), Dam(n) Seawalls: A Case of Climate Change Maladaptation in Fiji." In Managing Climate Change Adaptation in the Pacific Region

[31] Vallesi, S. | UNDRR Prevent Web (2024), Solutions for Vanishing Coastlines: Adapting to Coastal Erosion in Small Island Developing States.

3. Consistent with locally and/or nationally defined adaptation and resilience strategies,

and Sharm el-Sheikh Adaptation Agenda[32], Global Goal on Adaptation (GGA) (and the 59 Belém indicators therein)[33], Sendai Framework for Disaster Risk Reduction targets, and other relevant frameworks, where appropriate.

Adaptation and resilience investments should align with nationally and locally defined priorities, including National Adaptation Plans (NAPs), Nationally Determined Contributions (NDCs), Adaptation Communications and National Disaster Risk Reduction Strategies.[34,35] Where national or subnational plans are absent, high level, or insufficiently detailed to assess project level alignment, financing entities should engage with relevant local and sectoral institutions to interpret priorities and ensure investments respond to material climate risks and adaptation needs.

To reflect Locally Led Adaptation principles, investments should be designed and governed so that local actors meaningfully shape priorities, implementation, and accountability, recognising the context specific nature of climate risks and effective adaptation responses. This requires early and sustained engagement with local governments and communities, the use of local knowledge to manage risks of maladaptation and social harm, and financing approaches that enable flexibility, transparency, and appropriate access to resources at the local level, while remaining anchored in national adaptation frameworks.

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 to promote interoperability with future guidance from the Climate Bonds Initiative (CBI). CBI has also launched the Climate Bonds Resilience Taxonomy (CBRT), a list of activities that allow investors, issuers and policymakers to define, identify and verify investments that strengthen economic, social or ecological systems against climate change impacts, differentiating between adapted and enabling activities. Investments 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 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).

[32] The Sharm El-Sheikh Adaptation Agenda (SAA) was launched at COP27 in 2022 as a global framework to accelerate climate adaptation and resilience. Its overarching aim is to help 4 billion people become more resilient to climate impacts by 2030 through a set of 30 adaptation outcome targets (later expanded and refined in implementation work). More details can be found in the following documents: UNFCCC, (2023): Enabling Private Finance for Adaptation: Practical Actions to drive progress on the Sharm El-Sheik Adaptation Agenda, Climate Champions (2022), SeS Adaptation Agenda Complete Report COP27

[33] UNFCC (2023), Global goal on adaptation | UNFCCC

[34] NAP Central (2026), Sectoral NAPs and Other Outputs (developing country Parties)

[35] UNFCCC (2026), Nationally Determined Contributions Registry

[36] UNDRR and Climate Bonds Initiative (2023), Designing a Climate Resilience Classification Framework

Application of flow chart for assessing and managing A&R investments

The flow chart in the next page is designed as a generalised structure for financial institutions to assess and manage activity-level A&R investments. Different institutions may prioritise different steps in the flow chart. For example, for a multilateral development bank, step 4 may need to be integrated with step 1 where an activity is required to form part of a plan or policy. The flow chart may not fully capture approaches that deploy capital across multiple activities and sectors identified in National Adaptation Plans and funded through different use-of-proceeds instruments, including government funding, grants, concessional finance, philanthropic capital and outcome bonds.

A recent example of this is the Lagos State Climate Adaptation and Resilience Plan (LCARP), a subnational adaptation strategy which outlines significant interventions around building resilient infrastructure. They define investment categories across projects requiring grants, concessional finance and bankable projects outlining potential revenue models for the latter to evidence feasibility[37].

When approaching an assessment from a sectoral perspective where business models will vary (e.g., a specific activity within a NAP may not have a clear investment pipeline) a variety of financial mechanisms will be required, such as those defined by the UNDP Adaptation Finance Strategy Guidelines[38] with an approach outlined in relevant framework, guidance such as the UN PRB Practical Guidance on Implementing Adaptation and Resilience for Banks[39] and fundamental principles outlined in this guide.

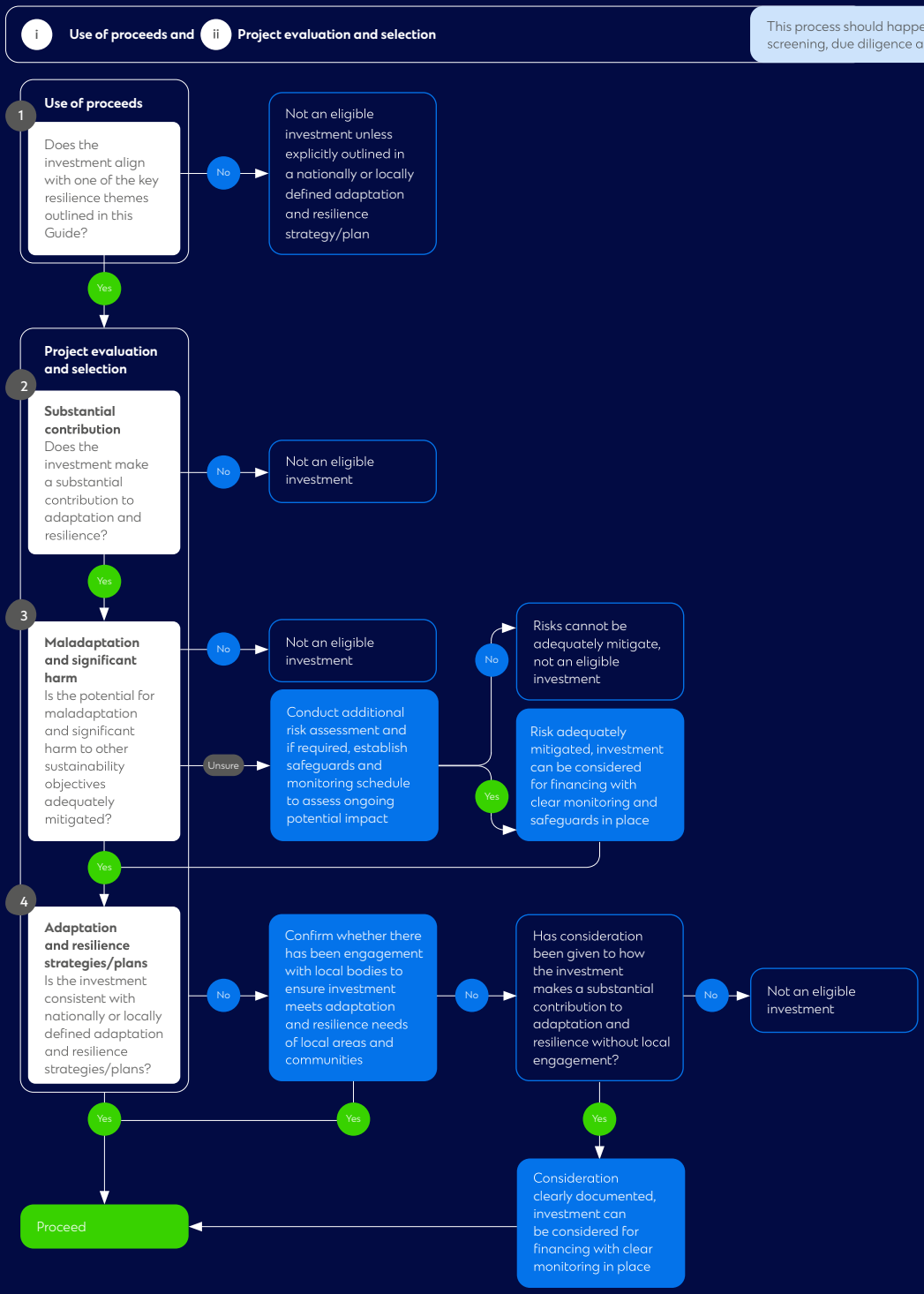


[37] FSD Africa (2025), Lagos State Climate Adaptation and Resilience Plan (LCARP)

[38] UNDP (2025), Adaptation Finance Strategy Guideline

[39] UN PRB (2025), Practical Guidance for Implementing Adaptation & Resilience for Banks

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



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.

Worked example

The following worked example* illustrates how the Guide's full investment framework applies to a representative real world investment opportunity.

Theme: Integrated water energy facility in a water stressed city in sub Saharan Africa.

Investment: A blended finance facility to support the construction and operation of a solar powered water recycling and desalination plant.

Borrower: A municipal water utility with a creditworthy off take agreement with the city government.

Use of Proceeds

1. Does the investment align with one of the key resilience themes outlined in this Guide?

- Hazard identification: The city is exposed to chronic drought and extreme heat amplified by urban heat island effects.
- Activity classification: The investment spans multiple eligible categories: Resilient Infrastructure (water supply, energy storage) and Resilient Cities (urban water management).
- Type classification: The solar powered water plant is an Adapted (Type 1) investment as it directly addresses water security of the community.
- Go/No Go Gate 1: PASS: Activity is in scope, multi hazard relevant, and falls within eligible categories.

Yes

Project Evaluation and Selection

2. Substantial Contribution: Does the investment make a substantial contribution to adaptation and resilience?

- **Materiality:** Water stress is assessed as the primary hazard. The project location scores in the Extremely High Water Risk tier of the World Resources Institute Aqueduct tool.
- **Leading indicators:** (i) Volume of water treatment capacity added: 50,000 m^3/day; (ii) design standard: facility engineered to remain operational during a 1 in 50 year drought.
- **Lagging indicators:** (i) No. of people with improved water security: target 350,000 within 3 years; (ii) % reduction in water stressed population: target 40% within 5 years.
- **Contribution Assessment Conclusion:** HIGH: the investment directly addresses the primary material hazard with quantified, time bound, verifiable outcomes.

Yes

3. Maladaptation and Significant Harm: Is the potential for maladaptation and significant harm to other sustainability objectives adequately mitigated?

- **Climate Mitigation:** Solar powered operation; carbon intensity <5 gCO_2e/kWh (lifecycle). PASS no significant harm.
- **Climate Adaptation (self referential):** A coastal brine discharge management plan would be required, supported by an independent hydrological assessment confirming that the discharge will not cause downstream water quality harm. CONDITIONAL PASS monitoring required.
- **Biodiversity:** Site assessment confirms no critical habitat within 2km; mangrove buffer zone included in design. PASS.
- **DNSH Conclusion:** PASS (with monitoring covenant on brine discharge).
- **Go/No Go Gate 2:** PASS Substantial Contribution confirmed; DNSH screening passed with conditions.

Yes

4. A&R Strategies / Plans: Is the investment consistent with nationally or locally defined adaptation and resilience strategies / plans?

- **Alignment test:** The investment should support defined national or local adaptation priorities.
- **Strategic fit:** The facility supports water security, drought resilience and reliable energy for essential water services.
- **Evidence base:** Water is a defensible priority for this example: water adaptation measures feature in all sub Saharan African NDCs assessed by the World Bank.
- **Metrics alignment:** The facility s indicators can map to the UAE Framework and Belém Adaptation Indicators, including COP30 s 9 water related indicators.
- **Go/No Go Gate 3:** PASS: aligned, provided the recycling first design is retained and local authority engagement is documented.

Yes

Proceed

Project Monitoring

Monitoring & Reporting: How is ongoing Substantial Contribution assessed, and what is reported?

Annual Allocation Report

- Total proceeds deployed (USD million, by tranche).
- Eligible activity category and Guide reference for each sub investment.

Annual Impact Report

- Volume of water produced (m^3/day, vs. target).
- Number of beneficiaries with improved water security (vs. baseline and target).

Verification

- Annual assurance of impact report by a qualified third party verifier.
- CBI Water Criteria certification (if pursued for market signalling).

*This scenario is illustrative but draws on real transactions: IFC s Utilities for Climate (U4C) programme, the Green Climate Fund s Climate Investor Two (CI2) water infrastructure facility, IFC s blended finance advisory work in São Paulo; and World Bank Blended Finance Platform for Sustainable Infrastructure (South Africa)



03

Adaptation and resilience investment framework

Adaptation and resilience investment framework

To align with current market practice, borrowers and issuers of adaptation and resilience financial products, including bonds, loans and structured finance, should develop a framework detailing the use of proceeds for adaptation and resilience activities. These structures may be applied at the institutional or sovereign level through instruments such as outcome bonds, sovereign bonds and catastrophe bonds, or through blended structures supporting National Adaptation Plans or regional adaptation plans. The framework should include the following elements:

- 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.
- Assurance/ Verification: Obtaining an independent review, verification, or certification 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 36 to 45) – issuers or borrowers should apply this list to help determine eligible uses of proceeds that contribute to enhanced adaptation and resilience outcomes. These instruments should follow bankability and commercial feasibility as laid out within this guidance.

Adaptation and resilience investments included are those which belong to two categories (adapted and enabling) as set out in the previous section.[40] 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.[41]

This list of indicative activities has purposefully not captured all 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. Specific product structures should also apply the underlying principles and criteria, while observing that tailored instruments offer high potential for funding A&R. For example, Islamic finance and insurance through resilient linked sukuk or takaful insurance products offer asset-backed ethical frameworks which are well placed to channel capital directly into resilience infrastructure and systems; and musharaka (joint ventures) and mudaraba (profit-sharing structures) present opportunities for blended and private structures that foster capital flows to A&R.[42]

[40] These definitions are aligned with those included in UNDRR and Climate Bonds Initiative (2023), Designing a Climate Resilience Classification Framework

[41] "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)"

[42] World Bank (2025), Islamic Finance and Climate Agenda Report

Assessing investments against their main objectives

GARF 1.0 focused primarily on identifying what qualifies as adaptation and resilience finance. This updated Guide aims to expand this by helping financial institutions assess how adaptation investments can reduce risk, preserve value and, in some circumstances, generate commercial returns. The objective is to provide a structured framework for understanding how resilience outcomes affect financial performance and financing decisions.

A&R investments have a crucial de-risking role, whether this is by:[43]

A. reducing financial impacts of incurred losses (e.g., revenue, FCF, inventory, asset value)

B. adapting business practices and increasing coping capacity due to climate-related constraints

C. improving supply chain resilience (e.g., diversification of supply chain or products)

D. reducing the exposure and vulnerability of assets (e.g., infrastructure investment, nature-based solutions)

E. improving credit worthiness (e.g., credit grading, PD, stress testing)

F. improving risk transfer mechanisms, or a combination of two or more of these.

However, adaptation activities and measures serving such purposes have historically been framed as costs or public good, which has constrained private capital to date. Reframing adaptation as an attractive investment category requires a thorough assessment of potential yet genuine and robust commercial return routes. Overstating profitability risks misrepresenting investment returns and may contribute to overstating the resilience benefits of projects - a form of "resilience washing" - which can undermine trust in the market. At the same time, understating profitability can cause financially viable adaptation opportunities to be overlooked and remain unfunded. Experience from infrastructure, water, agriculture, supply-chain resilience and resilience-enabling products demonstrates that adaptation investments can create material financial value where monetization pathways are present and can be evidenced, (please see select case studies in Annex 2).

For these reasons, complementing the Guide's first edition (which focused on the eligibility of investments) and building on the value-driver mapping introduced earlier, this section assesses whether the financial effect of an eligible adaptation or resilience activity is de-risking as categorised above or whether it may also support a commercial return route beyond avoided losses. To do so, we set out a clear pathway to support financial institutions in categorising and classifying potential investments to determine if the benefits brought by the activity also have the potential to drive profitability.

Adaptation Investments: Preserving and Creating Value

As discussed previously in this document, adaptation and resilience investments can create value through two complementary pathways:

- Value preservation: reducing downside exposure through avoided losses, revenue protection, asset protection, lower insurance costs, reduced downtime, supply-chain resilience and reduced volatility.
- Value creation: generating upside through productivity improvements, efficiency gains, new products and services, market expansion, customer retention and enhanced asset performance.

While these may co-exist, it is important to distinguish between avoided losses and profit creation. Avoided loss is not profit unless converted into monetizable value. The test is whether there is an actual cash flow, an avoided outflow that would otherwise have been incurred, or a recognised change in asset value.

- If the effect is attributable to the intervention, material, positive, and adjusted for risk, the avoided loss may be treated as a financial return.
- Otherwise, it remains a de-risking benefit: valuable, but not necessarily a source of profit.

Example: Investing in flood defences for a revenue-generating logistics hub that prevent physical damage represent avoided losses and in this way, preserve value. The investment in flood defences may become profit only if the protection either preserves revenue that would otherwise have been lost to downtime; or reduces insurance premiums the operator pays; or underpins an availability payment, which in turn would create value.

[43] A&R assessments are complementary by nature, and a single activity may contribute to multiple adaptation and resilience objectives. Assessment outcomes may also reflect differences in organisational maturity. Some organisations may be at an early stage of assessing and understanding physical climate risks, while others may have more advanced adaptation and resilience practices, including governance arrangements, implementation plans, stakeholder engagement, metrics, and targets. These factors can be translated into the type of assessment conducted: At a basic level, users may use a simple checklist approach by identifying whether an activity reduces climate-related losses or vulnerability. More advanced assessments may estimate the scale of those benefits under different climate scenarios. Both approaches are valuable, but a stronger understanding of the assessment criteria can help users generate more meaningful and decision-useful results. Climate Finance Risk Forum, Adaptation Working Group (2025), From Risk to Resilience: Integrating Adaptation into Finance

Driving Profitability Criteria

An adaptation or resilience activity is classified as "Driving Profitability" only where all five of the following criteria are met:

1. A credible monetisation pathway exists and there is an identifiable mechanism that converts the resilience benefit into cash flow, margin, yield or asset value and clear delineation of how this is directed to the investor.
2. Measurable economic value is created or preserved as the pathway produces a quantifiable financial effect, not merely a qualitative benefit.
3. The effect is attributable and can be reasonably linked to the adaptation or resilience intervention against a defined baseline.
4. The effect is material, financially meaningful to the relevant asset, project, company or investor.
5. The risk-adjusted return is positive – credible evidence supports positive net economic value after costs, uncertainty and risk.[44]

Aligned to these criteria, we also apply a pathway to classify the commercial and financial logic of investment. Commercial returns from adaptation and resilience investments generally arise through six monetisation pathways.[45] This includes:

Figure 3: Driving Profitability Criteria for Adaptation & Resilience

Revenue Generation

Goods or services that create new income

- **Qualification conditions:** A paying counterparty and a defensible price exist, unit economics are positive after risk, and the revenue is material and attributable to the activity.
- **Evidence includes** contracts, tariffs, offtake, subscriptions or paying customers.
- **Typical deal structures:** Offtake and power-purchase agreements; tariff-regulated utility models; subscription and SaaS contracts; insurance and reinsurance; carbon-credit sale agreements; concession and service contracts; availability PPPs.

Margin-Improving Cost Savings

The activity lowers operating costs and improves margin

- **Qualification conditions:** A measured, material, persistent saving net of all associated costs, attributable to the intervention.
- **Evidence includes** metered baselines, verified savings and maintenance costs.
- **Typical deal structures:** Direct corporate capex; energy-service company (ESCO) and shared-savings contracts; water-service performance contracts; on-balance-sheet retrofits; insurance-premium discounts.

Productivity or Yield Uplift

The activity produces more output from the same or fewer inputs

- **Qualification conditions:** A measured, attributable, material uplift that converts into sellable output or input saving at a positive net margin, after risk.
- **Evidence includes** baseline output, post-intervention yield, prices and input costs.
- **Typical deal structures:** Direct farm/operator investment; input-supply and offtake arrangements; outgrower schemes; performance-linked supply contracts.

[44] GFANZ (2026), Investing in Resilience: Lessons from Private Finance for Unlocking Investment in Adaptation.

[45] IFC, AXA (2025),Low Cost, High Yield: The Adaptation and Resilience Investment Opportunity for Infrastructure

Figure 3: Driving Profitability Criteria for Adaptation & Resilience (continued)

Monetisable Asset-Value Protection

The activity preserves value in a revenue-generating or collateral-relevant asset

- **Qualification conditions:** The preserved value is monetisable and evidenced, and the effect is material and attributable.
- **Evidence includes** valuation, insurance, revenue and hazard-risk analysis.
- **Typical deal structures:** Availability-based PPPs; asset-backed and project finance where covenants depend on asset value; insurance-linked structures; corporate capex on revenue-generating assets.

Contractual Payment

A contract converts resilience performance into cash flow

- **Qualification conditions:** An enforceable contract (or bankable commitment) with a creditworthy counterparty, performance terms the asset can meet, and material, attributable cash flows.
- **Evidence includes** enforceable contracts, availability payments, tariffs or concession terms.
- **Typical deal structures:** Availability-based PPP; concession agreements; tariff-regulated utility; capacity and reliability payments; performance-based and results-based contracts; sustainability/resilience-linked debt.

Investor Yield

A financial instrument pays investors for bearing a defined risk

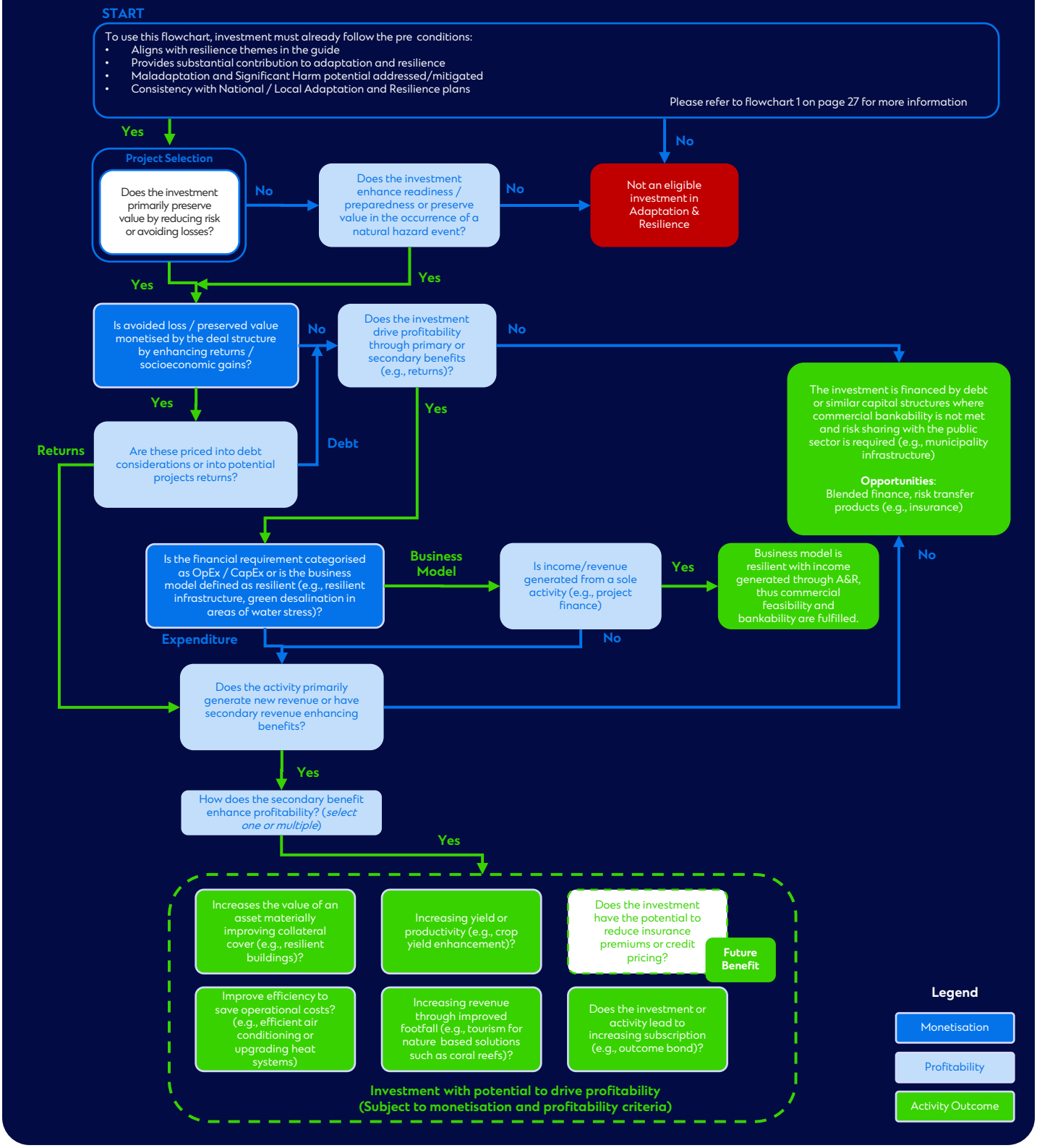
- **Qualification conditions:** A defined return for a defined, priced risk, with credible modelling, sound trigger design and adequate collateral/counterparty quality.
- **Evidence includes** pricing, trigger design, expected loss analysis and collateral arrangements.
- **Typical deal structures:** Catastrophe bonds; insurance-linked securities; parametric insurance; reinsurance; resilience-linked and sustainability-linked debt with definted coupons; First-Loss/Subordinated Equity Tranches in Resilience Facilitites.

Please note that profitability is treated as conditional by default. Whether an activity genuinely drives profitability depends on a set of conditions spanning the monetisation route, the deal type, the market and risk profile, for example.

The methodology aims for calibrated accuracy, recognising genuine commercial returns where the evidence supports them and withholding the label where it does not. The profitability criteria and monetisation pathways above can be applied through a structured decision process. The following flowchart provides a practical screening tool to help users distinguish between investments that primarily deliver de-risking benefits and those that also support identifiable and evidence-based commercial return pathways.

Once determined an activity is eligible as an A&R investment, the goal of the chart is to ultimately answer the question: Does this activity open a commercial return route beyond avoided losses, and is that route supported by evidence?

Deciding whether an investment can be classified as de-risking, preparedness or holds potential for profitability



Please note this flowchart has been generalized to fit as many scenarios as possible for the A&R activities and investable opportunities. This flowchart aims to support categorisation of A&R investments. Throughout this report, there has been a focus on reframing A&R as a method to generate returns (as per the categories highlighted in green in the flow chart). These are non-exhaustive and may be secondary co-benefits as the return timeframe will vary on the nature of that activity and / or project specific factors such as the development and construction timeline, operationalisation or other factors. Longer timeframes for metrics such as increased asset value should also be considered. It should be noted where income from A&R is generated that commercial feasibility and bankability would be fulfilled (if sufficient returns are generated). Preparedness and readiness may be interlinked to disaster readiness or preserving value, which is linked to the nature of the sector, activity and hazard. It should be considered as a standalone category if there is no de-risking element where an event does not occur.

Worked example

The following worked example* illustrates how the Guide's full investment framework applies to a representative real world investment opportunity.

Theme: Integrated water energy facility in a water stressed city in sub Saharan Africa.

Investment: A blended finance facility to support the construction and operation of a solar powered water recycling and desalination plant.

Borrower: A municipal water utility with a creditworthy off take agreement with the city government.

Structure (main path): corporate level blended loan to the utility.

Project Selection

1. Does the investment primarily preserve value by reducing risk or avoiding losses?

- Adds a rainfall independent source: coping capacity and supply resilience
- Supplies water every year, not only during drought
- Go/No Go Gate 1: YES - PASS

Yes

Project Evaluation and Selection

2. Is avoided loss / preserved value monetised by the deal structure by enhancing returns / socioeconomic gains?

- The executed city off take provides a payer and a pricing mechanism
- Drought proof volumes become contracted payments, not lost sales
- Go/No Go Gate 2: : YES - PASS

Yes

3. Are these priced into debt considerations or into potential projects returns?

- The financing institution provides a corporate loan to the utility
- The benefit enters the credit assessment: repayment capacity, covenants, pricing
- Go/No Go Gate 3: YES, DEBT - PASS

Yes

4. Does the investment drive profitability through primary or secondary benefits (e.g., returns)?

- Primary: contracted water sales
- Secondary: avoided emergency supply and lower purchased energy
- Go/No Go Gate 4: YES - PASS

Yes

5. Is the financial requirement categorised as OpEx / CapEx or is the business model defined as resilient?

- Green desalination in areas of water stress configures a new service producing asset, not a retrofit
- Go/No Go Gate 5: YES, Business Model Defined as Resilient - PASS

Yes

6. Is income generated from a sole activity?

- The utility earns across supply, distribution and sanitation
- Plant revenue is not ring fenced.
- Go/No Go Gate 6: NO - PASS

Yes

7. Does the activity primarily generate new revenue or have secondary revenue enhancing benefits?

- New contracted volumes
- Cost savings from on site solar and a recycling first design
- Go/No Go Gate 7: YES - PASS

Yes

8. Improves efficiency to save operational costs

- On site solar replaces purchased energy; recycling first lowers treatment costs

Conditional Investment with potential to drive profitability

Project Monitoring

Monitoring & Reporting: How is ongoing Substantial Contribution assessed, and what is reported?

Impact Indicator

- Water produced (m^3/day vs. target)
- People with climate resilient potable water
- Supply continuity during drought

Monetisation Indicator

- Contracted off take revenue;
- Metered, collected sales (regulated tariff shown separately)
- Attributable savings: avoided emergency supply and grid energy (invoices, meters)

Profitability Indicator

- Utility DSCR
- Risk adjusted NPV / IRR vs. hurdle rate (financial model)
- Operating margin
- Future Benefit: change in PD / resilience adjusted pricing*

- **Annual Allocation Report:** Proceeds deployed by tranche; eligible category and Guide reference for each sub investment.
- **Verification:** Annual third party assurance; brine covenant monitoring; CBI Water Criteria certification if pursued.

This scenario is illustrative but draws on real transactions: IFC s Utilities for Climate (U4C) programme, the Green Climate Fund s Climate Investor Two (CI2) water infrastructure facility, IFC s blended finance advisory work in São Paulo; and World Bank Blended Finance Platform for Sustainable Infrastructure (South Africa)

*Selected benefits are claimed only once evidenced: metered baselines for cost savings, and observed changes in PD, grade or pricing for the Future Benefit.

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 (but not exclusively in these markets). This edition also outlines activities according to their potential of being de-risking only (whether it is by reducing financial impacts of incurred losses, reducing the exposure and vulnerability of assets, adapting business practices and increasing coping capacity, improving supply chain resilience, improving risk transfer mechanisms, improving credit worthiness or a combination of these) and those that also have the potential to drive profit providing the conditions outlined in the previous section are met. 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 can 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.
- Determining if an activity falls within one or more de-risking categories only or if it could potentially also generate a commercial route beyond avoided losses and drive profitability

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.[46]

Table 3: Adaptation & Resilience Eligible Investments (non-exhaustive)

			Adaptation and Resilience Type		Green Bond/ Green Loan	Social Bond/ Social Loan Principles social outcomes	De-risking Factors	Impacts	
Climate resilience themes	Sub-Theme	Examples of eligible investments	Type 1: Activities that are adapted	Type 2: Activities that enable adaptation	Principles' environmental	Co-benefit included	De-risking factors	Increasing readiness / preparedness for natural events	Driving Profitability
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		●	●	●	●		●

[46]Please note the activity list and examples of eligible investments include climate and natural hazards to ensure that potential de-risking and preparedness financing are captured. This may not be covered by some definitions within various market guidance but aims to capture all physical risk exposures Including activities that build resilience to natural hazards that may not be driven by climate change (e.g., seismic events). These are considered to capture varying definitions of resilience / readiness and preparedness.

Table 3: Adaptation & Resilience Eligible Investments (non-exhaustive) Continued)

			Adaptation and Resilience Type		Green Bond/ Green Loan	Social Bond/ Social Loan Principles social outcomes	De-risking Factors	Impacts	
Climate resilience themes	Sub-Theme	Examples of eligible investments	Type 1: Activities that are adapted	Type 2: Activities that enable adaptation	Principles' environmental	Co-benefit included	De-risking factors	Increasing readiness / preparedness for natural events	Driving Profitability
	Primary production	Climate-smart sustainable fisheries management (e.g., biodiverse agroeconomic systems, aquatic food systems) (including activities linked to Blue Economy)		●			●		
Resilient agrifood 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)		●			●	●	●
	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		●				●	●

Table 3: Adaptation & Resilience Eligible Investments (non-exhaustive) Continued)

			Adaptation and Resilience Type		Green Bond/ Green Loan	Social Bond/ Social Loan Principles social outcomes	De-risking Factors	Impacts	
Climate resilience themes	Sub-Theme	Examples of eligible investments	Type 1: Activities that are adapted	Type 2: Activities that enable adaptation	Principles' environmental	Co-benefit included	De-risking factors	Increasing readiness / preparedness for natural events	Driving Profitability
Resilient cities	Residential, commercial and public buildings	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 [blue economy])	●	●	●		●	●	●
		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		●	●	●	●	●	●
		Desalination plants in areas of water stress due to other factors**		●	●	●	●	●	●

Table 3: Adaptation & Resilience Eligible Investments (non-exhaustive) Continued)

			Adaptation and Resilience Type		Green Bond/ Green Loan	Social Bond/ Social Loan Principles social outcomes	De-risking Factors	Impacts	
Climate resilience themes	Sub-Theme	Examples of eligible investments	Type 1: Activities that are adapted	Type 2: Activities that enable adaptation	Principles' environmental	Co-benefit included	De-risking factors	Increasing readiness / preparedness for natural events	Driving Profitability
Resilient cities	Planning, development and management of urban areas and settlements	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		●		●		●	●

Table 3: Adaptation & Resilience Eligible Investments (non-exhaustive) Continued)

			Adaptation and Resilience Type		Green Bond/ Green Loan	Social Bond/ Social Loan Principles social outcomes	De-risking Factors	Impacts	
Climate resilience themes	Sub-Theme	Examples of eligible investments	Type 1: Activities that are adapted	Type 2: Activities that enable adaptation	Principles' environmental	Co-benefit included	De-risking factors	Increasing readiness / preparedness for natural events	Driving Profitability
Resilient health	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		●		●	●	●	
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)	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	●	●	●		●	●	●

Table 3: Adaptation & Resilience Eligible Investments (non-exhaustive) Continued)

			Adaptation and Resilience Type		Green Bond/ Green Loan	Social Bond/ Social Loan Principles social outcomes	De-risking Factors	Impacts	
Climate resilience themes	Sub-Theme	Examples of eligible investments	Type 1: Activities that are adapted	Type 2: Activities that enable adaptation	Principles' environmental	Co-benefit included	De-risking factors	Increasing readiness / preparedness for natural events	Driving Profitability
Resilient industry and commerce (*some industries are covered under other themes and therefore not repeated here)	Cross-cutting (Materials, consumer discretionary, consumer staples, industrials)	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)	●				●	●	●
	Utilities	Enhanced water management strategies and technologies (e.g., water recycling, desalination plants, watershed and aquifer management)	●		●	●	●	●	●

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

Table 3: Adaptation & Resilience Eligible Investments (non-exhaustive) Continued)

			Adaptation and Resilience Type		Green Bond/ Green Loan	Social Bond/ Social Loan Principles social outcomes	De-risking Factors	Impacts	
Climate resilience themes	Sub-Theme	Examples of eligible investments	Type 1: Activities that are adapted	Type 2: Activities that enable adaptation	Principles' environmental	Co-benefit included	De-risking factors	Increasing readiness / preparedness for natural events	Driving Profitability
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)		●		●	●	●	
		Backup storage for critical systems		●	●	●	●	●	
		Localised power sources which provide backup power during grid outages		●	●	●	●	●	●

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

Table 3: Adaptation & Resilience Eligible Investments (non-exhaustive) Continued)

			Adaptation and Resilience Type		Green Bond/ Green Loan	Social Bond/ Social Loan Principles social outcomes	De-risking Factors	Impacts	
Climate resilience themes	Sub-Theme	Examples of eligible investments	Type 1: Activities that are adapted	Type 2: Activities that enable adaptation	Principles' environmental	Co-benefit included	De-risking factors	Increasing readiness / preparedness for natural events	Driving Profitability
Resilient infrastructure	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		●	●	●	●	●	●
	Coastal and riverine infrastructure	Coastal and riverine flood protection: Levees, floodgates, sand dams, surge barriers, pumps		●	●	●	●	●	●
		Coastal pumping stations in areas of water stress		●	●	●	●	●	●

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

Table 3: Adaptation & Resilience Eligible Investments (non-exhaustive) Continued)

			Adaptation and Resilience Type		Green Bond/ Green Loan	Social Bond/ Social Loan Principles social outcomes	De-risking Factors	Impacts	
Climate resilience themes	Sub-Theme	Examples of eligible investments	Type 1: Activities that are adapted	Type 2: Activities that enable adaptation	Principles' environmental	Co-benefit included	De-risking factors	Increasing readiness / preparedness for natural events	Driving Profitability
Resilient infrastructure	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 including Blue Economy 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		●	●			●	●
		Air quality forecasting system, monitoring of fire propagation and smoke transport systems		●	●	●		●	●
		Wildfire safety infrastructure and equipment such as HD cameras, and weather stations		●		●		●	●

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

Table 3: Adaptation & Resilience Eligible Investments (non-exhaustive) Continued)

			Adaptation and Resilience Type		Green Bond/ Green Loan	Social Bond/ Social Loan Principles social outcomes	De-risking Factors	Impacts	
Climate resilience themes	Sub-Theme	Examples of eligible investments	Type 1: Activities that are adapted	Type 2: Activities that enable adaptation	Principles' environmental	Co-benefit included	De-risking factors	Increasing readiness / preparedness for natural events	Driving Profitability
Resilient societies	Financial and digital inclusion	Climate change adaptation insurance in line with the EU Taxonomy		●		●	●	●	●
		Financial products e.g., catastrophe bonds, insurance linked securities		●		●	●	●	●
		Parametric insurance schemes for green/ blue infrastructure such as coral reefs, fisheries, and coastal protection		●	●	●	●	●	●

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

Project selection

The issuer or borrower can 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[47] where applicable, and adhere to stringent environmental and social standards.

By identifying a portfolio of A&R activities, an institution can create an 'adaptation' asset base when coupled with applicable governance structures. By combining the use of sustainable finance frameworks, internal governance processes and existing facilities an exercise can be undertaken to identify, evaluate and recognise adaptation linked sustainable finance assets. These should be compliant with appropriate position statements (or/and appropriate Do No Significant Harm assessments) and meet any assessment thresholds and not infringe on any exclusion criteria set out within appropriate frameworks or taxonomies (e.g., recognising 'green' adaptation assets aligned to the EU taxonomy). This is caveated where a secondary assessment for A&R contributions would be required against green, social, sustainable or transition criteria for reporting purposes unless a clear process is in place and meets compliance / assurance requirements. Developing an adaptation asset base has several benefits for recognising new opportunities across markets and sectors, identifying thematics to expand client engagement or building an asset base for thematic issuances. Recognising A&R assets or revenue can be completed using several different methods:

1. A&R activities with associated criteria included within a sustainable finance or sustainable product framework
2. Secondary A&R labelling for recognised green, social, sustainable or transition assets which align with other listed activities (e.g., resilient health as a social-adaptation asset)
3. Recognition of new assets which align with A&R activities that can be assessed appropriately (e.g., % of activities aligned to EU taxonomy that enhance resilience)
4. Reporting of adaptation assets which may not be classified with a sustainable label (ensuring they are not included in sustainable finance income, assets or mobilisation targets)

[47] UNDRR (2015), Sendai Framework for Disaster Risk Reduction 2015-2030

Management of proceeds

The issuer or borrower would ideally have the necessary information to segregate the proceeds from A&R 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 A&R 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 count as contributing to avoidable negative impacts on adaptation or environmental or social outcomes.

Attributing costs of investments in adaptation and Resilience

To establish the components of an investment pertaining to adaptation and resilience, two estimation methods may be used to attribute the eligible share of financing:

- **Cost-share (proportional) approach:** Allocate by the eligible portion of total project cost or CAPEX (e.g., percentage of CAPEX, costs or financing attributable to A&R for co-benefitting or cross cutting projects).[48]

A&R finance = Total financing × (Eligible A&R CAPEX ÷ Total project CAPEX)

- **Incremental-cost approach:** Count only the additional expenditure required to achieve resilience above a non-adapted baseline (e.g., the marginal cost of raising an asset above projected flood levels). While this method can be difficult for asset hardening, such measures can be assessed via the KPI-linked route.

The choice of attribution method should reflect the nature of the investment. The incremental-cost approach is generally most appropriate where the resilience component can be identified relative to a non-adapted baseline, such as retrofits, hardening measures or design modifications. A cost-share approach may be more appropriate where adaptation and resilience characteristics are embedded throughout the asset, activity or project design and cannot reasonably be separated into a distinct resilience increment. Institutions should disclose the attribution methodology applied and use it consistently across comparable transactions. Where an investment is classified as Enabling, the whole of the activity cost is eligible, consistent with the treatment of Type 3 activities under the MDB Joint Methodology and of enabling activities under the Climate Bonds Resilience Taxonomy.

Further, these approaches are designed to **estimate the adaptation and resilience share of investment costs.** However, they do not necessarily reflect the **share of benefits** generated by the adaptation and resilience component. In many cases, the resilience measure may represent only a small proportion of total project cost while contributing disproportionately to risk reduction, avoided losses, operational continuity or value creation.

Estimating benefits from investments in adaptation and resilience

To assess the financial benefits attributable to adaptation and resilience measures, additional analysis may be undertaken. Benefit attribution should be undertaken using a clearly defined baseline and should be proportionate to the scale, complexity and materiality of the investment. If possible, benefits should be assessed under both current and future climate conditions to reflect the forward-looking nature of adaptation and resilience investments.

Depending on the nature of the investment, this may include:

- **Share of avoided losses attributable to the adaptation measure,** including reductions in expected annual losses, disruption costs, asset damage or revenue interruption. If multiple interventions contribute to the same outcome, attribution should reflect the relative contribution of each measure and avoid double counting.
- **Incremental benefit above baseline,** comparing expected outcomes with and without the resilience intervention under relevant climate scenarios. Using this approach is most appropriate if a counterfactual or baseline scenario can be reasonably established which should compare performance against non-resilient assets or where applicable feedback into financial metrics such as PD and LGD.
- **Risk-adjusted return attributable to the adaptation component,** including effects on cash flow stability, insurance costs/premiums[49,50], financing costs, asset values or earnings. If possible, the financial effect should be expressed as a risk-adjusted net present value (NPV), internal rate of return (IRR), or equivalent financial metric.
- **Value-Driver Attribution:** In cases adaptation measures affect multiple parts of a business simultaneously, organisations can use a value-driver approach to estimate benefits but linking Hazard → Adaptation response / investment → Business Impacts → Financial value driver → Capital Allocation Outcomes → Financial outcomes. This approach is particularly useful in situations where adaptation benefits flow through multiple business functions and may not directly be observable as a standalone cash flow. However, it is important to acknowledge that this approach does not account for additional socioeconomic gains that can be

[48] Institutions such as ADB may use climate change assessments to factor attributed financing against mitigation or adaptation categories. This linked example shows a mainly 'mitigation' project co-financed by ADB which required 3% of total costs for 'climate proofing' / adaptation. ADB (2022), South Commuter Railway Project: Climate Change Assessment, South Commuter Railway Project: Report and Recommendation of the President

[49] Climate X (2026), How Adaptation Reduces Insurance Costs in Real Estate

[50] Stockholm Environmental Institute (2026), Insurance and reinsurance under climate stress: Managing systemic risk in global supply chains

gained from the adaptation measure.

- **Portfolio-level attribution:** For portfolios, funds, or corporate-level financing, benefit attribution may be assessed through aggregated resilience indicators, such as reduction in portfolio expected annual loss, percentage of revenue protected from material physical risks, percentage of assets with improved resilience ratings (or increased adaptive capacity) Portfolio-level estimates should feature consistent assumptions across investments.
- **Changes in risk metrics,** such as reduced expected annual loss (EAL), reduced Value at Risk (VaR), reduced volatility, or improved operational availability.

If sufficient data is available, organisations can assess whether adaptation investments create economic value using decision-based metrics, including benefit-cost ratios (BCR), positive risk-adjusted net present value (NPV), internal rate of return (IRR), hurdle-rate achievement, or the value of acting early versus deferring investment.

In case benefits cannot be directly isolated, a reasonable and transparent estimation approach should be used, supported by clearly stated assumptions, baselines and methodologies. The objective is not to claim precision where it does not exist, but to provide a credible assessment of the extent to which adaptation and resilience measures contribute to financial performance and value preservation.

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.

These may be measured against minimum expected outcomes or business as usual scenarios. This will support monitoring A&R results across sustainable financing instruments for impact and allocation reporting for green, social and sustainable assets where applicable. Depending on the type of indicator in the table below it should address key questions.

- Adaptation indicators should answer “did resilience improve?”
- Commercial indicators should answer “did this create or preserve economic value?”;
- Financing indicators should answer “did this materially affect the risk-return characteristics of the asset, borrower or portfolio?”

Additional Safeguards for Attribution

To ensure clarity, it is helpful to apply the following safeguards:

Additionality: demonstrate that claimed benefits arise from the adaptation or resilience intervention rather than business as-usual performance improvements.

Attribution & Traceability: a credible causal link exists between the adaptation measure, the risk being addressed, the value driver affected, and the financial benefit claimed/ expected outcome.

Materiality: the financial effect is meaningful relative to the investment, asset, project, company or portfolio being assessed.

Conservatism: where boundaries are uncertain, adopt the lower defensible estimate to avoid overstatement.

Consistency: apply the same basis across projects and periods, and avoid double-counting where benefits are shared with mitigation or other sustainability objectives.

Scenario robustness: benefits remain broadly valid under plausible future climate scenarios.

Transparency: disclose the methodology used, data sources, assumptions, baselines, attribution approach, and any items excluded because they cannot be reliably quantified.

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 saltwater intrusion may be more difficult to measure within the investment time frame (i.e. over decades).

Commercial Monetisation, Profitability, Risk Reduction & Insurance, and Credit & Bankability Indicators

Impact indicators establish whether an investment delivers adaptation and resilience outcomes. However, financial institutions also need evidence of how those outcomes affect risk, value and financial performance. A coherent set of indicators can connect the adaptation intervention to its resilience outcome, the mechanism through which value is captured, and the resulting financial implications for the relevant asset, borrower, insurer, investor or portfolio.

The indicators selected should reflect the investment's value-driver pathway and the decision they are intended to support:

- **Commercial monetisation** indicators demonstrate whether a resilience benefit is converted into an identifiable and attributable source of financial value, such as contracted or preserved revenue, an availability payment, a tariff, insurance premium savings or a measurable reduction in operating costs.
- **Profitability** indicators assess whether the captured financial value produces a positive return after accounting for costs, uncertainty, timing and risk, using measures such as risk-adjusted net present value or internal rate of return.
- **Risk reduction and insurance** indicators assess whether the investment changes the underlying loss profile or risk-transfer position. Relevant evidence may include reductions in expected annual or tail losses, lower claims frequency or severity, and maintained or improved insurability, coverage or insurance terms.
- **Credit and bankability** indicators assess whether these effects are recognised in financing decisions. They may include changes in probability of default, loss given default, credit grade, expected credit loss, collateral value, financing costs, debt-service capacity or other financing constraints.

These indicator groups are complementary but not interchangeable. For example, avoided operating days lost demonstrates a resilience outcome. It supports a Driving Profitability classification only when the resulting value is captured through an identifiable monetisation mechanism, such as preserved contracted revenue or an availability payment, and is supported by evidence of a positive risk-adjusted financial return.

Risk reduction, insurance, credit and bankability indicators may therefore provide important evidence of de-risking, value preservation and improved financing conditions. However, they do not in themselves demonstrate profitability. A profitability claim requires evidence that the benefit is attributable, material and financially captured by the relevant party. Applying this distinction helps financial institutions avoid overstating commercial returns while recognising how adaptation and resilience outcomes can inform origination, pricing, underwriting, credit assessment, portfolio management and capital-allocation decisions.



Table 4: Measuring adaptation and resilience impact, commercial monetisation and profitability

Examples of indicators to assess adaptation and resilience impact, commercial monetisation, profitability, risk reduction and insurance, and credit and bankability of a specific investment. These metrics may vary between result, output, outcome or impact dependant on the activity and should be measured different depending on the sector and thematic. Measurement will follow various methodologies and verification requirements. A non-exhaustive representative list is included below.

Climate resilience themes	Examples of impact indicators	Sources
Resilient agrifood systems	• Increase in agricultural land using more drought resistant crops (ha, m2 or km2) – vertical farming: flood prone areas and crop diversification • Area cultivated by precision agriculture (ha, m2 or km2) • Area of nature based solutions related to agriculture or forestry (ha, m2 or km2) • Area under climate-smart sustainable fisheries management (ha, m2 or km2) • Reduced/avoided loss of livestock and/or crops (#, valorised, %)Crops with sustainable certification, or suitable metric relevant to that crop (e.g., deforestation and conversion free soy) (tonne, %, volume)	ICMA Harmonised Framework for Impact Reporting 2026 (link)
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, m2 or km2) • 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 (#) • Cooling outdoor? – resilient mobility – early warning systems • Floating cities - • Number of properties protected by existing flood protection measures (#)	ICMA Harmonised Framework for Impact Reporting 2026 (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 (#) (if event occurs) • 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 2026 (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 2026 (link)

Table 4: Measuring adaptation and resilience impact, commercial monetisation and profitability (continued)

Climate resilience themes	Examples of impact indicators	Sources
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 km2) • 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, m2 or km2) • Energy Resilience of critical infrastructure	ICMA Harmonised Framework for Impact Reporting 2026 (link) UNDRR, Sendai Framework for Disaster Risk Reduction 2015–2030: Monitoring the Sendai Framework / indicators (link) Donatti et al. (2019), "Indicators to measure the climate change adaptation outcomes of ecosystem-based adaptation" (link) EPA Ireland Research Report 379, "Policy Coherence in Adaptation Studies: Selecting and Using Indicators of Climate Resilience", 2021 (link),
Resilient nature and biodiversity	• Increase in area under sustainable or certified management (ha, m2, km2 and/or %) • Area of peatland/wetlands restored/under conservation practices (ha, m2 or km2) • Number of sustainable farms/wetland areas/conservation centres created or financed (#) • Marine Biodiversity	ICMA Harmonised Framework for Impact Reporting 2026 (link)
Resilient societies	• 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 2026 (link) UNDRR, Sendai Framework for Disaster Risk Reduction 2015–2030: Monitoring the Sendai Framework / indicators (link)
Cross-cutting	• Investment in [type of climate adaptation/mitigation measure] to mitigate against [type of climate risk] (valorised $/€/£ etc) (e.g., green efficient HVAC systems to improve energy consumption in areas with extreme heat stress)	EPA Ireland Research Report 379, "Policy Coherence in Adaptation Studies: Selecting and Using Indicators of Climate Resilience", 2021 (link)

Table 5: Commercial Monetisation, Profitability, Risk Reduction & Insurance, and Credit & Bankability Indicators

Indicator Type	Indicator	What the indicator demonstrates	Typical evidence expected	Sources
Commercial Monetisation	Contracted revenue (tariff, offtake, subscription)	Demonstrates that adaptation or resilience benefits have been converted into an enforceable revenue stream through a contract, tariff or customer agreement. Evidence of a payer and pricing mechanism is critical.	Executed tariff agreement, power purchase agreement (PPA), water offtake agreement, subscription contracts, concession agreement, revenue invoices.	UNDP Adaptation Finance Strategy Guideline (2025) identifies tariffs, user fees and offtake/private contracts as the revenue basis for commercially financeable adaptation. World Bank PPP Reference Guide defines user-pays tariff and offtake mechanisms. ICMA Green Bond Principles offers contracted use-of-proceeds framework. 1. UNDP, Adaptation Finance Strategy Guideline, 2025: https://www.undp.org/asia-pacific/publications/adaptation-finance-strategy-guideline (full PDF: (link)) 2. ICMA, Green Bond Principles (voluntary process guidelines), 2021 (June 2022 appendix): (link) 3. World Bank, PPP Reference Guide: (link)
Commercial Monetisation	Energy or water sales	Demonstrates direct monetisation through sale of resilience-related outputs, such as electricity, storage services or water supply.	Metered sales records, utility billing data, settlement statements, customer invoices.	ICMA Harmonised Framework for Impact Reporting (June 2026) offer output metrics for energy/water. Commercial value evidenced separately via metered settlement/billing. 1. ICMA, Handbook – Harmonised Framework for Impact Reporting (Green Bonds), June 2026: (link) (use for output metrics only: MWh generated, m^3 supplied/treated). 2. For the revenue leg: metered-settlement / offtake evidence per the row's own "typical evidence" (settlement statements, utility billing): (link)
Commercial Monetisation	Carbon or environmental credit revenue	Demonstrates monetisation of ecosystem or adaptation benefits through verified environmental-credit markets.	Credit issuance records, registry accounts, sale agreements, verification reports, buyer contracts.	ICVCM defines the integrity threshold for tradable credits and explicitly frames "carbon credit revenues" as the additionality incentive; the World Bank source provides prices, volumes and market-integrity trends; IFC provides the biodiversity impact metrics. 1. ICVCM, Core Carbon Principles, Assessment Framework and Assessment Procedure, 2023– (v1.1 2024): (link) 2. World Bank, State and Trends of Carbon Pricing (annual; 2023 international-markets edition): (link) (search title/year). 3. VCMI, Claims Code of Practice, 2023 (demand-side integrity): (link) 4. Retain IFC, Biodiversity Finance Metrics for Impact Reporting, 2024: (link) (for biodiversity output metrics only)
Commercial Monetisation	Fisheries or tourism income	Demonstrates conversion of nature-based resilience benefits into measurable commercial revenue streams.	Revenue records linked to fisheries licences, visitor fees, tourism concessions, catch volumes and sales receipts.	The sources recognise that fisheries licences/catch and visitor/concession fees are recognised commercial revenue channels for nature-based asset: 1. UNEP / World Bank on nature-based solutions finance and revenue models (e.g., World Bank, Mobilizing Private Finance for Nature, 2020: (link) 2. FAO (fisheries/aquaculture value) and UN Tourism (UNWTO) for tourism revenue statistics: (link) (link)
Commercial Monetisation	Availability or performance payments	Demonstrates monetisation through contractual payments linked to asset availability, resilience performance or service continuity.	Availability-payment contracts, PPP agreements, performance-based service contracts, payment certificates.	Sources highlight that availability and performance-based payments are defined, contractually-enforceable government-pays mechanisms where payment is contingent on availability/performance, with deductions for unavailability. 1. World Bank, PPP Reference Guide - (link); and PPP Contract Types & Terminology: (link) 2. APMG, PPP Certification Guide - Availability Payments: (link)
Commercial Monetisation	Premium and distribution income	Demonstrates revenue earned from providing adaptation-related insurance, parametric products, catastrophe-risk coverage or related distribution services.	Insurance premium records, policy books, brokerage commissions, underwriting statements.	That underwriting adaptation-related cover (including parametric/catastrophe products) and distribution generate premium and commission income for insurers/brokers. 1. The Geneva Association thematic work on climate risk, parametric and public-private insurance: (link) (e.g., Addressing Growing Protection Gaps through Better Public-Private Insurance Programmes, 2026). 2. Swiss Re Institute / sigma premium-volume and catastrophe-market data: (link)

Table 5: Commercial Monetisation, Profitability, Risk Reduction & Insurance, and Credit & Bankability Indicators (continued)

Indicator Type	Indicator	What the indicator demonstrates	Typical evidence expected	Sources
Commercial Monetisation	Reduced insurance premiums	Demonstrates that resilience investments can generate a measurable financial benefit through lower risk-transfer costs.	Insurance renewal schedules, broker quotations, premium comparisons before and after intervention.	1. EDF (2026) Insurers' Resilience Toolkit: (link)
Profitability	Net Present Value (NPV)	Demonstrates whether discounted future cash flows exceed investment costs and therefore create economic value. Positive NPV is a primary indicator of value creation.	Financial model, discount-rate assumptions, sensitivity analysis.	The sources provide formal definitions and application of NPV (discounted cash flows vs cost), IRR ("the discount rate giving NPV = 0"), payback, discount-rate choice and sensitivity analysis; and the crucial distinction between the financial return to capital (FRR/C) and the return to private investors (FRR/K). 1. European Commission (DG REGIO), Guide to Cost-Benefit Analysis of Investment Projects (2014; Publications Office 2015) (link) (Publications Office DOI: (link)); updated by Economic Appraisal Vademecum 2021–2027 (2022). 2. CFA Institute — Program Curriculum readings on discounted-cash-flow/capital-budgeting criteria (recognised professional body) — (link)
Profitability	Internal Rate of Return (IRR)	Demonstrates the project's implied annualised return and whether it exceeds the investor's hurdle rate or cost of capital.	Financial model outputs, investment appraisal documentation.	
Profitability	Payback Period	Demonstrates how quickly the investment recovers its initial capital expenditure from cash inflows.	Cash-flow model, cost estimates, realised cash-flow data.	
Profitability	Return on Investment (ROI) / Return on Invested Capital (ROIC)	Demonstrates how efficiently invested capital is converted into financial returns. Useful for comparing adaptation investments with alternative uses of capital.	Operating profit, capital invested, financial statements.	The sources outline standard, auditable definitions of ROI/ROIC (return relative to invested capital), EBITDA, free cash flow and gross/operating margins. 1. CFA Institute Program Curriculum / corporate-issuer and financial-statement-analysis readings (ROIC, EBITDA, FCF, margins): (link) 2. For EBITDA and other non-GAAP measures specifically: IOSCO Statement on Non-GAAP Financial Measures (2016) (link) / ESMA Guidelines on Alternative Performance Measures (2015): (link)
Profitability	EBITDA improvement	Demonstrates whether resilience measures are increasing operating earnings through higher revenue, reduced costs or protected operations.	Before-and-after financial statements; management accounts.	
Profitability	Free Cash Flow (FCF) improvement	Demonstrates whether the intervention increases cash available to debt and equity providers after operating and capital expenditures.	Cash-flow statements; financial models; management reporting.	
Profitability	Debt Service Coverage Ratio (DSCR)	Demonstrates a project's ability to service debt obligations from project cash flow and is particularly relevant for infrastructure and project-finance investments.	Debt-service schedules, lender models, financing agreements.	1. World Bank, PPP Reference Guide (lender coverage and bankability): (link)
Profitability	Coupon or yield	Demonstrates the direct return earned by investors in insurance-linked securities, catastrophe bonds or resilience-related debt instruments.	Bond documentation, fund reports, investment statements.	The sources indicate that directly relevant to investors in catastrophe bonds and resilience-linked debt; the World Bank as issuer gives a DFI-grade anchor. 1. American Academy of Actuaries, Insurance-Linked Securities and Catastrophe Bonds, June 2022: (link) 2. Swiss Re Cat Bond Total Return Index (the standard market benchmark): (link) 3. World Bank Treasury (IBRD) catastrophe-bond programme (DFI issuer perspective): (link)
Profitability	Gross or operating margin improvement	Demonstrates whether resilience measures improve profitability by reducing operating costs, improving productivity or stabilising revenue.	Historical margin analysis, management accounts, audited statements.	The sources outline standard, auditable definitions of ROI/ROIC (return relative to invested capital), EBITDA, free cash flow and gross/operating margins. 1. CFA Institute Program Curriculum / corporate-issuer and financial-statement-analysis readings (ROIC, EBITDA, FCF, margins): (link) 2. For EBITDA and other non-GAAP measures specifically: IOSCO Statement on Non-GAAP Financial Measures (2016) (link) / ESMA Guidelines on Alternative Performance Measures (2015): (link)
Profitability	Risk-adjusted return	Demonstrates whether positive returns remain after accounting for implementation risk, climate risk, market risk and uncertainty. This is the final profitability gate under GARF.	Scenario analysis, sensitivity analysis, risk-adjusted NPV/IRR calculations, stress testing.	European Commission Guide to CBA (sensitivity/scenario/risk analysis) and CFA Institute risk-adjusted-return concepts (Sharpe, RAROC) highlight that returns must be tested against implementation, market and climate risk. 1. European Commission: Guide to CBA of Investment Projects (2014) sensitivity, scenario and risk analysis of NPV/IRR: (link) 2. CFA Institute — risk-adjusted performance concepts (Sharpe ratio; RAROC): (link)

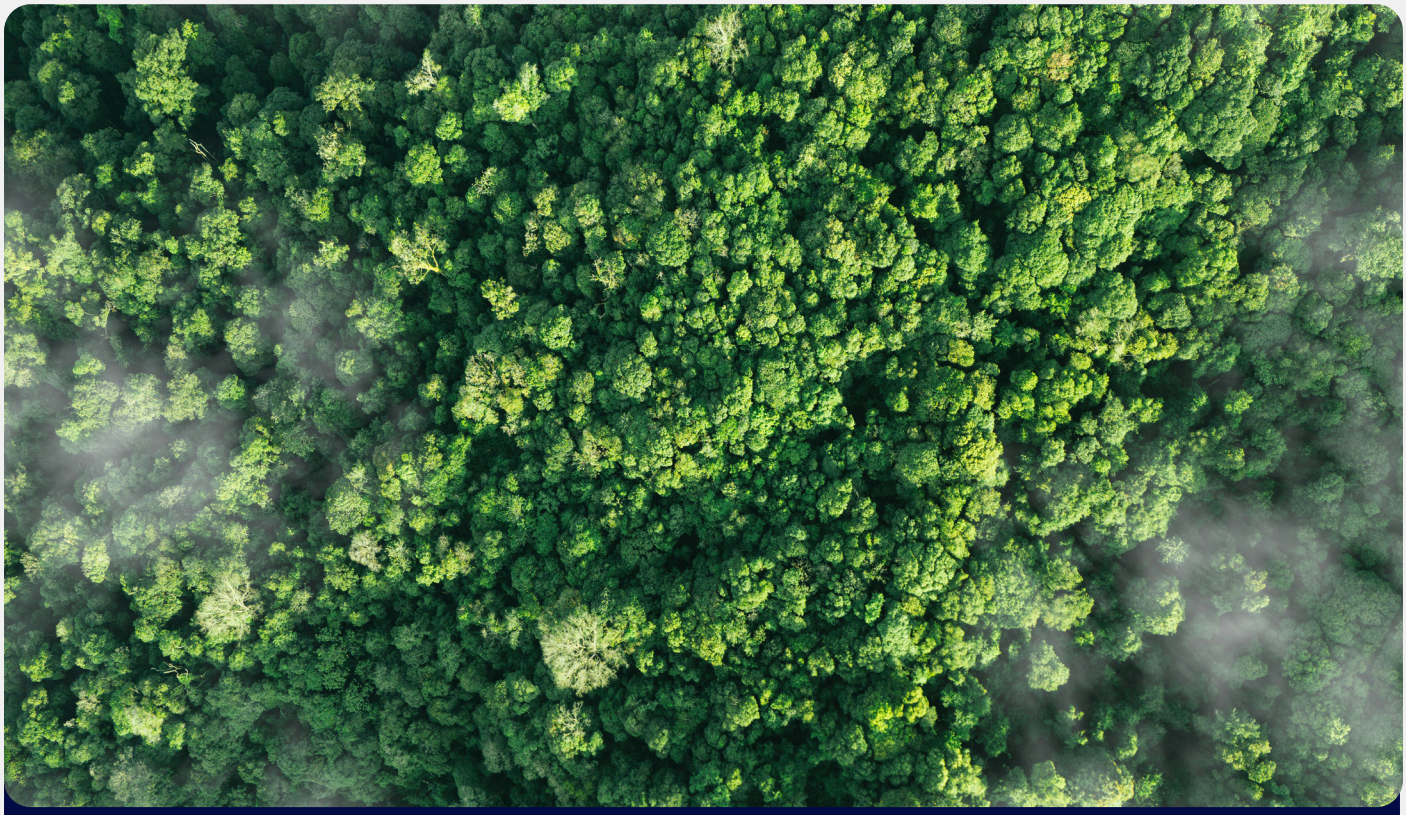
Table 5: Commercial Monetisation, Profitability, Risk Reduction & Insurance, and Credit & Bankability Indicators (continued)

Indicator Type	Indicator	What the indicator demonstrates	Typical evidence expected	Sources
Commercial monetisation	Regulated-tariff / allowed-cost recovery	Demonstrates whether a regulated operator recovers resilience investment costs through approved tariffs or revenue allowances. Cost recovery is distinct from earning a return on the investment.	Approved tariff or regulatory determination, cost-recovery schedules, eligible cost records, allowed-return assumptions, billing and collection records, NPV or DSCR model.	World Bank, PPP Reference Guide (2017; online section undated), PPP Contract Types and Terminology, payment mechanisms: (link)
Commercial monetisation	Merchant sales — price and volume exposed	Demonstrates revenue earned by an operator from selling resilience-related outputs at market prices, without a fixed offtake guarantee. Revenue depends on prices and sales volumes and does not alone establish profitability, contribution or net profit.	Metered sales and settlement records, market prices and sales volumes, dispatch records, hedge contracts where applicable, operating and replacement costs, downside cash-flow analysis linked to the resilience measure.	World Bank, PPP Reference Guide (2017; online section undated), PPP Contract Types and Terminology, payment mechanisms: (link) European Commission DG REGIO (2014; publication 2015), Guide to Cost-Benefit Analysis of Investment Projects, financial analysis and risk assessment: (link)
Commercial monetisation	Attributable operating-cost savings	Demonstrates whether resilience measures reduce operating costs for the owner or operator compared with a comparable baseline without the intervention. Financial value depends on the savings captured and the additional investment and operating costs.	Metering data, invoices and operating-cost records, comparable baseline costs adjusted for weather and activity levels, investment and maintenance costs, measured or modelled savings calculations.	European Commission DG REGIO (2015), Guide to Cost-Benefit Analysis of Investment Projects, financial analysis and risk assessment: (link) UNEP FI (2025), Adaptation and Resilience Impact Measurement Toolkit, results/counterfactual definitions: (link)
Commercial Monetisation	Attributable productivity or yield improvement	Demonstrates whether resilience measures increase output per hectare, labour hour or other specified input compared with a baseline without the intervention. Financial returns depend on saleable output, realised prices and additional costs.	Matched trials or credible local studies, baseline and post-intervention output per hectare or labour hour, climate and input data, realised sales prices, additional input and labour costs.	UNEP FI (2025), Adaptation and Resilience Impact Measurement Toolkit, results/counterfactual definitions: (link) European Commission DG REGIO (2014; publication 2015), Guide to Cost-Benefit Analysis of Investment Projects, financial analysis and risk assessment: (link)
Risk reduction & insurance	Expected annual loss (EAL/AAL) reduction	Demonstrates whether resilience measures reduce expected annual asset-damage and business-interruption losses borne by the owner or operator under consistent climate assumptions. Modelled loss reductions do not automatically represent realised savings or profit.	Comparable loss models with and without the resilience measure, climate scenarios and asset valuations, asset-damage and business-interruption estimates, insured and retained loss breakdowns, model validation and uncertainty analysis.	CFRF Adaptation Working Group (2025), From Risk to Resilience: Integrating Adaptation into Finance, executive summary; chapters 4 and 7: (link) UNEP FI (2025), Adaptation and Resilience Impact Measurement Toolkit, results/counterfactual definitions: (link)
Risk reduction & insurance	Probable maximum loss (PML) / tail-loss reduction	Demonstrates whether resilience measures reduce potential losses from severe events at a stated probability, return period or confidence level. This indicates protection against large losses rather than annual profitability.	Comparable tail-loss models with and without the resilience measure, loss exceedance-probability curves, stated return periods or confidence levels, climate scenarios, peril-dependence assumptions, uncertainty analysis.	CFRF Adaptation Working Group (2025), From Risk to Resilience: Integrating Adaptation into Finance, executive summary; chapters 4 and 7: (link) UNEP FI (2025), Adaptation and Resilience Impact Measurement Toolkit, results/counterfactual definitions: (link)
Profitability	Avoided-loss financial NPV	Demonstrates whether discounted avoided losses and protected revenues captured by the owner or operator exceed investment, maintenance and replacement costs. Positive NPV indicates expected financial value creation under a stated climate scenario, not guaranteed realised profit.	With- and without-intervention cash-flow models, retained avoided-loss and protected-revenue estimates, investment and maintenance costs, climate scenarios, asset-life and discount-rate assumptions, checks for double counting.	European Commission DG REGIO (2014; publication 2015), Guide to Cost-Benefit Analysis of Investment Projects, financial analysis and risk assessment: (link) CFRF Adaptation Working Group (2025), From Risk to Resilience: Integrating Adaptation into Finance, executive summary; chapters 4 and 7: (link)
Credit & bankability (lender de-risking)	Change in probability of default (PD)	Demonstrates whether resilience measures reduce a borrower's estimated probability of default over the same assessment period. This indicates lower credit risk for the lender, not automatically lower borrowing costs or borrower profit.	Lender-approved PD estimates with and without the resilience measure, borrower cash-flow and business-interruption analysis, consistent climate scenarios and assessment periods, model validation and approval records.	CFRF Adaptation Working Group (2025), From Risk to Resilience: Integrating Adaptation into Finance, executive summary; chapters 4 and 7: (link)

Table 5: Commercial Monetisation, Profitability, Risk Reduction & Insurance, and Credit & Bankability Indicators (continued)

Indicator Type	Indicator	What the indicator demonstrates	Typical evidence expected	Sources
Credit & bankability (lender de-risking)	Change in loss given default (LGD)	Demonstrates whether resilience measures reduce the proportion of a lender's exposure expected to be lost if a borrower defaults, using comparable recovery assumptions. This indicates improved recovery prospects, not a realised financing saving.	Lender-approved LGD and recovery models with and without the resilience measure, collateral valuations, insurance and security documentation, recovery-cost and timing assumptions, model validation records.	CFRF Adaptation Working Group (2025), From Risk to Resilience: Integrating Adaptation into Finance, executive summary; chapters 4 and 7: (link)
Credit & bankability (lender de-risking)	Change in internal credit-risk grade / rating	Demonstrates whether resilience measures improve a borrower's credit-risk grade on the lender's documented rating scale, after accounting for other changes. A modelled improvement does not guarantee a rating or pricing decision.	Lender-approved credit-risk assessments with and without the resilience measure, documented rating scale and grade-to-PD mapping, supporting borrower analysis, risk committee decisions and model override records.	CFRF Adaptation Working Group (2025), From Risk to Resilience: Integrating Adaptation into Finance, executive summary; chapters 4 and 7: (link)
Credit & bankability (lender de-risking)	Change in expected credit loss (ECL)	Demonstrates whether resilience measures reduce a lender's estimated credit losses compared with an equivalent assessment without the intervention. This indicates credit de-risking rather than borrower profit or automatic regulatory capital relief.	Approved credit-loss models with and without the resilience measure, PD, LGD and exposure estimates, scenario weights, maturity, discount-rate and credit-stage assumptions, guarantee and insurance records.	CFRF Adaptation Working Group (2025), From Risk to Resilience: Integrating Adaptation into Finance, executive summary; chapters 4 and 7: (link) Accounting implementation: legal/accounting/model review required; no IFRS 9 compliance claim established by this indicative definition.
Credit & bankability (lender de-risking)	Resilience-adjusted credit spread / financing cost	Demonstrates whether resilience measures result in lower credit spreads or financing fees for the borrower, evidenced by agreed terms or an approved comparable pricing decision. Lower modelled credit risk alone does not establish a financing saving.	Executed financing agreements or approved pricing decisions, comparable loan spreads and fees with and without the resilience measure, currency, tenor and security details, supporting PD and LGD assessments.	CFRF Adaptation Working Group (2025), From Risk to Resilience: Integrating Adaptation into Finance, executive summary; chapters 4 and 7: (link)
Credit & bankability (lender de-risking)	Collateral value, LTV and borrowing headroom	Demonstrates whether resilience measures protect or increase collateral value, lower the loan-to-value ratio at unchanged debt or increase potential borrowing capacity within lender limits. Borrowing capacity is not revenue or profit.	Independent collateral valuations with and without the resilience measure, secured-debt records, lender-approved advance rates and covenant limits, LTV and borrowing-headroom calculations, security documentation.	CFRF Adaptation Working Group (2025), From Risk to Resilience: Integrating Adaptation into Finance, executive summary; chapters 4 and 7: (link)
Risk reduction & insurance	Maintained or improved insurability and coverage terms	Demonstrates whether resilience measures help a policyholder retain or obtain insurance cover, reduce deductibles or improve coverage limits and terms. This preserves financial protection even without lower premiums but does not alone establish profitability.	Comparable dated insurer or broker quotations, coverage decisions and policy schedules, site and peril details, premiums, deductibles, limits and exclusions, evidence linking changes to the resilience measure.	CFRF Adaptation Working Group (2025), From Risk to Resilience: Integrating Adaptation into Finance, executive summary; chapters 4 and 7: (link)
Credit & bankability (lender de-risking)	Financing-constraint and risk-sharing assessment	Demonstrates whether an investment's repayment capacity and risk-return profile support commercial financing, or whether guarantees, risk sharing or concessional support are needed. Such support does not alone establish underlying profitability.	Base-case and downside cash-flow models, DSCR and risk-return assessments, documented financing constraints, guarantee or risk-sharing agreements, concessional financing terms, lender approval records.	UNDP (2025), Adaptation Finance Strategy Guideline, overview: (link) World Bank, PPP Reference Guide (2017; online section undated), PPP Contract Types and Terminology, payment mechanisms: (link)

Selected adaptation and resilience indicators should align to established principles and guidance for A&R finance measurement and reporting (e.g., transparent, coherent, feasible, sensitive to local context).[51] 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.



Selecting fit-for-purpose adaptation indicators

Adaptation indicators should be selected according to the decision they are intended to support and the context in which they will be used. The Adaptation Metrics Mapping and Evaluation (AMME) Framework provides a systematic approach for assessing whether an indicator set is sufficiently relevant, comprehensive and usable.

An AMME-informed assessment considers the purpose of the indicator; the stakeholders and systems affected; the quality and availability of underlying data; and whether the resulting information can support investment and management decisions.

For an adaptation investment, users should distinguish between indicators describing implementation or outputs, indicators demonstrating realised adaptation and resilience outcomes, and indicators evidencing financial value or return. A combination may therefore be required.

For example, the number of properties protected by a flood defence demonstrates coverage but does not alone demonstrate reduced risk. This might be complemented by reduction in expected flood losses or disruption and, where a commercial return is claimed, by evidence of preserved revenue, reduced insurance costs or another monetisation pathway and an appropriate financial-return metric.

Indicators and their underlying assumptions should be periodically reviewed as climate risks, data availability and investment conditions change.

[51] Examples include:
IDFC (2023), Common Principles for Climate Adaptation Finance Tracking
IPAM (2021), Adaptation Metrics Mapping Evaluation Framework, Adaptation Metrics Mapping Evaluation Framework
ICMA (2023), Handbook – Harmonized Framework for Impact Reporting, Handbook – Harmonized Framework for Impact Reporting
Green Bond Principles (2023), Handbook | Harmonised framework for impact reporting
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Annex 1: Reference literature taxonomy / classification frameworks

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Additional reference literature: 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 A&R 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)
- DRR44 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)

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Annex 2: Case studies

Importance of Do No Significant Harm

Background:

A do no significant harm assessment (DNSH) was completed for a project financing the development and expansion of a water distribution and sanitation system. There had been a surge in demand for the facility and the region had an abnormal rate of infection in climate-driven infectious diseases, such as malaria and cholera, fuelled by shifting temperatures, floods, and droughts.

Outcome of assessment:

- After initial development began, a DNSH assessment was completed by lenders to ensure that no material issues were present
- The DNSH report flagged that there was significant exposure to fluvial flood risk at the project location
- The lender was requested to complete a climate change risk assessment, which subsequently recommending actions for additional drainage and elevated equipment to avoid potential damage
- The environmental and social risk management team complete a site visit, during a period of extended rain and noted a significant lack of appropriate drainage capacity may not have been incorporated
- This was communicated to the lender who subsequently upgraded drainage infrastructure which was incorporated into the project plan driven by the DNSH assessment to ensure that future flood damage was mitigated



How SC applied GARF 1.0 to complete an innovative transaction, aligning with the Resilient Infrastructure theme

In 2025, SC announced the successful completion of an adaptation transaction for Jinko Solar Co., Ltd. (JinkoSolar), facilitating the delivery of storm and extreme weather-resilient solar modules to solar photovoltaic (PV) farms located in the US (Florida), UAE and Saudi Arabia. SC provided Bank Guarantees (BGs) to facilitate the trade of these solar modules, known as Tiger Neo N-type products. The deal is SC's first labelled adaptation finance deal for a corporate client following the launch of GARF 1.0, and also represents the Bank's first labelled adaptation finance transaction in China.

Apply: How SC applied the Guide to a specific transaction - providing guarantees to JinkoSolar for the export of resilient solar modules.

- JinkoSolar's Tiger Neo N-type solar modules are engineered to withstand extreme environmental stress, including wind loads above industry baselines, sandstorms, and high-temperature degradation.
- Physical risk considerations, alongside the enhanced resilience characteristics of the product, informed the bank's overall assessment of the transaction.
  - Activity Classification: The transaction was identified as an adapted investment because the financing supports technology that directly responds to physical climate risks (e.g., extreme wind and storm resilience) to protect the asset's productivity.
  - Use of Proceeds Alignment: The deal aligns with the resilient infrastructure theme defined in the Guide. It supports strengthening electricity infrastructure to enhance resilience against natural hazards.
  - Demonstrated Substantial Contribution: JinkoSolar's Tiger Neo modules are more resilient to pressure than baseline requirements, significantly reducing the probability of damage during high-wind events and building long-term resilience into critical energy infrastructure.

Build: How SC built a baseline and strategic approach toward the delivery of its adaptation and resilience strategy.

- Many adaptation-relevant activities are already being financed across the financial system, but they may not be labelled as such.
- In developing and deploying the Guide, SC was able to ensure that adaptation-relevant activities in its existing portfolio were explicitly identified, as it continued to drive further adaptation and resilience opportunities.

Scale: The Guide provides a strategic framework to support the effective scaling and implementation of adaptation activities, enabling stakeholders to translate priorities into impactful action.

- The Guide can be used by the bank and other entities to help drive a focus on adaptation within their activities.
- Widespread use will help develop a common understanding of adaptation and resilience-related financing opportunities.
- The specific guarantee transaction is illustrative of how banks can provide a financial instrument which builds a market for resilient products. This is replicable across the solar industry and beyond.

Source: Standard Chartered scales finance for resilient infrastructure as economic cost of extreme weather hits over $2 trillion and https://assets.bbhub.io/company/sites/63/2026/06/GFANZ-Adaptation-Finance-Report-June-2026.pdf



Resilient Agrifood Systems

Background: The study examines the impact of adopting drought-tolerant (DT) maize varieties on maize production among smallholder farmers in southeastern Zimbabwe, where agriculture is predominantly rain-fed and highly vulnerable to drought. The study assesses whether adoption of these varieties increased maize yields, improved food security, and strengthened household livelihoods and resilience.

Theme: Resilient Agrifood Systems through Climate resilient crops. The case study demonstrates how adoption of drought-tolerant maize varieties can reduce vulnerability to drought while enhancing agricultural productivity, household income, and food security.

Investment: Adoption of drought-tolerant maize seed varieties designed to maintain agricultural production under drought and water-stressed conditions. This represents a relatively low-cost farm-level adaptation measure that can strengthen resilience while requiring minimal changes to existing farming practices.

Borrower: Data for the study came from a survey of 200 randomly sampled households in the districts of Chiredzi and Chipinge in southeastern Zimbabwe. The study found that 30% of the sampled households were growing DT maize varieties.

Impact:

- Households that grew DT maize varieties produced 617 kg/ha more maize than households that did not grow DT maize varieties.
- Switching to DT maize varieties generated an additional income of approximately US$240/ha or more than nine months of food at no additional cost.

Summary: Investment in DT maize varieties enabled smallholder farmers to increase yields and income while improving resilience to drought, demonstrating that adaptation investments can generate measurable economic returns alongside resilience benefits.

Source: https://pmc.ncbi.nlm.nih.gov/articles/PMC6397629/



Resilient Cities

Background: Cities are experiencing rising temperatures due to the combined effects of climate change and the urban heat island effect, increasing cooling demand and elevating heat-related health risks. According to the Heat Island Group at Lawrence Berkeley National Laboratory (LBNL), cool roofs are roofing surfaces with high solar reflectance, which reflects sunlight away from the building, and high thermal emittance, which enables absorbed heat to be released more efficiently.

Theme: Resilient Cities through Measures to reduce localised air temperatures. The initiative focuses on reducing heat exposure and improving urban resilience through reflective roofing surfaces that lower building temperatures, and when deployed at scale, help reduce urban heat island effects and local air temperatures.

Investment: Installation of cool roofs, which use highly reflective materials to reduce solar heat absorption and keep roof surfaces cooler than conventional roofs. They can often be incorporated into new construction or roof replacement projects at relatively low incremental cost.

Borrower / Investee:

- Commercial real estate owners
- Residential building owners and housing operators
- Municipalities and public-sector building owners
- Industrial facility owners

These entities invest in cool roofs to lower cooling costs and improve resilience to extreme heat.

Impact:

- Can reduce annual HVAC energy costs by up to 28% in some buildings.
- May extend roof lifespan and reduce maintenance costs.
- Lowers indoor temperatures, improving thermal comfort and reducing heat exposure during heatwaves.

Summary: Investment in cool roofs is a highly scalable urban adaptation measure that improves resilience to extreme heat while generating measurable financial benefits through lower cooling costs, illustrating how adaptation investments can create both economic value and resilience benefits.

Source: https://heatisland.lbl.gov/coolscience/cool-roofs and https://heatisland.lbl.gov/benefits



Resilient Health

Background: Climate change is contributing to the increased incidence and spread of vector-borne diseases such as dengue, Zika and chikungunya in Brazil. Rising temperatures and changing rainfall patterns can create conditions that increase demand for disease prevention, diagnostics and healthcare services. Beep Saúde is a Brazilian digital healthcare provider that delivers vaccinations and diagnostics directly to patients' homes.

Theme: Resilient Health through Healthcare logistics and service delivery for climate-sensitive diseases. The case demonstrates how healthcare providers can adapt to growing climate-related health risks by improving access to vaccinations and diagnostics, while building a commercially viable business model.

Investment: Lightsmith Group, a climate-resilience-focused private equity investor, led a funding round of approximately 100 million reais (US$18 million) to support the expansion of Beep Saúde's technology-enabled platform for at-home vaccinations, diagnostics and healthcare services.

Borrower / Investee: Beep Saúde.

Impact:

- Achieved profitability in 2024 and attracted additional growth capital to support expansion.
- Provides home-based access to vaccinations and diagnostic services, delivering healthcare directly to patients through an accessible healthcare model.

Summary: Beep Saúde's healthcare platform improved access to vaccinations and diagnostic services, illustrating how healthcare delivery models can create commercial value while helping communities respond to growing climate-related health risks.

Source: Brazil vaccine provider Beep raises $18 million, turns profitable | Reuters



Resilient Industry and Commerce

Background: The severity of heat stress on grid networks in Australia is greater than expected, with 2026 data showing higher temperatures than ever. BESS systems reduce physical strain on the Australian grid due to thermal expansion, lower efficiency and increased outages supporting Australia's National Adaptation Plan – DCCEEW. Australia's National Electricity Market (NEM) is experiencing rapid growth in Battery Energy Storage Systems (BESS). Battery storage capacity is expected to expand significantly and play an increasingly important role in supporting the electricity system as the energy transition progresses.

Theme: Resilient Industry & Commerce / Energy System Resilience. Battery energy storage provides flexibility to the electricity system and supports reliable operation as renewable energy penetration increases and conventional generation retires.

Investment: Investment in utility-scale Battery Energy Storage Systems (BESS) across Australia's National Electricity Market to expand electricity storage capacity and provide energy and frequency control ancillary services (FCAS)

Borrower / Investee: Developers, owners and operators of battery energy storage assets within Australia's National Electricity Market.

Impact:

- Expands utility-scale battery storage capacity across the National Electricity Market.
- Provides energy trading and frequency control ancillary services (FCAS) to the electricity system.
- Supports the integration of increasing renewable energy generation.
- Contributes to electricity system flexibility as conventional generation capacity retires.
- Creates commercial opportunities for battery storage developers and operators.

Summary: This case study highlights the growing role of battery energy storage in Australia's National Electricity Market. As battery deployment continues to expand, storage assets are providing flexibility and market services that support the evolving electricity system and enable greater integration of renewable energy.

Source: https://modoenergy.com/research/en/australia-the-state-of-battery-energy-storage-in-the-nem



Resilient Nature and Biodiversity

Background: In August 2024, Camimex Group, a Vietnamese shrimp producer, secured USD 7 million in debt financing from responsAbility Investments AG-managed funds to expand sustainable and organic shrimp farming in the mangrove-rich Ca Mau region.

Theme: Resilient Nature & Biodiversity / Nature-Based Solutions. The investment supports an integrated mangrove-shrimp aquaculture model (silvo-aquaculture) that combines shrimp production with mangrove conservation. The approach supports mangrove conservation and rehabilitation while promoting sustainable livelihoods and food production.

Investment: USD 7 million private debt financing from responsAbility Investments AG-managed funds to support growth in sustainable shrimp farming and lower-emission production practices.

Borrower / Investee: Camimex Group (Vietnam), an integrated shrimp producer and exporter working with more than 2,100 smallholder farmers across over 15,000 hectares of mangrove farms.

Impact:

- Supports mangrove conservation and rehabilitation through integrated shrimp-mangrove farming.
- Supports more than 2,100 smallholder farmers across over 15,000 hectares of mangrove farms.
- Reduces environmental impacts associated with conventional shrimp farming by minimizing feed inputs, electricity use, antibiotics and chemicals.
- Supports biodiversity and ecosystem services through mangrove conservation and sustainable aquaculture.
- Demonstrates the commercial viability of nature-positive aquaculture and biodiversity-linked investment opportunities.

Summary: This case study demonstrates how private capital can support a nature-based business model that combines mangrove conservation, sustainable livelihoods and lower-emission food production, while contributing to biodiversity and resilience outcomes. By financing Camimex Group's mangrove-integrated shrimp farming operations, responsAbility Investments AG is helping scale a commercially viable approach that supports mangrove conservation, improves income opportunities for local communities and meets growing demand for sustainably produced seafood.

Source: https://www.responsability.com/en/press-releases/camimex-secures-usd-7-million-for-sustainable-shrimp-farming



Resilient Societies

Background: Quintana Roo, Mexico's economy depends heavily on tourism, which relies on healthy coral reefs that protect coastlines from hurricanes, erosion, and storm surges. Increasing climate-related storm risks threatened both the reef ecosystem and the tourism revenues it supports.

Theme: Resilient Societies through Nature-based parametric insurance schemes. The project uses parametric insurance to finance rapid reef restoration after hurricanes, helping communities maintain resilience and economic stability.

Investment: A parametric insurance policy developed by Swiss Re and The Nature Conservancy, funded through tourism industry fees, contributions from coastal property owners, and government support. Insurance payouts are triggered automatically when hurricane wind speeds exceed predefined thresholds.

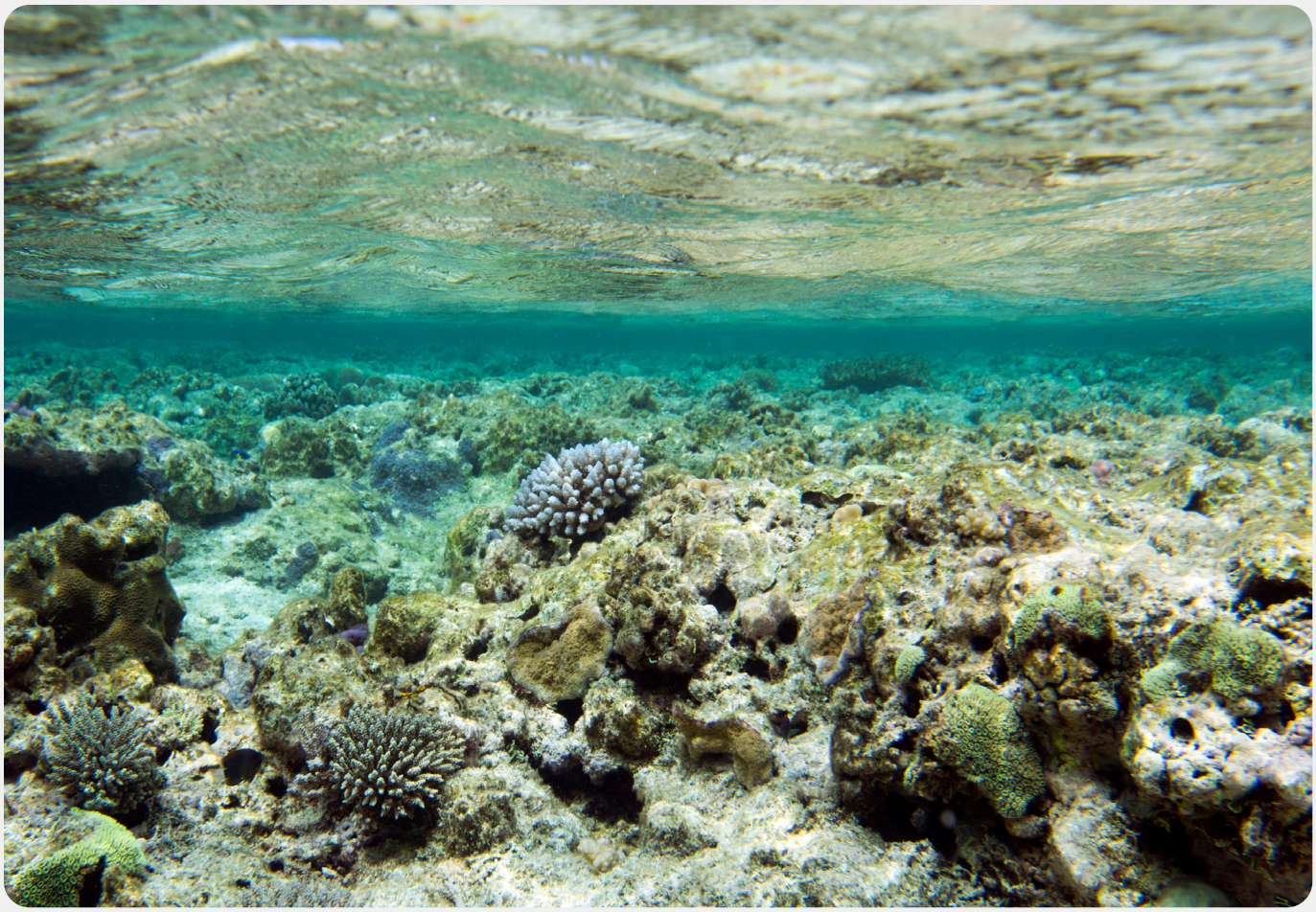
Borrower / Investee: The policy is held by the Coastal Management Zone Trust, which represents the interests of local governments, tourism businesses, coastal property owners, and communities dependent on reef-related economic activity.

Impact:

- Payout of USD 850,000 following Hurricane Delta in 2020, enabling rapid reef repair and restoration.
- Protected a tourism economy generating approximately USD 9 billion annually and serving more than 12 million visitors each year.
- Maintained coastal protection services, reducing future storm and erosion damage.
- Preserved local livelihoods, jobs, and economic activity dependent on the reef ecosystem.

Summary: This case demonstrates how an adaptation investment can protect a critical natural asset that underpins a major tourism economy. By providing rapid post-disaster funding, the insurance mechanism strengthens community resilience while safeguarding economic revenues, illustrating how adaptation investments can create tangible financial and resilience benefits.

Source: https://www.greenfinanceinstitute.com/hive/revenues-for-nature/case-studies/quintana-roo-reef-protection-parametric-insurance/ and https://www.swissre.com/our-business/public-sector-solutions/case-studies/mexico-windstorm-cover.html



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