



ECo.

33RD GCF INSIGHT

Bridging the investability gap

Financing instruments for climate
adaptation and resilience

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About *GCF insight*

This report draws on E Co's consultancy experience, particularly our work with the GCF, private sector organisations (e.g. fund managers, impact funds, and other private investors), development financial institutions (DFIs) and multilateral development banks (MDBs). This edition also utilised a desk review, including the GCF's open library database, as well as conducting anonymised semi-structured interviews across a range of industry stakeholders.

E Co. conducted this research independently and is not affiliated with the Green Climate Fund (GCF), the GCF Secretariat, or donors. The views expressed in this report are those of the authors and do not represent those of the GCF. Nothing in the interviews or any information or material relating thereto shall be construed as implying any official endorsement of, or responsibility on, the part of the GCF.

E Co. provides consulting support to access climate finance from the GCF (and other funds and donors) across several service areas, including: market assessment, strategy formulation, policy development, monitoring, evaluation and learning, fund support and training and capacity development. However, we may be best known for our programme and project design services in response to the GCF's criteria and processes.

Introduction

The United Nations Environment Programme (UNEP) reports that the world is very likely to exceed the 1.5°C global warming threshold within the next decade (UNEP, 2026). This warming is expected to place increasing strain on coastal regions, ecosystems, human health and the cryosphere through rising sea levels, more intense heat and wildfire events, and the continued loss of ice and snow (UNEP, 2026). These impacts are likely to have further downstream consequences for agriculture, global health, the global economy and human security. As a result, adaptation and resilience are immediate economic and humanitarian imperatives.

However, adaptation finance continues to lag well behind mitigation finance, with the gap widening rather than narrowing in recent years. UNEP's most recent Adaptation Gap Report, 'Running on empty' (2025), estimates that adaptation costs in developing countries will reach USD 310 billion to USD 365 billion annually by 2035, compared with international public adaptation finance flows of only USD 26 billion in 2023. This represented a decline from USD 28 billion in 2022, reflecting, among other factors, a reduction in multilateral development bank (MDB) financing (UNEP, 2025). Although MDB adaptation finance has since recovered, reaching USD 35 billion in 2025 (EIB, 2026), the continued scale of adaptation needs highlights the importance of mobilising additional sources of finance, including private capital.

In our *30th GCF insight*, we explored some of the challenges private sector organisations face when engaging with the GCF, examining how GCF could serve as a more effective vehicle for mobilising greater participation in climate finance. Our white paper, *Bridging the investability gap: Mobilising private capital for a resilient future*, further examined the structural barriers that limit private investment in climate action, with a particular focus on the challenges of making adaptation and resilience investable. This issue takes the conversation a practical step further by exploring a key question: how can different financial instruments be effectively applied to mobilise greater private capital for adaptation and resilience?

This marks E Co's fifth instalment on the private sector's role in climate finance, building on reports published in 2021, 2022 and 2025. E Co's continued focus on this area reflects our view that greater private sector participation will be essential to closing the climate finance gap, particularly for adaptation and resilience. Consequently, this report shall:

- Briefly examine the structural challenges the private sector faces when investing in adaptation and resilience projects;
- Provide a snapshot of current GCF financing allocations for private sector adaptation and cross-cutting projects to establish baseline instrument deployment; and
- Analyse how specific financial instruments, including concessional loans, blended equity vehicles, guarantees, parametric insurance, and green and adaptation & resilience (A&R) bonds, can be deployed to de-risk and scale private investment in adaptation finance.

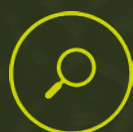
This analysis draws on E Co's consultancy experience, particularly our work with the GCF and private sector organisations. It also draws on a desk review of relevant literature and data, including the GCF's open library and project database, alongside examples of financial instruments and adaptation finance transactions from the wider climate finance landscape. The analysis also incorporates insights from stakeholders and practitioners to complement the quantitative and documentary evidence.

The GCF defines adaptation as 'the ability to change processes, practices and structures in response to actual or expected climate impacts' (GCF, 2021a, p. 1), while resilience is defined as 'the ability to recover from climate-related disasters' (GCF, 2021a, p. 1). Although the GCF provides a definition of resilience, it does not constitute a separate funding allocation; rather, the GCF allocates 50% of its resources to mitigation and 50% to adaptation (GCF, n.d.1). As such, resilience outcomes are largely incorporated within the adaptation allocation. Accordingly, this report uses the terms adaptation and resilience interchangeably, to capture projects that contribute to the capacity of people, communities, systems or infrastructure to anticipate, withstand, adapt to and recover from climate-related shocks.



Challenges with private sector investment to adaptation and resilience projects

Before considering how different financial instruments can be used to mobilise private capital, it is important to first understand the barriers that currently constrain private investment in adaptation and resilience. These challenges are related to both availability of finance and the underlying investability of adaptation projects. Understanding these constraints provides the basis for assessing where and how different financial instruments can add value, and the extent to which they can help address the barriers faced by investors.



Difficulty measuring and valuing adaptation and resilience

While adaptation and resilience projects can generate substantial economic value, these benefits are often indirect, long-term or distributed across communities and economies, making them harder for investors to quantify, compare and incorporate into investment decisions (E Co., 2025). This can create a disconnect between the broader development value of an adaptation investment and the financial return available to an individual investor. This contrasts with mitigation investments such as renewable energy, where offtake arrangements, such as power purchase agreements (PPAs) can provide investors with greater revenue certainty from the outset (E Co., 2025). As a result, private capital tends to favour lower-risk, revenue-generating sectors, whereas adaptation investments can face greater challenges in attracting commercial finance (E Co., 2025).



High perceived and actual risks associated with many adaptation investments

Perceived risks, including concerns surrounding institutional capacity, uncertain returns and political and financial conditions, can constrain private investment (E Co., 2025; UNFCCC, 2020). These perceptions can themselves have material consequences by raising financing costs or limiting access to capital. Additionally at the project level, there may be material risks which include debt accumulation, displacement, livelihood disruption and maladaptation, whereby adaptation interventions unintentionally shift or exacerbate vulnerability (E Co., 2025; UNFCCC, 2020).



Mismatch with conventional finance

Conventional financing structures are often poorly aligned with the risk, return and time horizons of adaptation investments (E Co., 2025). The limited availability of financial instruments suited to these characteristics can therefore reinforce the perception that adaptation is difficult to finance, even where the underlying economic and social returns are significant.



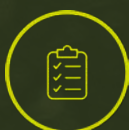
Institutional and co-ordination barriers

Limited understanding of misalignment between conventional finance structures and climate action goals can make it difficult to structure transactions that effectively combine public, concessional and private capital (E Co., 2025). There may also be tensions connected to equity, affordability, local ownership and inclusion. An investment structure that improves financial returns may not necessarily deliver the most equitable or developmentally appropriate outcome, particularly in vulnerable contexts (E Co., 2025).



Knowledge and capacity gap (a skills problem)

Many market actors do not yet know what counts as adaptation or how to present it to investors (UNFCCC, 2020). Practitioner insights revealed that in private equity deals, project sponsors and growth-stage small and medium enterprises (SMEs) frequently lack the technical expertise to identify and package adaptation and resilience investments in ways that can access public concessional finance, leaving GCF and donor-funded de-risking capital underutilised. The same gap appears in capital markets: a 2026 market study commissioned by the Asian Infrastructure Investment Bank (AIIB) finds that many issuers lack awareness of what constitutes a credible A&R investment, and the internal capacity to apply existing definitions and identify adaptation activities (Fitch Solutions Group Limited, 2026).



Taxonomy fragmentation (a systems problem)

Closing the knowledge gap would not be enough on its own, because there is no single definition to reference. Multiple organisations have developed their own standards: the Climate Bonds Initiative's Resilience Taxonomy supports investors to identify climate resilience investments; the Tailwind Taxonomy for Adaptation and Resilience Investments offers more than four hundred examples of investable solutions; and UNEP FI published a further Adaptation Finance Taxonomy Playbook in 2026. Investors applying different standards in good faith can reach different conclusions about the same activity. This produces non-uniform reporting and fragmented disclosures, and adaptation financing ends up overwhelmingly embedded within broader Green, Social, Sustainability, and Sustainability-Linked (GSSS) bonds without an explicit label (Fitch Solutions Group Limited, 2026).



The GCF has an important role to play in regards to addressing these barriers, given its mandate to mobilise private finance and its ability to deploy instruments such as concessional debt, grants, guarantees and equity. Examining how these instruments are currently being used provides an important starting point for assessing their potential to address the barriers identified above. The next section provides a snapshot of GCF investments in private sector adaptation

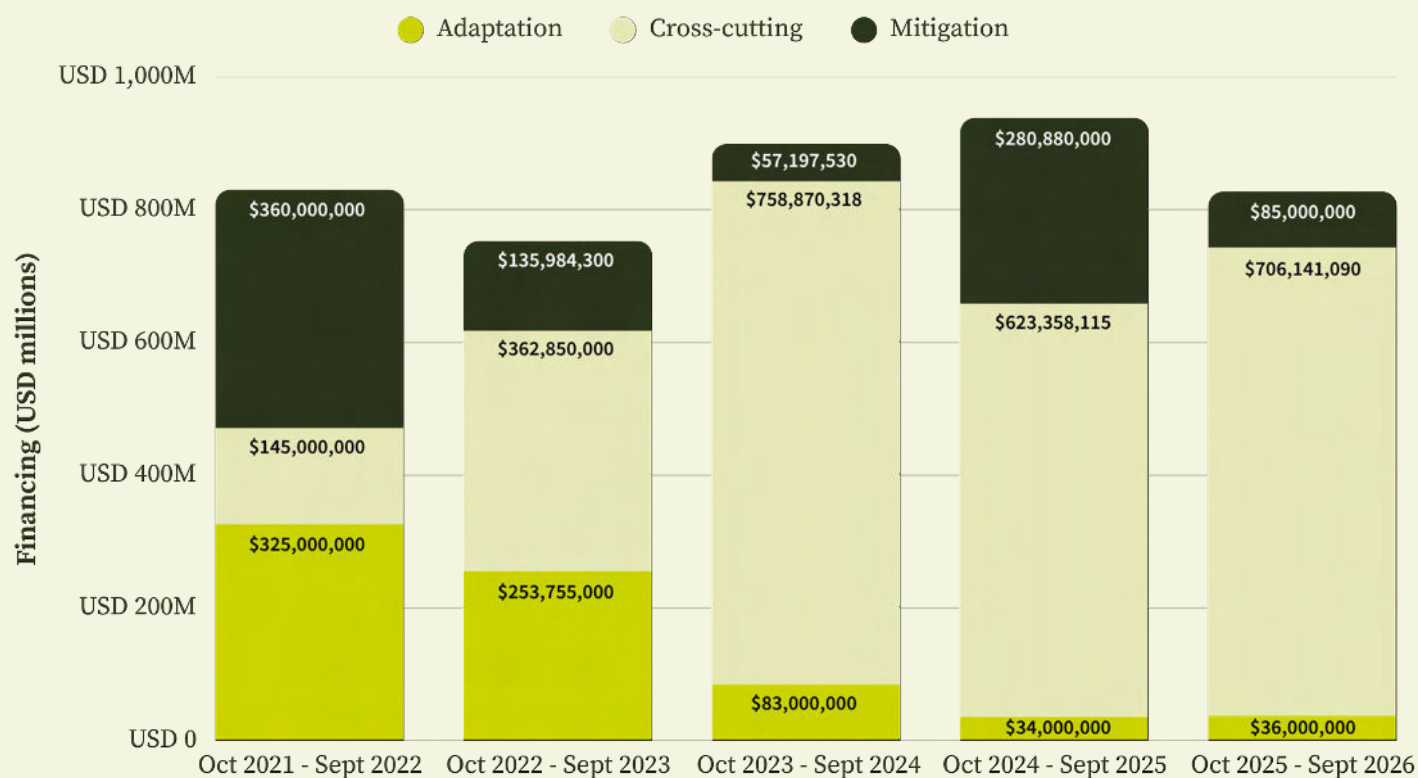
GCF Private sector financing trends

October 2021 - September 2026

The analysis within this section primarily uses data from the GCF downloadable project database.¹ From October 2021 – September 2026, total GCF financing for private sector projects remained consistently high, ranging from USD 750 million in the second year to a peak of USD 938 million in the fourth year. Despite some year-to-year fluctuations, financing commitments remained above USD 700 million throughout the period, indicating a sustained high level of private sector financing.

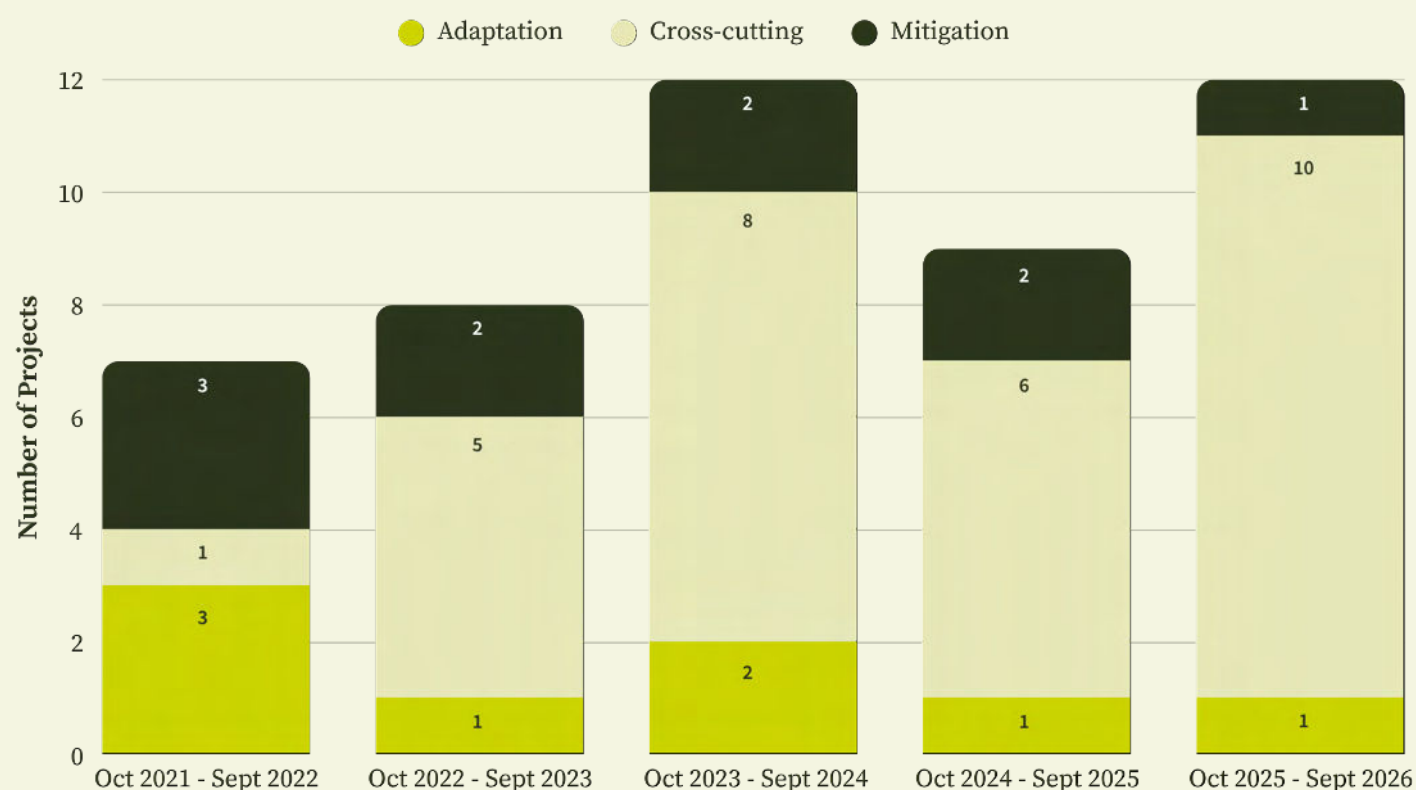
Financing per theme

GCF Private Sector Financing by Theme (USD millions)



¹ In cases where the instrument-level breakdowns presented on the GCF website differed from the corresponding totals in the downloadable database, the figures displayed on the GCF website were used to calculate the relevant total. These differences were minor and did not materially affect the overall financing figures. This approach was applied to maintain consistency with the project-level information publicly presented on the GCF website. Every effort has been made to accurately capture and reconcile the available information.

Number of Projects by Theme Across Time Periods



Dominance of cross-cutting financing

Over the five-year period, cross-cutting projects accounted for approximately 62% of total private sector financing. Cross-cutting financing increased substantially over the period, rising from USD 145 million in the first year to a peak of USD 758.87 million in the third year, before remaining high at approximately USD 706 million in the fifth year. This growth in financing was also accompanied by an increase in the number of projects, from one project in the first year to ten projects in the fifth year. The increase in cross-cutting private sector projects may reflect the strategic priorities outlined in the GCF's 2024–2027 Strategic Plan. The plan emphasises capturing synergies between adaptation and mitigation through cross-cutting projects and programmes, while mobilising private investment through blended finance and partnerships (GCF, 2023, p. 5). These priorities provide a rationale for the increasing preference among private sector financial intermediaries and accredited entities for broader, blended and programmatic approaches that integrate mitigation and adaptation objectives within single, multi-purpose investment vehicles.

Case study 1: Cross-cutting investments in Southeast Asia

The Navis Decarbonization Fund (NDF) was designed as a cross-cutting investment approach incorporating both climate mitigation and adaptation objectives (GCF, 2026a). This is illustrated by the indicative pipeline project, Project Reef in the Philippines, which proposed the deployment of hybrid solar photovoltaic (PV) and battery energy storage system (BESS) microgrids in remote and isolated island communities (GCF, 2026a). From a mitigation perspective, the project would reduce greenhouse gas emissions by replacing reliance on fossil fuel based diesel generators with renewable solar power (GCF, 2026a). At the same time, the investment addressed climate adaptation and resilience by strengthening the ability of remote communities to withstand power disruptions (GCF, 2026a). These communities were particularly vulnerable because they relied on diesel generators that operated for only around 4–4.5 hours per day and depended on fuel supply chains that could be disrupted during typhoons (GCF, 2026a). By providing continuous daily electricity through solar and battery microgrids designed to withstand typhoon force winds, the project enhances the resilience of these communities and maintains electricity supplies, including backup power for emergency response, during disruptions to the central grid (GCF, 2026a). Project Reef therefore demonstrates how the NDF's cross-cutting approach could simultaneously deliver emissions reductions through renewable energy deployment and adaptation benefits through increased resilience to climate-related and other power disruptions. It also illustrates how cross-cutting projects fosters commercially viable investment opportunities while simultaneously addressing adaptation needs.

Decline and volatility in standalone mitigation projects

In the first year, mitigation was the leading theme, accounting for USD 360 million across 3 projects. By October 2023 – September 2024, standalone mitigation funding had dropped to USD 57 million. A brief surge occurred in the fourth year when mitigation reached USD 280.88 million, driven largely by a single flagship investment (FP276: Global Green Bond Initiative). However, in the fifth year, mitigation funding declined to USD 85 million across only one project.

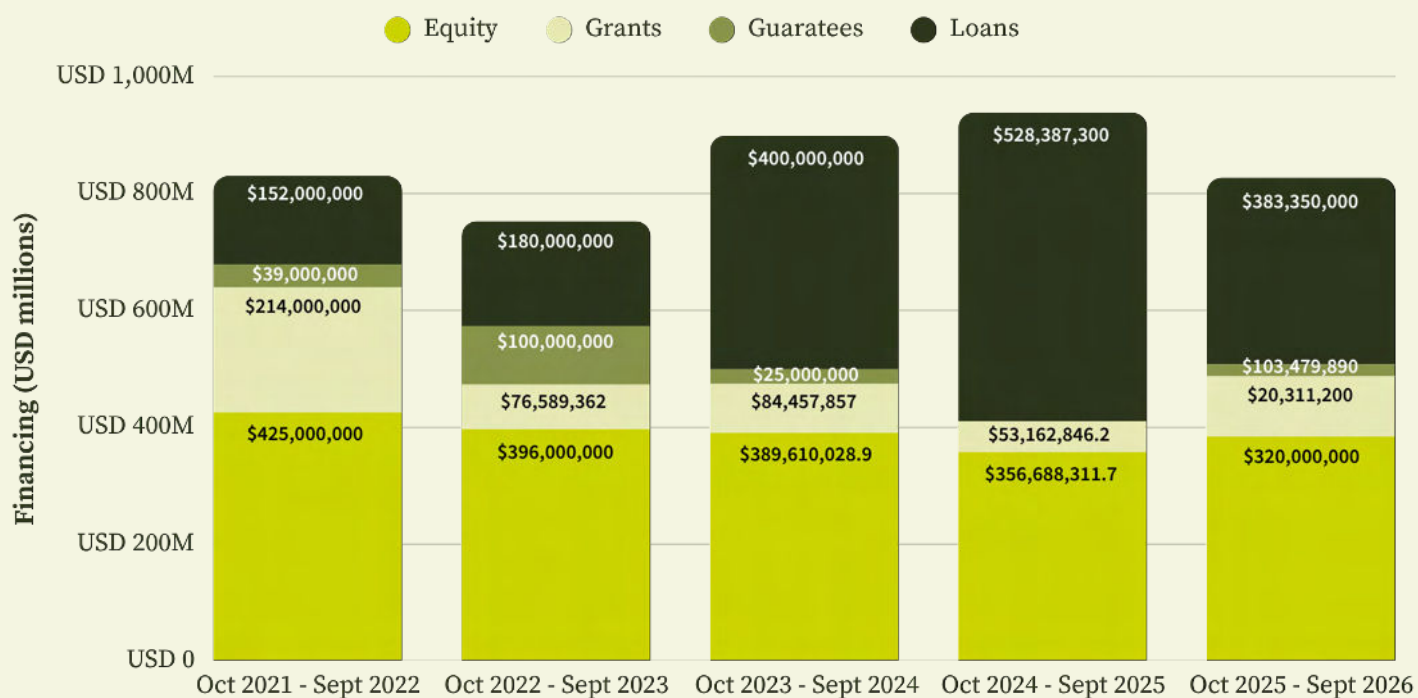
Subdued and highly concentrated adaptation funding

Standalone adaptation projects received the smallest share of private sector capital, totalling approximately USD 731 million which was 17.4% of total private sector financing, between October 2021 and September 2026. While adaptation financing started at a relatively high level of USD 325 million in the first year, it declined substantially thereafter, reaching USD 83 million, USD 34 million and USD 35 million in the third, fourth and fifth years, respectively. This pattern is consistent with the challenges of mobilising private capital for standalone adaptation investments, particularly where adaptation benefits are difficult to monetise or generate direct financial returns.



Financing per instrument

GCF Private Sector Financing by Instrument (USD Millions)



Number of Projects by Financial Instrument Across Time Periods



Equity and debt drive the vast majority of total GCF capital for private sector projects

Equity remained the largest single instrument used over the five-year period, totalling approximately USD 1.95 billion which accounted for about 45% of all GCF funding for private sector projects. It consistently accounted for a major share each year, ranging from 38% in the fourth year to 52.6% in the second year. At the same time, the deployment of loans increased substantially over the five-year period, rising from USD 152 million in the first year to a peak of approximately USD 528 million in the fourth year. Overall, loans accounted for approximately USD 1.58 billion which is about 37% of total GCF financing over the five-year period. Taken together, the increasing use of equity and loans reflects the GCF's role in enabling climate impact by attracting additional capital to investments that might not otherwise be realised at the same scale or on the same terms. In addition to their contribution to climate impact, these instruments also offer the potential to generate financial returns, creating opportunities for capital recycling and further investment in climate action.

Grants and guarantees play targeted, de-risking roles

The use of equity and loans can be contrasted with that of grants and guarantees. Grants totalled approximately USD 531 million over the five-year period, accounting for 12% of total GCF financing during this period, while guarantees totalled approximately USD 184 million. Although grants represented a relatively high share of 25% in the first year, this share had approximately halved to 12% by the fifth year. In addition to this, notably, only two of the 32 private sector projects that received GCF grant funding were financed exclusively through grants, while the remaining 30 combined grants with at least one other financial instrument. This suggests that grants are typically deployed alongside other financial instruments, providing complementary support for activities such as technical assistance.

Guarantees serve as a de-risking instrument within the GCF's financing approach, helping mitigate financial risks that might otherwise constrain investment in climate-related activities. In total, the GCF deployed guarantees in 6 projects over the five-year period. Within them the guarantees were intended to absorb credit risk and reduce collateral requirements, expanding access to finance for underserved borrowers, including micro, small and medium-sized enterprises (MSMEs), smallholder farmers, agricultural cooperatives and women entrepreneurs (GCF, 2021c; 2022a; 2022b; 2026b). Guarantee structures were also used to address foreign exchange risk (GCF, 2022a). In a large-scale infrastructure project, partial risk guarantees were deployed to mitigate the risk of payment defaults by financially constrained public utilities under PPAs, strengthening the commercial viability of private investment in utility-scale renewable energy (GCF, 2021b). Across these applications, guarantees supported investment in a range of climate-related sectors and acted as a catalytic instrument, helping mobilise additional capital.

All in all, the GCF's use of guarantees, equity, grants, and loans illustrates the potential for public climate finance to mobilise additional investment. Between October 2021 and September 2026, approximately USD 4.25 billion in GCF funding for private sector projects were expected to mobilise a further USD 22.63 billion in co-financing. More specifically, during this period, adaptation and cross-cutting private sector projects received USD 3.3 billion in GCF funding alongside USD 18.79 billion in co-financing. Though these volumes of capital demonstrate the potential for public finance to leverage additional investment, the structure of the financial instruments used is also important in determining their capacity to mobilise private capital in particular. Different instruments can serve distinct functions in addressing the risks and barriers that constrain private investment in adaptation. Therefore, examining these functions provides a basis for understanding how financial instruments can respond to both challenges associated with adaptation investment. The following section examines blended equity vehicles, concessional debt, guarantees, green and A&R bonds, and parametric insurance individually, considering the mechanisms through which each instrument can mobilise private capital and address specific barriers to adaptation finance.

Financing instruments for adaptation

Blended equity vehicles

What are blended equity vehicles?

Blended equity vehicles are specialised investment funds or holding structures that combine concessional equity alongside commercial equity. In some cases, these structures are layered with the following key features:

- **First loss equity:** Public or philanthropic institutions invest as junior equity holders and agree to absorb initial portfolio losses or accept lower returns before private investors take a loss (IFC, 2025; OECD, 2025a);
- **Commercial equity:** Private sector investors invest in senior equity shares and receive downside protection by the junior tranche, enabling them to earn market-aligned, risk adjusted returns (IFC, 2025; OECD, 2025a);
- **Technical assistance (TA):** Some blended equity vehicles incorporate grant-funded TA facilities alongside their investment capital (IFC, 2025; OECD, 2025a). This TA can strengthen the operational and financial capacity of portfolio companies, particularly at earlier stages of development, thereby helping to reduce investment risks and improve their readiness for commercial capital (OECD, 2025a).

However, in other cases, blended equity vehicles take on flat funds or *pari passu* structures. In these instances, investors hold equity on equal terms and have the same level of seniority and rights in relation to their investment (OECD, 2025a). This means that investors share in the risks and returns of the investment in proportion to their respective equity holdings, without one investor having preferential treatment over another (OECD, 2025a). Where a philanthropic or multilateral investor participates on a *pari passu* basis, its investment can also serve as an anchor investment, signalling confidence in the project and potentially helping to attract additional investors (OECD, 2025a). The GCF generally seeks to invest on concessional terms while maintaining *pari passu* treatment alongside other MDBs and DFIs. However, the GCF may accept a more junior position in the capital structure, allowing private investors to benefit from seniority in the distribution of returns, where necessary to mobilise private capital. The specific waterfall structure adopted by a fund depends on the level of de-risking required to attract investors. In determining its financing terms, the GCF seeks to ensure that the level of concessionality is limited to what is necessary to achieve the intended investment outcomes, in line with the principle of minimum concessionality.

How can blended equity vehicles address barriers to private sector adaptation finance?

Blended equity can help address several investment bottlenecks that private sector institutions face when investing in adaptation projects. Firstly, the subordinated capital provided by public and philanthropic institutions boost market confidence as it acts as a financial cushion that can address high perceived risk and long payback periods. Practitioner evidence also underscores that in addition to the GCF providing direct capital, their rigorous due diligence and impact standards serve as a ‘badge of honour’ that eliminates greenwashing concerns for institutional Limited Partners (LPs). This public stamp of approval also helps to create the fundraising momentum required to crowd in commercial private equity as LPs tend to be interested in investing when there is an anchor investor.

Furthermore, blended capital structures allow fund managers to deploy tailored hybrid instruments to address different barriers based on the markets they are deployed in. This is exemplified by the Navis Decarbonization Fund I.

Case study 2: Navis Decarbonization Fund I

The Navis Decarbonization Fund I (NDF) is a commercially oriented, USD 300 million private equity initiative targeting growth-stage SMEs in Southeast Asia (GCF, 2026a). The fund combines USD 60 million in anchor equity from the GCF with USD 240 million from co-financiers, comprising USD 165 million from DFIs, USD 55 million from foundations and family offices, and USD 20 million from commercial institutional investors (GCF, 2026a).

This public-private structure uses the GCF's catalytic anchor commitment to mobilise additional capital towards climate-focused investments in Southeast Asia. The GCF investment is provided through an ordinary equity instrument rather than a grant, first-loss tranche, or dedicated technical assistance facility (GCF, 2026a). The concessional element therefore derives primarily from the GCF's greater risk appetite, enabling it to absorb higher levels of early-stage technological, regulatory, and market risk and provide institutional validation to commercial limited partners (GCF, 2026a).

The fund itself is legally structured as a private equity limited partnership, while capital deployed to portfolio companies takes the form of a hybrid financing toolkit. This toolkit includes: convertible debt, redeemable convertible preference shares (RCPS), mezzanine debt, and minority equity. The selection of this hybrid toolkit arguably reflects the market realities of growth-stage climate investing in Southeast Asia, where traditional buyout structures may be unsuitable for nascent sectors. In addition to this, conventional private credit can be constrained by limited SME collateral. Therefore, hybrid instruments such as RCPS and convertible debt provide structured exit routes and redemption rights for minority investments at year seven, helping to address a key liquidity constraint in private equity. At the same time, these instruments can provide the substantial capital required for climate-related infrastructure while preserving equity-like upside as portfolio companies grow.

USD 300m

Target fund size for the commercially oriented private equity initiative.

USD 60m

Catalytic anchor equity provided by the Green Climate Fund (GCF).

Although the Navis Decarbonization Fund does not incorporate a dedicated technical assistance (TA) facility, Navis Capital's experience in supporting and scaling businesses provides portfolio companies with an alternative source of operational and sector-specific expertise. Nevertheless, dedicated TA facilities can play an important role in addressing the knowledge and capacity gaps that hinder investment in climate adaptation. By providing specialised expertise and support to businesses, TA can strengthen their ability to identify, assess, and manage adaptation investments, while helping to reduce the sourcing and management costs associated with these investments (IFC, 2025; OECD, 2025a).

This technical support is crucial even before adaptation projects are designed. Project preparation facilities (PPFs) can address similar knowledge gaps through a more project-specific approach, providing the technical expertise and resources needed to translate locally identified adaptation opportunities into viable, investment-ready projects. Support for feasibility studies, technical assessments, project design, and pipeline development can help project developers overcome information and expertise gaps that prevent adaptation opportunities from meeting the requirements of institutional climate finance providers (IFC, 2025; OECD, 2025a). The project preparation facility supporting the Matanataki Pacific Fund I illustrates how this type of support can help bridge the gap between locally identified adaptation needs and the specialised expertise required to develop proposals suitable for institutional climate finance.

Case study 3: The Matanataki Fund

The Matanataki Pacific Fund I provides an example of how a PPF can assist in the implementation of a blended equity structure focused on adaptation. The proposed USD 50 million Fund, being raised by Matanataki Pte Ltd in Fiji with Enyorra Private Equity as co-executing partner, is designed to provide patient, risk-tolerant capital to reef-positive SMEs in the Pacific (GCF, 2025b). More specifically, the proposed Fund seeks to use coral reef health as a core impact metric and incorporates gender equity into its investment design (GCF, 2025b).

In this region, countries are highly vulnerable to climate-related impacts and face significant barriers to developing investment-ready climate projects. These barriers include: limited technical capacity, inadequate data availability, and geographical remoteness (GCF, 2025b). Although local organisations such as Matanataki Pte Ltd and Enyorra Private Equity may have the contextual knowledge and community relationships needed to identify appropriate climate solutions, they may sometimes lack the specialised expertise and preparatory financing required to translate these opportunities into robust proposals that meet the requirements of institutional climate finance providers, such as the GCF. This highlights the importance of technical assistance facilities in bridging the knowledge gap between locally identified adaptation opportunities and the technical and investment requirements of institutional climate finance providers. Closing this gap can help attract more capital to climate adaptation.

Blended equity vehicles also provide a platform for institutional investors to access emerging market investment opportunities while keeping their risk exposure within strict investment mandates and regulatory requirements (OECD, 2025a). Furthermore, blended equity can also be structured to allow concessional capital to be recycled over time (OECD, 2020; OECD, 2025a). When underlying investments generate sufficient returns, capital flows back to the concessional investor, allowing them to recover and potentially redeploy its capital into new climate initiatives (OECD, 2025a). This can subsequently help overcome challenges related to the investability of adaptation initiatives.

The Climate Resilience and Adaptation Finance and Technology Transfer Facility (CRAFT) provides a practical example of this approach, investing in innovative companies and initiatives that develop and scale technologies and solutions to strengthen climate resilience and adaptation.

Case study 4: CRAFT by the Lightsmith Group

The Climate Resilience and Adaptation Finance and Technology Transfer Facility (CRAFT) was developed by The Lightsmith Group (Climate Policy Initiative, n.d.1). The fund was identified by the Climate Policy Initiative as “the first commercial investment vehicle to focus on expanding the availability of technologies and solutions for climate adaptation and resilience” (Climate Policy Initiative, n.d.1). Rather than investing primarily in conventional infrastructure, the fund targets growth-stage companies developing technology-enabled products and services in areas such as water efficiency, resilient food systems, agricultural analytics, geospatial intelligence, supply-chain analytics, and catastrophe risk modelling (Nordic Development Fund, n.d.).

CRAFT therefore illustrates how blended equity can be used not only to manage risk for institutional investors, but also to direct private capital towards an underdeveloped segment of the climate finance market. The fund combines capital from public, philanthropic, development finance, and commercial investors to support the scaling of companies with commercially viable adaptation solutions (Nordic Development Fund, n.d.). In doing so, demonstrates that climate adaptation and resilience can constitute an investable market. This makes CRAFT a relevant example of how blended finance can help bridge the gap between the growing need for adaptation investment and the historically limited participation of private capital in this area.

Concessional Debt

What is concessional debt?

Concessional debt refers to loans extended on terms that are considered more generous than standard, market-rate commercial loans. This debt can be provided by DFIs, MDBs, multilateral climate funds like the GCF, donor governments, impact investors or blended finance vehicles that are managed by asset managers. Concessional debt usually has the following core characteristics (IFC, 2025):

- Below market interest rates;
- Extended grace periods;
- Longer tenors; and
- Favourable repayment schedules.

In blended finance vehicles, concessional debt can also take junior or second-loss positions behind commercial senior lenders, absorbing initial credit defaults to de-risk the overall capital structure (IFC, 2025).

In practice, concessional debt is deployed through two primary channels (IFC, 2025, OECD, 2022, OECD, 2025a):

- Direct Lending where facilities are extended directly to the entity that is operating the climate asset as the end-borrower or;
- Intermediated Lending (On-Lending via Local Financial Institutions) where credit lines are provided to local commercial financial institutions acting as aggregators. These local Partner Financial Institutions (PFIs) then on-lend the concessional capital to end-borrowers, therefore the origination, underwriting and local credit risk management is shifted to the financial intermediary.

How can concessional debt address barriers to private sector adaptation finance?

Concessional debt can help address several key investment barriers that adaptation projects face. The most direct benefit is lower borrowing costs, which reduce debt-service obligations and improve overall project returns. Extended grace periods also help address the long cash-flow gestation periods common to adaptation projects, allowing borrowers to defer repayments until adaptation assets begin to generate revenue or cost savings (IFC, 2025). In addition, blended concessional debt offering longer loan tenor, concessional interest rates, and local currency facilities or currency swaps helps absorb macroeconomic risks such as currency volatility and sovereign credit constraints and rebalance the risk-reward profile to attract private capital into emerging markets (IFC, 2025).

At the facility level, concessional debt can be structured as an evergreen, revolving fund that continuously recycles public capital. Rather than depleting funds in a single investment cycle, underlying loan repayments continuously replenish the facility balance. Practitioner insights from a long-standing blended debt vehicle demonstrates that evergreen facilities can achieve 100% public capital preservation over operating horizons. In a macro environment where Official Development Assistance (ODA) and grant budgets are increasingly constrained, this revolving mechanism ensures that scarce public de-risking capital is preserved and redeployed across multiple investment cycles.

Despite its potential to reduce financing costs and improve risk-sharing, concessional debt is not a universal solution to the adaptation finance gap. Its effectiveness is greatest where adaptation investments have identifiable and relatively predictable revenue streams that can support debt repayment. This is more feasible in sectors such as agriculture, where climate-related risks and their financial implications are relatively well understood. However, significant areas of the adaptation landscape remain difficult to finance through debt-based structures alone. Where an adaptation investment generates limited or no direct cash flows and primarily provides broader risk-reduction benefits, concessional financing cannot, on its own, address the underlying absence of revenue. A respondent noted that even relatively favourable lending terms, such as a 100-basis-point reduction in the interest rate, may be insufficient to make unfamiliar or unproven resilience investments commercially viable for borrowers or attractive to private lenders. They were of the view that mobilising finance towards these less commercially viable areas requires additional forms of public intervention, including direct public expenditure, or regulatory measures such as strengthened building codes, agricultural standards, and municipal water regulations. These interventions can create the underlying demand and economic rationale necessary for financial instruments to subsequently support adaptation investment.

Furthermore, the effectiveness of concessional debt depends heavily on the regulatory and compliance environments of both international lenders and local intermediaries. International lenders may face strict regulatory requirements, including sustainability disclosure and climate-risk standards. These may require detailed climate-risk screening across debt portfolios. Donor requirements can also create additional operational burdens for local PFIs. These may include public audit access, reputational risk protocols and detailed beneficiary tracking. Such requirements can go beyond normal commercial banking practices. This may discourage local intermediaries from participating in climate debt facilities. Navigating these requirements is therefore essential. Compliance processes must be streamlined so that concessional capital can flow efficiently through intermediaries to end-borrowers.

It can be argued that TA provides the operational bridge required to overcome these compliance barriers. At the intermediary level, dedicated TA grants can subsidise the implementation of Environmental and Social Management Systems (ESMS), digitise impact monitoring platforms, and train local credit officers to evaluate climate risks and adaptation taxonomies without overburdening internal bank operations. At the borrower level, TA can fund tangible pipeline development, co-financing feasibility studies, and building awareness among SMEs that would otherwise remain unaware of climate finance options. A respondent noted that pairing concessional credit lines with targeted TA provides the true additionality needed to crowd local financial institutions into unfamiliar adaptation markets.

Case study 5: Transformation Pathways Initiative

The Transformation Pathways Initiative (TPI) provides a useful case study of how impact investors can use blended finance to mobilise private capital for low greenhouse gas (GHG) industrial development and climate-resilient agri-food systems. With the support of E Co, this joint initiative by the United Nations Industrial Development Organization (UNIDO) and Finance in Motion sought financing from the GCF to support its two pillars: the Transformation Pathways Fund (TPF) and the Transformation Pathways Technical Assistance Facility (TPTA).

The TPF is structured as a revolving blended debt fund that aims to address financing barriers to sustainable industrial transformation and climate-resilient agri-food systems through direct and intermediated lending. Under the proposed financing structure, a USD 175 million GCF first-loss junior equity contribution would absorb initial investment losses, providing a degree of protection to senior investors and helping to mobilise additional private capital.

The Fund seeks to deploy approximately 60% of its USD 700 million portfolio through local financial intermediaries. These local financial intermediaries will provide mid- to long-term debt and technical assistance to address financing and capacity constraints faced by SMEs in fragmented, hard-to-abate value chains. This approach aims to reach businesses whose climate-related investments are often too small and dispersed to attract direct international financing, yet face barriers to local commercial credit due to short loan tenors, stringent collateral requirements, and limited technical readiness.

The remaining 40% is intended for direct corporate and project financing, targeting capital-intensive investments that fall between the financing capacities of local commercial banks and the typical transaction thresholds of DFIs. These investments address hard-to-abate emissions and demonstrate the commercial viability of low-GHG and climate-resilient industrial projects, potentially creating replicable models that can attract further investment and be scaled over time.

The TPI addresses both climate change mitigation and adaptation. Its proposed investments include energy efficiency, circularity, industrial renewable energy, electrification, and sustainable fuels, which primarily contribute to emissions reductions. Importantly, 20% of the proposed Fund is earmarked for climate adaptation, recognising the vulnerability of agri-food systems and associated value chains to physical climate risks, including heat stress, prolonged droughts, and changing precipitation patterns. By supporting investments that strengthen the resilience of these value chains, the initiative seeks to complement industrial decarbonisation with improved climate resilience, food security, and livelihood outcomes.

Furthermore, the TPTA supports the Fund by strengthening the operational capacities of local enterprises and financial institutions. The Facility aims to address technical and institutional barriers that can constrain investment, by facilitating investment readiness, climate-aligned financial products, and the implementation of sustainable industrial and agri-food practices. The combination of financing and technical assistance is intended to enable private capital mobilisation while supporting the transition towards low-emission and climate-resilient industrial and agri-food systems.





Guarantees

What are guarantees?

Guarantees are a versatile financing instrument, as they can be structured in a number of ways to crowd in private capital for adaptation projects. For example:

- **First loss guarantees** are a credit enhancement that absorb initial losses which ultimately reduces the exposure of other investors to potential losses (OECD, 2025b);
- **Second-loss guarantees** provide protection only after a first-loss layer has already been absorbed by another investor or public entity. It therefore provides an additional layer of risk mitigation for subsequent investors (OECD, 2025b);
- **Pari-passu guarantees** involve the guarantor and commercial lenders sharing losses proportionally and simultaneously if a default occurs, rather than one party bearing losses before the other (OECD, 2025b);
- **Partial credit guarantees** provide protection against a specified portion of a lender's exposure to credit or default risk, rather than covering the full potential loss (OECD, 2021);
- **Political or partial-risk guarantees** provide protection against specific political, regulatory or contractual risks or events, such as government non-performance, regulatory changes or off-taker non-payment, rather than general credit losses (CPI, 2024; OECD, 2025b).

How can guarantees address barriers to private sector adaptation finance?

Guarantees are an important financial instrument for reducing the risks faced by investors and lenders by transferring some or all of the potential exposure to a third-party guarantor, such as a multilateral fund such as GCF, a DFI or government entity (CPI, 2025; OECD, 2021; OECD, 2025b). Depending on their design, guarantees can mitigate a range of risks, including borrower default, political and regulatory risks, and other factors that may undermine the financial viability of an adaptation project (CPI, 2025; OECD, 2021; OECD, 2025b). The reduction in investors' exposure to these risks can enhance the creditworthiness of projects and help attract private investment, thereby easing financing constraints. Guarantees can also improve the risk-return profile of projects, potentially reducing the cost of capital and making investments more attractive to a wider range of private sector investors.

These instruments are particularly relevant in emerging markets and developing economies, where geopolitical uncertainty and financial instability can create additional barriers to private investment (CPI, 2024; OECD, 2021; OECD, 2025b). Evidence from the OECD indicates that guarantees accounted for 26% of private finance mobilised between 2018 and 2020, making them an important risk-mitigation instrument for private investors (CPI, 2024). Further evidence suggests that larger and more effective credit guarantee facilities can mobilise financing at multiples of the amount provided through conventional lending, with estimates ranging from 6 to 25 times the value of the underlying loans (CPI, 2024).

Despite the clear benefits that guarantees can offer, their effective use requires strong institutional and regulatory capacity, particularly to assess and price risks, manage contingent liabilities, and ensure that guarantees are appropriately structured (CPI, 2025; OECD, 2021). Their ability to mobilise private capital therefore depends on a number of factors, including: the availability of the instrument, the broader investment environment and the capacity of relevant stakeholders to design, implement and manage guarantee arrangements effectively (CPI, 2025; OECD, 2021). The GCF can play a catalytic role in addressing these constraints, both by providing guarantees directly and by using grants to strengthen the capacity of local financial institutions and governments to develop, implement and manage guarantee arrangements. It can also deploy other instruments, such as equity, to strengthen the capital base of institutions that provide guarantees. For example, the GCF has provided equity to the Green Guarantee Company, supporting the development of a dedicated guarantee provider that can mobilise additional private investment for climate-related projects. This combination of financial support and capacity building can help create the institutional conditions needed for guarantees to be deployed effectively and at greater scale.

Case study 6: Green Guarantee Company

The Green Guarantee Company (GGC) is a specialised guarantee platform designed to mobilise private institutional capital for climate projects in developing countries across Africa, Asia and Latin America (GCF, 2022c). The platform was established through a GCF project proposal implemented through MUFG Bank, Ltd. as the Accredited Entity. In its initial phase (Stage 1), GGC has an approved project size of USD 130 million, backed by a USD 40.5 million equity investment from the GCF alongside co-investors such as the UK's FCDO (GCF, 2022c). Over time, the proposal envisages expanding GGC's capital structure up to USD 405 million in total target financing.

The GCF's equity investment is provided on a pari passu basis with other equity investors (GCF, 2022c). This patient concessional equity helps capitalise the platform and enables GGC to provide credit guarantees for green debt issued by projects in developing countries and placed in global hard-currency capital markets (GCF, 2022c). This credit enhancement can elevate sub-investment-grade debt to investment grade (BBB- or higher), reducing investors' exposure to credit risk and enabling institutional investors, such as pension funds and insurance companies, to participate in investments that may otherwise fall below their rating mandates (GCF, 2022c).

However, it is important to note that GGC's initial portfolio is predominantly focused on mitigation activities (80%), including renewable energy, clean transport and green cities, with approximately 20% directed towards adaptation, particularly water and resilient infrastructure (GCF, 2022c). While GGC demonstrates how concessional public capital, provided through patient equity, can establish and capitalise a guarantee platform capable of leveraging additional private investment, its current portfolio also highlights the potential to expand the use of such structures for adaptation. Future transactions that build on the GGC model could therefore place greater emphasis on adaptation-focused projects and sectors, extending the benefits of credit enhancement to investments that have historically struggled to attract private capital and helping to address the adaptation finance gap in developing economies.

USD
130m

Approved project size

USD
40.5m

GCF equity investment





Green and adaptation and resilience (A&R) bonds

What are Green and A&R bonds?

Green bonds are fixed-income instruments designed to raise capital for projects with environmental and climate-related benefits (ICMA, 2025). Their financial structure is similar to that of conventional bonds, with the principal distinction being the earmarking of proceeds for eligible green projects in accordance with the relevant market framework (ICMA, 2025). Green bonds can finance both climate mitigation and adaptation activities. (A&R) bonds, in contrast, have a more specific thematic focus, with proceeds directed towards investments that reduce vulnerability to actual or expected climate impacts and strengthen the ability of systems, institutions, communities and infrastructure to withstand and recover from climate-related shocks (Fitch Solutions Group Limited, 2026).

How can green and A&R bonds address barriers to private sector adaptation finance?

Green and A&R bonds are issued in accordance with recognised market frameworks that establish criteria for eligible activities, project selection and reporting, helping to reduce the risk of greenwashing. Although, the green bond market is relatively mature, with the ICMA Green Bond Principles providing an established framework for issuers and investors (ICMA, 2025), the A&R bond market remains at an evolving stage of development, with an expanding range of taxonomies and voluntary frameworks seeking to improve the identification, standardisation and reporting of adaptation and resilience investments. As earlier mentioned, this evolving framework landscape can create challenges for the identification and comparability of A&R investments. While the EU and ASEAN Taxonomies have introduced explicit adaptation criteria, the maturity of A&R treatment and disclosure remains highly uneven across regions (Fitch Solutions Group Limited, 2026). Voluntary frameworks such as the Climate Bonds Initiative's Resilience Criteria and Taxonomy (CBRT) have emerged to address these methodological gaps by establishing screening thresholds for investments that make a substantial contribution to resilience and promoting greater comparability across sustainable finance frameworks (Climate Bonds Initiative, 2025; Fitch Solutions Group Limited, 2026). Such standardisation can help address information and classification barriers that make adaptation-related investments more difficult for investors to identify and assess.

Furthermore, Green and A&R bonds exhibit specific secondary market behaviours that can enhance their appeal to institutional investors. Practitioner insights indicate that labelled Green and A&R bonds often demonstrate lower spread volatility and smoother price adjustments during periods of broader market turbulence compared to conventional vanilla bonds. This relative price stability, often manifested as a small pricing advantage or "greenium" at primary issuance and tighter secondary spreads, is largely driven by institutional demand dynamics (CPI, n.d.2).

Practitioner insights also indicate that major long-term asset managers, such as pension funds and life insurance companies, require deep portfolio liquidity to service immediate liability payouts. During macro-economic shocks or geopolitical volatility, these institutional investors tend to retain certified green and A&R assets on their balance sheets rather than offload them. This behaviour is driven both by internal ESG and climate-risk mandates and by the recognition that physical resilience investments mitigate underlying default and credit performance risks. As a result, green and A&R bonds hold their value more effectively on secondary markets, offering a valuable liquidity buffer for portfolio managers.

While secondary market spread resilience and tighter pricing can marginally lower borrowing costs for creditworthy corporate and sovereign issuers, these market mechanisms alone are insufficient to scale private adaptation finance to the required levels. For many growth-stage enterprises, municipal entities, and emerging market issuers, a modest pricing advantage does not overcome fundamental credit rating constraints, currency risks, or the lack of direct revenue streams inherent in non-monetised adaptation assets.

Furthermore, establishing the market liquidity necessary to command favourable pricing requires a massive transaction scale which SMEs and vulnerable countries cannot achieve independently. Consequently, practitioner insights highlight that market-driven demand must be paired with structured blended finance vehicles and credit enhancement mechanisms. Public catalytic capital, deployed through first-loss guarantees, subordinated debt, and technical assistance facilities, remains essential to aggregate fragmented pipelines, elevate underlying credit profiles to investment-grade levels, and crowd mainstream institutional capital into the adaptation debt market at scale.



Parametric insurance and Insurance-linked securities (ILS)

What is parametric insurance and ILS?

Parametric insurance is a modern financial mechanism that provides predetermined payouts when specific, measurable environmental conditions reach defined thresholds (CPI, n.d.3). These thresholds may include: wind speed, rainfall levels, flood height, temperature, drought indices, or other independently observable indicators (CPI, n.d.3). Parametric insurance can provide rapid access to funds, sometimes within days of a disaster, as it offers a less bureaucratic claims process than conventional insurance (CPI, n.d.3). This access to liquidity can provide critical working capital for maintaining project operations, meeting immediate financial obligations, or repairing essential infrastructure following a climate-related event (CPI, n.d.3).

Moreover, parametric triggers can also be incorporated into catastrophe bonds (CAT bonds) and other insurance-linked securities (ILS), extending their application to capital-market instruments (Ocampo & Moreira, 2024). Through these instruments, investors take on a portion of the risks that would traditionally remain with insurance companies, particularly those associated with severe natural disasters (Bansal & Feyertag, 2026; Ocampo & Moreira, 2024). Under a typical CAT bond structure, investors receive interest payments and the return of their principal provided that a specified catastrophic event does not occur (Bansal & Feyertag, 2026; Ocampo & Moreira, 2024). However, if the predefined trigger is reached, some or all of the principal may be used to meet the insurer's or sponsor's disaster-related claims, meaning that investors bear the resulting financial loss (Ocampo & Moreira, 2024).

How can parametric insurance address barriers to private sector adaptation finance?

Parametric insurance can function as an important risk-transfer mechanism for mobilising private sector adaptation finance. Depending on how the parametric insurance is structured, it has the ability to transfer defined climate and disaster risks from governments, businesses, and project developers to insurers, reinsurers, and capital-market investors (Bansal & Feyertag, 2026; Ocampo & Moreira, 2024). Such risk transfer can reduce the financial exposure associated with climate shocks. This is particularly relevant for adaptation investments, where uncertainty over future climate-related losses can increase the perceived risk of investing in vulnerable sectors and infrastructure.

Parametric products also allow sovereign and subnational governments, insurers, and other risk holders to access international reinsurance markets. International reinsurers can assume portions of climate and catastrophe risks that may otherwise be too large or concentrated for domestic markets to retain (Ocampo & Moreira, 2024). This effectively transfers local climate risk to a broader international pool of capital and expertise. Transferring these risks to a broader international pool of capital and expertise can reduce their concentration within domestic financial systems, creating a more predictable financial environment for lenders and investors considering adaptation-related projects.

Case study 7: Glaciers to farms (G2F) regional program: advancing climate resilience & sustainable development in Central and West Asia

The Glaciers to Farms (G2F) Regional Programme demonstrates how innovative financial instruments can help overcome some of the barriers that have historically constrained adaptation finance. G2F is a GCF approved programme led by the Asian Development Bank (ADB). The programme responds to the accelerating retreat of glaciers in the Pamir and Tien Shan mountain ranges and the resulting risks to water, food and energy security across nine countries in Central and West Asia. In the region, more than 340 million people depend on glacier-fed river systems, with smallholder farmers and rural communities particularly exposed to changes in water availability and climate-related disasters (GCF, 2025a). G2F has a total financing envelope of USD 3.5 billion, with USD 250 million of GCF finance and USD 3.25 billion of co-financing (GCF, 2025a). Furthermore, the programme proposes to design and pilot climate-linked insurance mechanisms, including parametric insurance and contingent disaster financing, drawing on ADB's experience in Pakistan (GCF, 2025a). These mechanisms will be used alongside risk transfer instruments such as outcome-based resilience bonds and sustainability-linked bonds (GCF, 2025a).

The significance of G2F lies in how it combines concessional finance, risk transfer and capital-market instruments to address different barriers to adaptation investment. GCF funding can support the development and de-risking of adaptation investments, while parametric insurance can transfer climate and disaster risks and provide rapid payouts when predefined triggers are reached. At the same time, bond-based instruments can potentially broaden the investor base and link financing to measurable resilience outcomes. The programme also includes capacity building for local financial institutions, including support for climate-risk assessment, green finance and risk-sharing mechanisms, with the aim of expanding access to finance for agricultural enterprises and smallholders (GCF, 2025a). G2F provides an emerging example of how adaptation finance can move beyond reliance on grants by combining concessional public capital with insurance and capital-market mechanisms, helping to reduce risk, mobilise additional finance and channel investment towards climate-vulnerable agricultural communities.

USD
3.5bn

Total project size

USD
250m

GCF financing



Looking ahead

As discussed earlier, UNEP estimates that the adaptation finance gap in developing countries is approximately USD 300 billion, annually. However, as one respondent highlighted, framing the adaptation deficit in the billions may understate the scale of investment required to achieve adaptation and resilience at scale. From this perspective, adaptation is not a USD 100 billion niche financing exercise, but a multi-trillion-dollar systemic imperative. Climate-related physical risks, including hydrological volatility, crop failures, and severe infrastructure damage, threaten economic and social stability, with growing implications for the performance and resilience of mainstream economic and financial assets. This underscores the need to recognise adaptation not as a marginal financing concern, but as a systemic investment priority. Addressing the scale of the challenge requires coordinated action across the public and private sectors, rather than treating adaptation as the responsibility of either sector alone. Public finance can play a catalytic role by absorbing or mitigating investment risks, creating enabling conditions, and helping mobilise private capital towards adaptation and resilience initiatives that might otherwise struggle to attract investment.

This report has set out to demonstrate that this catalytic role can take different forms across financing instruments. In capital markets, public institutions can act as anchor investors, using their balance sheets and risk-taking capacity to demonstrate the viability of adaptation investments and build investor confidence. For blended private equity funds, multilateral climate funds such as the GCF can provide anchor equity that signals public-sector confidence and encourages other LPs to participate. In guarantee markets, public capital can provide guarantees directly or strengthen the institutional capacity of local guarantee providers, thereby reducing credit risk and enabling private lenders to finance projects that might otherwise struggle to access capital. Similarly, in lending facilities, concessional debt can be combined with commercial finance through risk-sharing arrangements, helping local financial institutions extend credit to climate-vulnerable sectors and borrowers.

Across these instruments, there is a consistent underlying principle that public finance can be used strategically to absorb or share risks that private investors may initially be unwilling to take, thereby laying the groundwork for private capital to enter and scale adaptation markets. However, effective implementation requires both public and private-sector actors to understand each other's operating models, requirements and risk appetites. Technical support has a vital role to play in bridging these institutional and knowledge gaps. Dedicated climate finance consultancies such as E Co. can help strengthen this understanding.

With over 26 years of experience in the climate finance industry, E Co. draws on its expertise in market assessment, strategy formulation, policy development, project and programme development, financial structuring, and training and capacity development to translate adaptation needs into investable opportunities. It supports governments, DFIs, financial intermediaries, and private investors in designing appropriate financial instruments, developing investment pipelines, and establishing the frameworks necessary to mobilise private capital effectively. Ultimately, whether the adaptation financing gap is measured in billions or trillions, closing it requires collaboration across the public and private sectors, alongside specialist intermediaries such as E Co, which help connect stakeholders, facilitate investment, and mobilise capital at the scale needed to strengthen climate adaptation.

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