



Strengthening Financial Systems for Climate Adaptation

Practical entry points for governments
and development funders

June 2025 • Silvia Baur-Yazbeck and Howard Miller

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Acronyms

AFD	Agence Française de Développement
ARC	African Risk Capacity
ARIC	Adaptation and Resilience Investors Collaborative
BII	British International Investment
Cat DDO	Catastrophe Deferred Drawdown Option
CDRFI	Climate and Disaster Risk Financing and Insurance
CGAP	Consultative Group to Assist the Poor
CRED	Climate Resilience Enhanced Debt
DFIs	development finance institutions
EMDEs	emerging markets and developing economies
FAO	Food and Agriculture Organization of the United Nations
FSPs	financial services providers
GCF	Green Climate Fund
GSFF	Global Shield Financing Facility
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
MDBs	multilateral development banks
MEbA	Microfinance for Ecosystem-based Adaptation
MFIs	microfinance institutions
MSEs	micro and small enterprises
MSMEs	micro, small, and medium-sized enterprises
OJK	Financial Services Authority of Indonesia (Otoritas Jasa Keuangan)
SEWA	Self-Employed Women's Association
SMEs	small and medium-sized enterprises
TA	technical assistance
UNCDF	United Nations Capital Development Fund
UNEP-FI	United Nations Environment Programme Finance Initiative
WFP	World Food Programme

Executive Summary

AS GLOBAL TEMPERATURES RISE AND climate-related shocks and stresses become more frequent and severe, businesses and households around the world need access to finance that helps them prepare for, cope with, and recover from damage and loss. Financial systems must therefore become more inclusive, more resilient to climate risks, and more responsive to the climate risk management needs of financial services providers (FSPs) and their customers—especially women, farmers, and low-income households, those most often overlooked and most vulnerable to climate risks.

Without strong financial systems to support climate adaptation and resilience, there is a growing risk that FSPs will retreat from high-risk areas, worsening financial exclusion and deepening inequality. Supporting climate goals requires a systematic approach to building financial systems that can respond to the breadth of climate risks and the needs of various customer segments.

Limited private sector investment in climate adaptation and resilience stems from uncertainty about which types of investments are effective and the value their returns bring. Governments and development funders

therefore play a vital role in enabling, incentivizing, and complementing the private sector. While many are already strengthening financial systems' resilience, current efforts often overlook the importance of inclusion for climate risk management at the grassroots level. This gap is not due to a lack of commitment, but rather to limited resources and tools for identifying market gaps and designing effective interventions.

A Systematic Approach to Strengthening Financial Systems in the Face of Climate Risks

A more systematic approach is urgently needed.

This paper outlines how governments and development funders can leverage financial and nonfinancial tools to foster inclusive financial systems that enhance climate adaptation and resilience. It lays out a framework that defines three key roles they can play, and identifies relevant interventions. Finally, the paper introduces a diagnostic process to guide effective action for building financial systems that are inclusive, climate-resilient, and climate-responsive.

Key Roles for Governments and Development Funders

Governments and development funders play three key roles in strengthening financial systems in the face of climate risks. Each role addresses different risk exposures and population vulnerabilities:

ROLE 1: Foster inclusive, climate-ready markets

For manageable climate risks and low levels of vulnerability, focus on strengthening the ecosystem that enables FSPs to manage risks and deliver climate-responsive financial services to low-income customers on a fully commercial basis.

ROLE 2: Mobilize the private sector

For more severe climate risks and vulnerabilities, demonstrate the commercial viability of climate adaptation and resilience projects. Use de-risking, cost-sharing, and rewards to incentivize private investors and FSPs to invest in customers, regions, or value chains they may otherwise shy away from in order to manage their own climate risk exposure.

ROLE 3: Protect those most vulnerable

For the most severe climate risks and vulnerable customers, support affected households and businesses in preparing for, coping with, and recovering from shocks and stresses.

Interventions Framework

Within these roles, governments and development funders can strengthen relevant actors by ensuring they have the right incentives, capacity, and relationships to build inclusive, climate-resilient, and climate-responsive financial systems. Interventions can target supply-side actors (i.e., FSPs), demand-side actors (i.e., financial consumers), sector support organizations, and actors responsible for policy and norms.

CGAP created a framework for a range of financial and nonfinancial interventions that governments and development funders can deploy to address common constraints in the financial market system (Figure 1). A detailed breakdown of the framework follows.

These interventions address specific constraints in the financial system across six entry points:



Capital: Enabling access to affordable, patient, and risk-tolerant capital that allows and incentivizes inclusive FSPs to support the climate adaptation and resilience needs of vulnerable customers by allocating development capital and risk-sharing instruments in ways that crowd in private capital.



Climate risk and data: Enabling the financial sector to access and use relevant climate risk data and management tools to finance climate adaptation and resilience. And incentivizing the transfer of risk from low-income customers to the private and public sectors.



Product development: Supporting the development of customer-centric products for climate adaptation and resilience.



Policy: Supporting financial policies and guidance that reduce barriers and incentivize investment in climate adaptation and resilience.

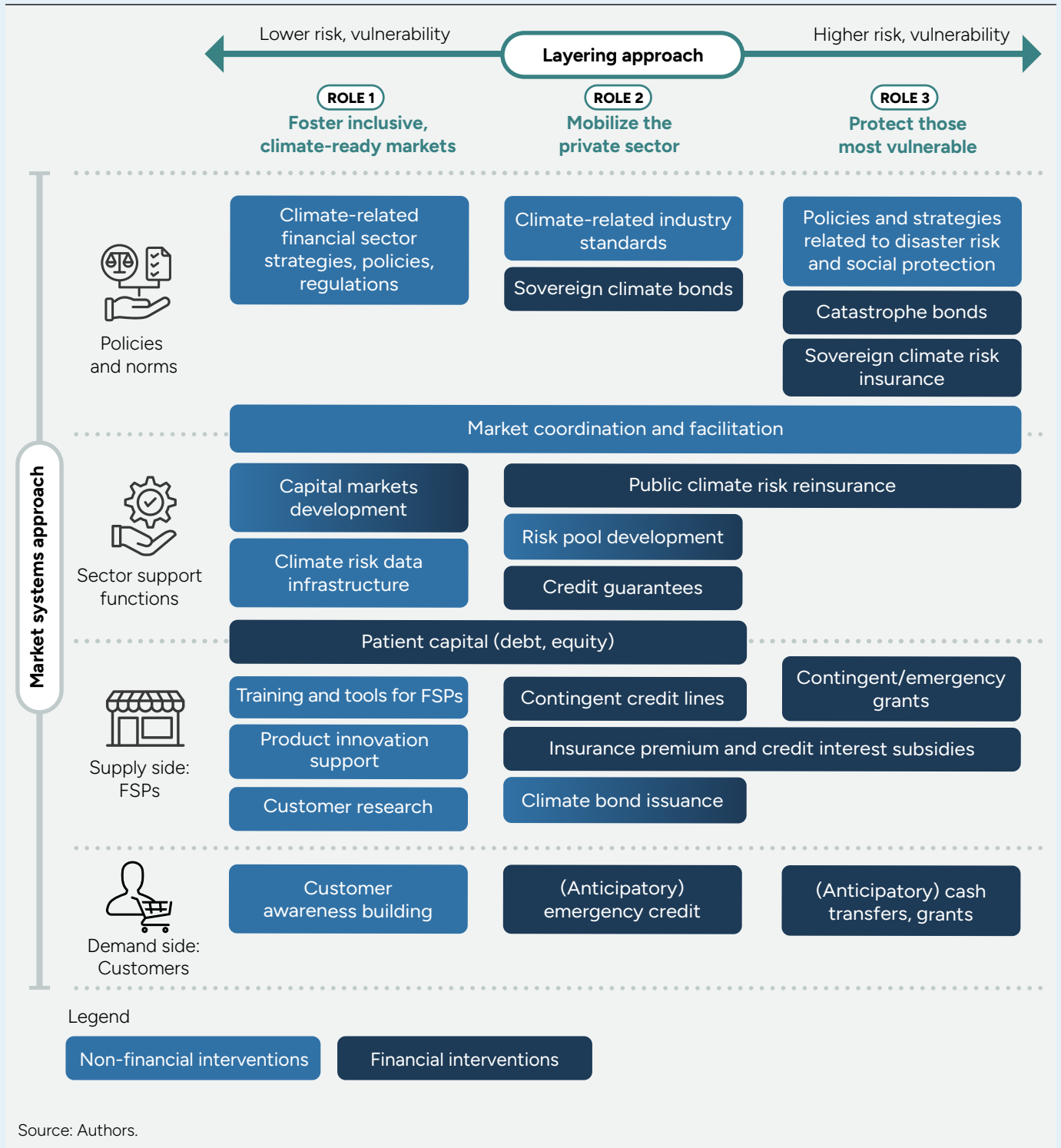


Social protection: Committing to financial protection for those most vulnerable and developing social protection programs to better foster climate adaptation and resilience.



Market coordination: Facilitating coordination and dialogue among relevant stakeholders: financial inclusion, development, climate, disaster risk management, agriculture, social protection, and other sectors.

FIGURE 1. **CGAP framework: Financial and nonfinancial interventions to strengthen financial systems in the face of climate risks**



Diagnostic Process

Governments and development funders can use the framework as a diagnostic tool to assess financial system gaps, identify effective interventions, and guide national dialogues on climate adaptation and resilience priorities.

Inclusive financial systems are essential for urgently needed climate adaptation funding to effectively reach and benefit those most vulnerable. Targeted interventions can enhance financial system resilience to climate risks, stimulate long-term sustainable investment in climate adaptation, and create access to relevant financial solutions for vulnerable communities. Strategic cross-sector collaboration offers a unique opportunity to equip those most at risk with the financial tools they need to confidently navigate an uncertain climate future.

Who is this paper for?

This paper is specifically intended for:

- **Governments**, including financial sector authorities (e.g., ministries of finance, central banks, regulatory and supervisory bodies) and other government agencies responsible for climate and disaster risk management, social protection, economic and agricultural development.
- **Development funders**, such as bilateral development agencies; multilateral development banks (MDBs); international, regional, and national development finance institutions (DFIs); and multilateral climate funds operating with public mandates.

Governments and development funders play a critical role in shaping financial systems that can support climate adaptation and resilience. While their structures, tools, and incentives may differ, they share a public interest mandate and the ability to influence financial systems development at scale.

This paper does not address the roles of private philanthropies, commercial impact investors, or private FSPs, although they may intersect with public sector-led strategies.

SECTION 1

Introduction

INCLUSIVE FINANCIAL SYSTEMS ARE KEY IN channeling both public and private finance to low-income populations and enabling households and businesses to prepare for, cope with, and recover from climate-related shocks and stresses. The floods that hit Pakistan in 2022, for example, affected 33 million people and left a third of the country under water. The country's financial system, with its critical role in channeling money to assist people in navigating through and recovering from the floods, was also heavily impacted. According to the Government of Pakistan, damage occurred to 268 bank branches and 81 microfinance branches (Government of Pakistan et al. 2022).

A CGAP survey of 15 microfinance institutions (MFIs) in the Pakistan Microfinance Network found that over the last 10 years, nearly half (47 percent) had reduced lending to particular sectors in response to growing climate risk, 40 percent had reduced lending in a particular geography, and 20 percent had stopped lending in certain regions altogether. Over a quarter of MFIs (27 percent) either closed branches or cancelled expansion plans in areas impacted by climate events (Zetterli and Notta 2025). As a result, vulnerable customers in Pakistan face increased difficulty in accessing the payments, savings, credit, and insurance products they urgently need to adapt to climate change and build resilience. Pakistan acknowledged the links between inclusive finance and climate risk management in its 2024–2028 National Financial

Inclusion Strategy, where it set a goal for embedding sustainability and climate resilience in inclusive financing (Government of Pakistan et al. 2022).

Inclusive financial services providers, (i.e., FSPs serving low-income customers) have built existing networks and trust within local communities, which enables efficient delivery of funds to the places where adaptation finance is most needed. These FSPs can also mobilize private capital for sustainable development, generating over US\$180 billion in global lending to low-income households and businesses per year (Lindsay-Walters and Akhtar 2022).

By preparing their own systems and distribution networks for climate shocks and offering tailored climate-responsive financial services, inclusive FSPs can play a key role in helping vulnerable customers anticipate, prepare for, cope with, and recover from climate-related shocks and stresses.

But for inclusive FSPs to meet their potential in supporting climate adaptation and resilience,¹ the ecosystem around them needs to both support new adaptation financing and prevent FSP withdrawal from vulnerable customers. For example, the physical infrastructure of financial systems (e.g., ATMs, branches, agent networks) must be resilient to extreme weather events. Market-level liquidity may be needed to support a surge in demand after a community or regional event.

¹ In human systems, adaptation is the process of adjustment to actual or expected climate and its effects in order to moderate harm or exploit beneficial opportunities (IPCC 2022). CGAP defines resilience as the ability of individuals and households to reduce and mitigate risks, as well as to cope with and recover from various shocks, stresses, and life cycle events, in order to minimize any reduction in short-term consumption or long-term well-being (McKay and Zetterli 2021).

Sources of capital for FSPs should be longer term and more climate risk tolerant. Information systems need to provide data and information on how climate risks and vulnerabilities affect customer behavior and risk profiles. Technical assistance (TA) is needed to develop new products and services that meet the risk management needs of customers. Customers need to be aware of what products are available and how to use them to adapt and build resilience. All of these support functions—and more—must be present within a policy and regulatory environment that is cognizant of the needs of inclusive FSPs. **It is therefore critical that financial systems achieve three criteria—inclusiveness, climate resilience, and climate-responsiveness—to support the climate adaptation and resilience of low-income customers and a more resilient and just economy** (see Box 1).

Governments and development funders play an important part in strengthening financial systems for climate adaptation and resilience. As capital owners and rule makers, they significantly influence market behaviors, including in this area. Yet while financial sector authorities and international development funders are recognizing opportunities to link inclusive finance and climate objectives, renewable energy and energy efficiency are the current focus of many efforts

BOX 1. What are inclusive, climate-resilient, and climate-responsive financial systems?

Inclusive financial systems enable all people and businesses—especially those hardest to serve—to access and use affordable and responsible financial services that meet their needs.

Systems are **resilient** when, despite the growing frequency and severity of climate risks, all market actors (especially providers and distribution networks) can reliably, conveniently, and safely operate and provide financial services to all customers.

Responsive systems cater to the needs of providers and customers that are increasingly exposed to climate risks, supporting their risk management strategies in a timely, efficient, and responsible manner.

(Zetterli 2023). And although public sector action for climate adaptation and resilience is growing, it remains fragmented into individual efforts focused on inclusive finance, agriculture finance, climate finance, disaster risk finance, and social protection. Overlap and interdependences are not sufficiently recognized. Efforts also tend to be opportunistic, often lacking a comprehensive analysis of financial system barriers in catering to low-income customers and the FSPs that serve them. As a result, there is no systematic approach to building financial systems that respond to a variety of climate risks and the needs of different customer segments, especially those most vulnerable and often overlooked, including smallholder farmers, women, and micro and small enterprises (MSEs).

Bringing about the necessary changes and maximizing the potential of financial systems to support climate adaptation and resilience requires new forms of collaboration and interaction between public and development sectors. A systemic approach requires institutions, instruments, and ideas from financial inclusion, development, climate, disaster risk management, agriculture, social protection, and other sectors to come together. Various actors will need to work along different points of the financial system but also form new coalitions that include:

- **Governments**, primarily financial sector authorities (e.g., ministries of finance, central banks, insurance regulators) but also ministries responsible for social protection programs, climate and disaster response, agriculture, and other public agencies responsible for setting a vision, rules, and standards and coordinating national climate action.
- **Bilateral and multilateral development organizations** that typically support market building activities across sectors (e.g., finance, disaster risk finance, climate and environment, agriculture, social protection, others) per agreements with partner governments.
- **Development finance institutions (DFIs)** (i.e., international and domestic development banks) that channel and catalyze new investment toward climate adaptation and resilience by demonstrating and creating investment opportunities. DFIs provide

financial and nonfinancial support to businesses with positive social, economic, and/or environmental impacts (e.g., those offering climate adaptation and resilience solutions, inclusive FSPs, financial sector support organizations).

- **The disaster risk financing community** typically supports governments in developing strategies and solutions for response and recovery to severe climate events via risk retention and transfer tools. While most initiatives support governments, some support the development of climate risk insurance markets, including for low-income customers.
- **Multilateral climate funds** typically finance climate mitigation, adaptation, and biodiversity with the aim to ignite public and private sector investment. While still a minor portion of their portfolios, they are beginning to leverage the financial sector to channel and catalyze climate adaptation finance to farmers and small and medium-sized enterprises (SMEs).

To facilitate collaboration and coordination among these different actors, CGAP developed a framework to describe their roles in creating inclusive financial systems that support climate adaptation and resilience.

The framework builds on two complementary approaches:

1. A **market systems approach** ensures that interventions address constraints across the financial system. With a focus on supply-side, demand-side, and enabling environment factors, the approach helps financial markets to function more effectively. Public interventions should aim to break down barriers that exclude low-income households and businesses by enhancing incentives for market actors willing to take on missing or weak market functions (CGAP 2018). The approach is particularly critical to climate change as all financial system actors need to adjust to new and growing risks, plus the reactions of other actors to those risks. Figure 6 in Section 3 reviews the actors and functions in an inclusive, climate-resilient, and climate-responsive financial system.

2. A **layering approach** expands the traditional risk-layering concept, which distinguishes between risks based on their frequency and severity by integrating layers that correspond to a customer's level of vulnerability². Climate risks affect populations differently, depending on income, location, information, and access to services. Interventions and instruments can be layered to respond to variations in vulnerability and exposure across space and time, and with customer levels of wealth, education, gender, age, race/ethnicity/religion, class/caste, disability, and health status. Governments and development funders need to respond by providing more, longer, and more concessional support as the severity of and vulnerability to climate risks rises.

Figure 2 shows climate risk categories based on severity and common strategies to manage them, ranging from risk retention and risk reduction to risk transfer and social protection.

Combined, the approaches create a framework that aligns private and public sector interventions toward inclusive, climate-resilient, and climate-responsive financial systems. Following the framework helps governments and development funders avoid market distortion as they need only intervene when and where the private sector lacks the necessary incentives, capacity, or relationships. Upon analyzing a wide array of public sector activity in this space, CGAP further identified three core roles (Figure 3).

Across these roles, various interventions can support and strengthen the financial system and its market actors. Figure 4 presents the framework with an overview of possible financial and nonfinancial interventions for different risk and vulnerability and at various levels of the market system. Intervention locations are not fixed and some may support other roles or financial market actors. For clarity, interventions were placed where CGAP's research indicated they were most relevant.

2 Vulnerability is understood as a function of a customer's exposure, sensitivity, and adaptive capacity. (IPCC 2007)

FIGURE 2. Risk layering based on customer vulnerability to climate risks

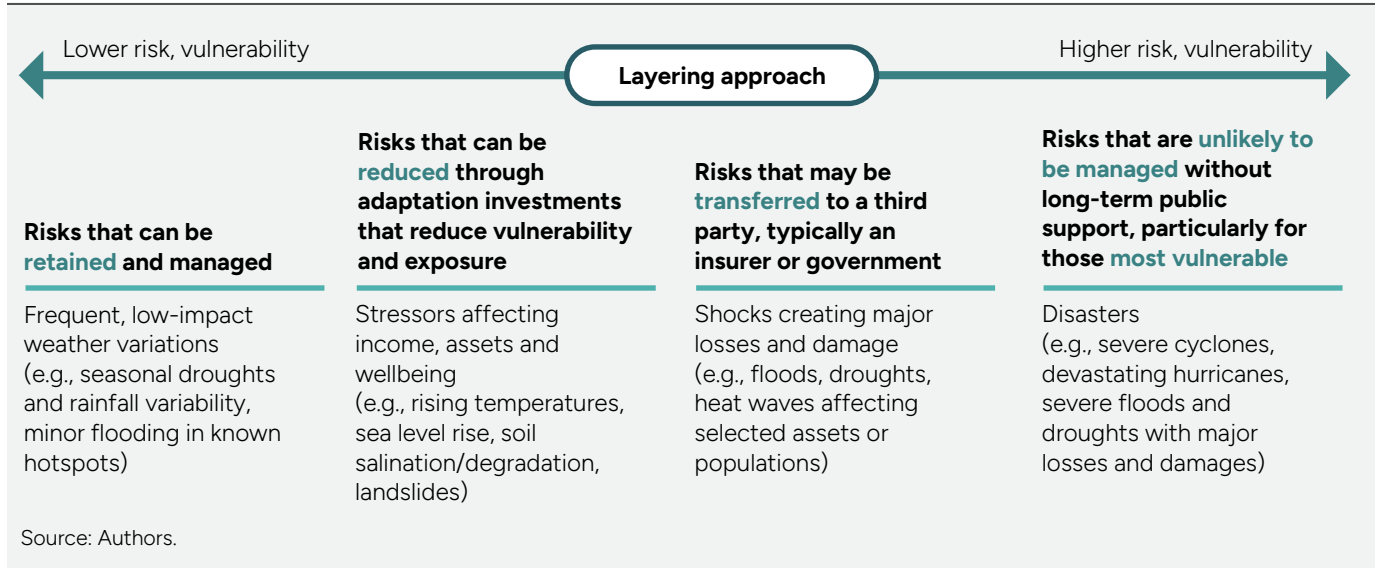


FIGURE 3. Three supporting roles for inclusive, climate-resilient, and climate-responsive financial systems

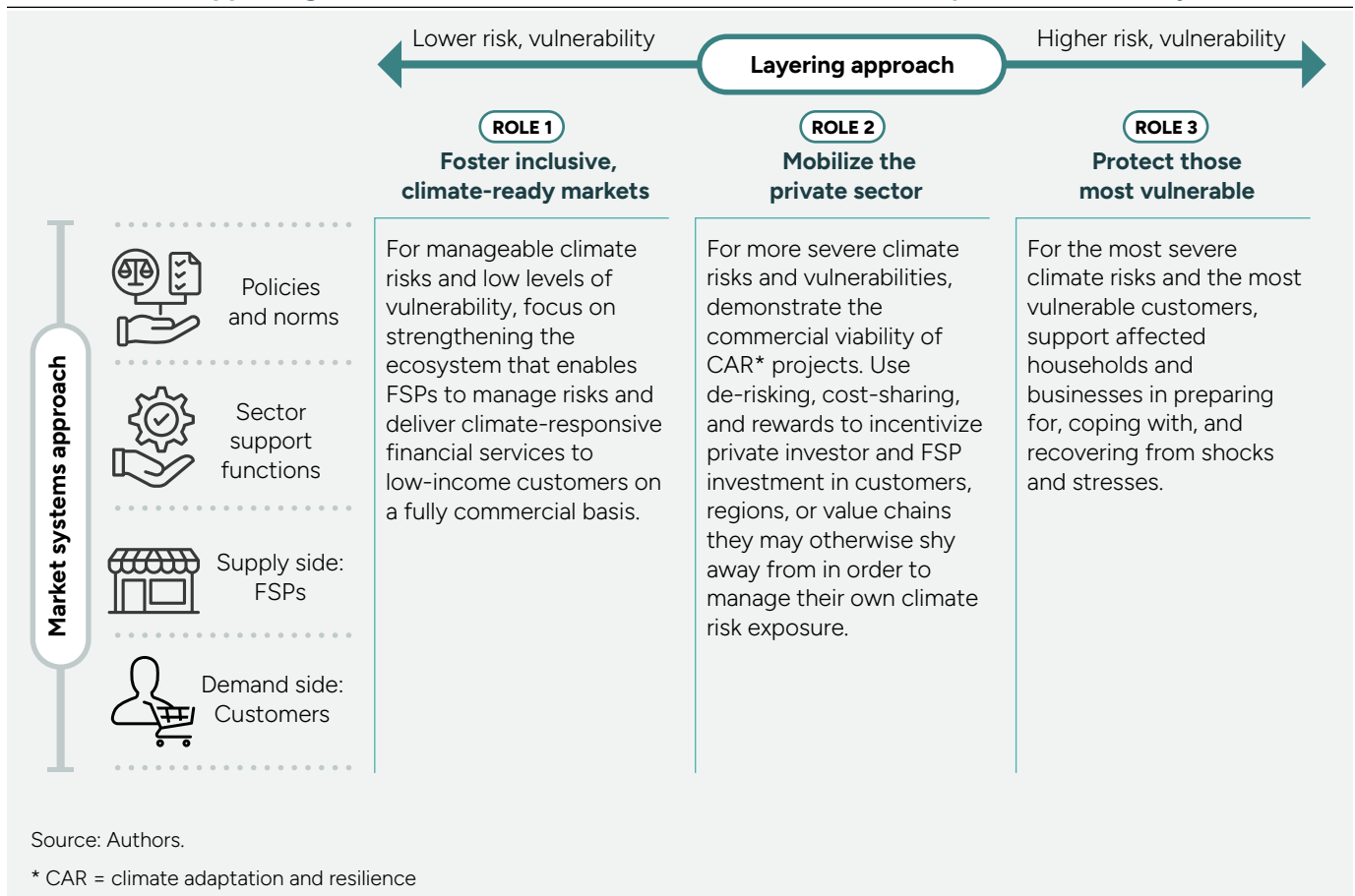
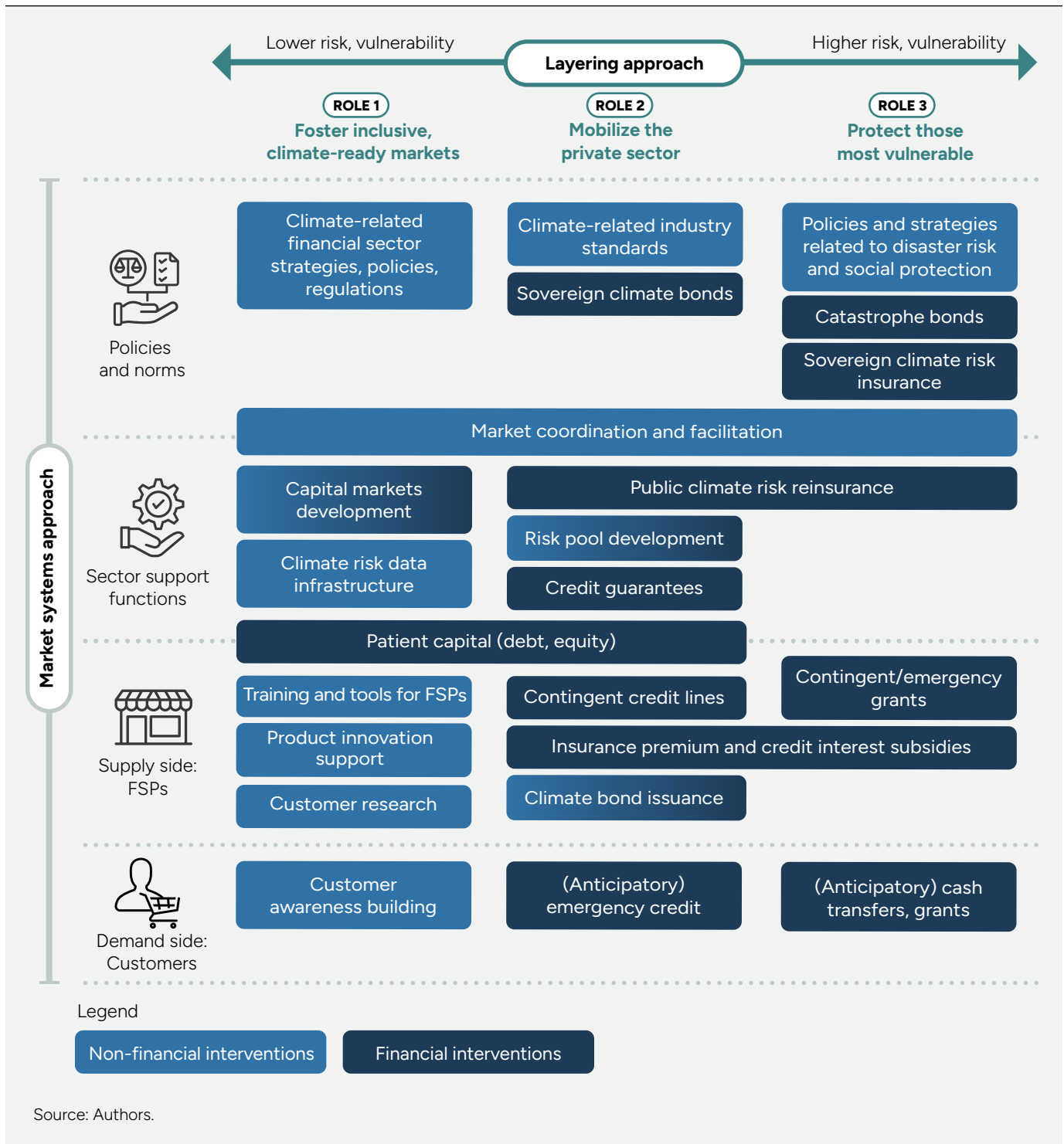


FIGURE 4. **CGAP framework: Financial and nonfinancial interventions to strengthen financial systems in the face of climate risks**



The following sections outline entry points for designing interventions (Section 2) and the diagnostic process for identifying gaps and key opportunities within a select market (Section 3).







SECTION 2

Entry points for designing climate-responsive interventions

THERE ARE SIX ENTRY POINTS FOR governments and development funders interested in designing interventions (Table 1). Each offers options to address barriers that often hinder market actors in performing the functions

necessary for inclusive, climate-resilient, and climate-responsive financial systems. However, options should not be chosen without a deeper understanding of market context and the underlying causes of barriers, which may stem from weak incentives, capacity, or relationships.

TABLE 1. Six entry points and their approaches to addressing common market barriers

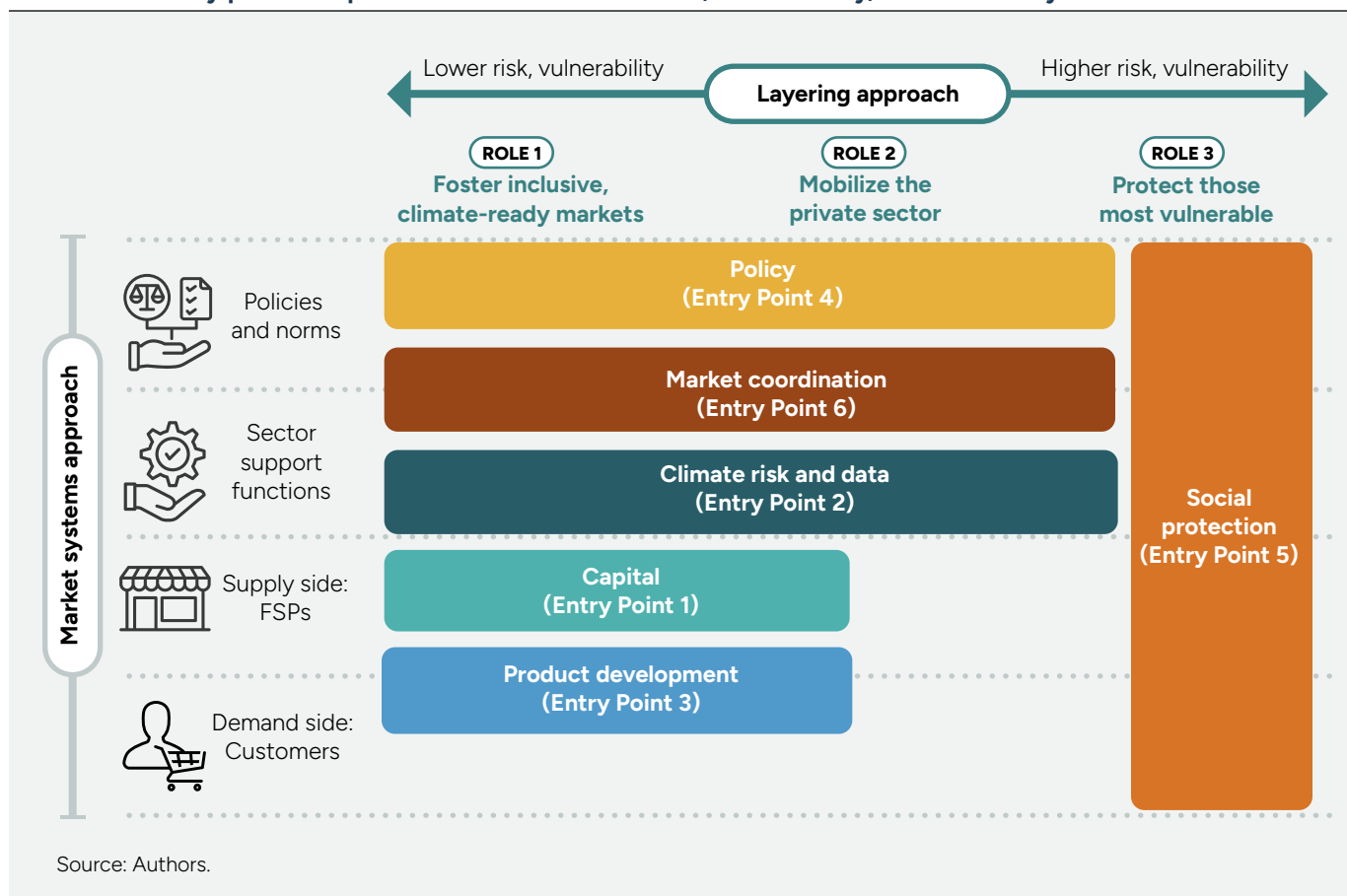
Entry point	Approaches to addressing common market barriers
 1. Capital	<ul style="list-style-type: none"> Allocating development capital to inclusive FSPs that support climate adaptation and resilience Incentivizing private sector investment in FSPs that support climate adaptation and resilience
 2. Climate Risk and Data	<ul style="list-style-type: none"> Strengthening the climate risk data ecosystem Building FSP climate risk management capacity Incentivizing climate risk transfer solutions for low-income households and FSPs
 3. Product Development	<ul style="list-style-type: none"> Supporting the development of customer-centric products for climate adaptation and resilience
 4. Policy	<ul style="list-style-type: none"> Supporting financial policies and guidance that reduce barriers and incentivize investment in climate adaptation and resilience
 5. Social Protection	<ul style="list-style-type: none"> Committing to protecting those most vulnerable
 6. Market Coordination	<ul style="list-style-type: none"> Facilitating stakeholder coordination and dialogue

Source: Authors.

The most effective intervention must be determined via a comprehensive market diagnostic (see Section 3) and align with the mandate, instruments, and resources of the executing agency.

Figure 5 illustrates how the entry points correspond to the three roles and different market levels. It also shows overlaps where certain market constraints can be addressed through different entry points, and hence interventions.

FIGURE 5. **Six entry points respond to different climate risk, vulnerability, and market layers**



The following discussion expands upon each entry point, providing options for designing interventions with a selection of financial and nonfinancial instruments. Intervention examples are included when available. However, few interventions currently support climate adaptation and resilience through inclusive financial systems. Those that do are often in the early stages; thus, results and outcomes are rarely available.



ENTRY POINT 1: Capital

Access to affordable and patient capital is a common barrier faced by customers and inclusive FSPs, primarily due to a lack of incentives as investments in climate adaptation and resilience tend to carry slow and uncertain returns (e.g., avoided loss and damage). Public investors can make a difference by (1a) allocating development capital to inclusive FSPs that support climate adaptation and resilience, and (1b) incentivizing private sector investment in inclusive FSPs that support climate adaptation and resilience through demonstration and de-risking instruments.

Entry Point 1a. Allocating development capital to inclusive FSPs that support climate adaptation and resilience

Private investors are often hesitant to fund innovative products and business models in this area due to uncertainty around returns and impact. Public investment in a climate-responsive financial product or business model can play a key role in testing, scaling, and increasing its visibility among investors.

Primary actors

- International: International DFIs, climate funds
- National: Domestic DFIs

Interventions

Financial:

- **Equity.** Investing in FSPs that show (interest in) innovative approaches to supporting climate adaptation and resilience and influencing their strategy and processes in favor of supporting climate adaptation and resilience of vulnerable populations.
- **Debt.** Providing patient and affordable debt to scale high-impact approaches that may demonstrate impact and commercial viability over time.
- **Contingent lines of credit.** Helping inclusive FSPs to continue serving vulnerable customers by providing prearranged financing released against an agreed trigger such as an extreme weather event.

- **Contingency clauses.** Including clauses in loan agreements to pause repayments or waive interest payments when FSPs and their customers are exposed to climate-related shocks or stresses, allowing FSPs to better manage their debt burdens.
- **Performance-based incentives.** Incentivizing FSPs to serve and support vulnerable customers by rewarding climate adaptation and resilience achievements and gender-related impact targets through reduced capital costs or impact bonuses.

Nonfinancial:

- **Impact narratives.** Developing impact narratives that help public and other impact-driven investors to justify inclusive finance investments for climate adaptation and resilience outcomes.
- **Impact measurement and management.** Measuring and managing investment success by focusing on outcomes for end customers rather than on outputs (Lahaye et al. 2025).
- **Knowledge sharing.** Evaluating investment performance, building feedback loops to improve and redirect, and sharing lessons learned within institutions and with other public investors.



Examples for Entry Point 1a

- **Concessional debt.** The Affirmative Finance Action for Women in Africa Financing Climate Resilient Agricultural Practices Program in Ghana, led by the African Development Bank and supported by a senior loan of US\$13 million from the Green Climate Fund (GCF), provides affordable financing to local FSPs that support women-led MSEs and farmer-based associations involved in low-emission and climate-resilient agricultural practices (AfDB 2021).
- **Performance incentives.** Aceli Africa channels donor funds to reward FSPs for lending to small businesses specifically focused on practices that promote climate adaptation and resilience. These origination benefits aim to compensate lenders for the lower revenues and higher operating costs of loans between US\$25,000 and US\$500,000. Additional rewards can be earned by lending to women- or youth-led businesses (Aceli Africa 2025).
- **Contingent financing for inclusive FSPs.** The Climate Resilience Enhanced Debt (CRED) developed by Enabling Capital and Global Parametrics provides rapid parametric-triggered financing to MFIs in Cambodia. The MFIs can then offer emergency loans to smallholder farmers who need to recover quickly from disasters such as floods and droughts. CRED is backed through a risk transfer solution from the Natural Disaster Fund (Enabling Capital 2022).
- **Climate resilience impact narrative and metrics.** The Dutch development bank FMO is collaborating with partners to adapt its theory of change and evaluation framework to identify interventions that build climate resilience among investees and end beneficiaries of their inclusive finance investment portfolio. The new framework and interventions are currently being tested through pilots with select FSP investees. FMO will later facilitate peer learning among these investees and share findings with other DFIs.

Entry Point 1b. Incentivizing private sector investment in inclusive FSPs that support climate adaptation and resilience

Public money alone cannot meet financing needs for climate adaptation and resilience. To generate funding and ensure it reaches those in need, development funders must crowd in private investment by demonstrating viable opportunities and de-risking those that are less evident or bear too much risk. Inclusive FSPs and inclusive finance investment funds offer a unique platform for blending public and private capital to support the climate adaptation and resilience of low-income populations through climate-responsive lending, insurance, and savings products. At the same time, inclusive FSPs are more exposed to climate risks. Development funders must therefore back up private investments to maintain FSP financing.

Primary actors

- International: International DFIs, MDBs, international climate funds
- National: Domestic DFIs

Interventions

Financial:

- **Guarantees.** Providing a repayment guarantee should the borrower default on paying a covered lender for agreed-upon reasons (e.g., climate shock exposure). Guarantees are an increasingly common tool among DFIs to de-risk private sector investments yet are not widely deployed toward climate adaptation and resilience.
- **First loss debt and junior equity.** Providing assurance to other investors by absorbing losses and protecting their investments in cases of liquidity issues.
- **Subordinated debt, mezzanine tranches, and senior equity.** Assuring other investors by providing capital that absorbs losses once the first loss or junior capital is fully depleted.



- **Bond purchases.** Purchasing FSP-issued bonds with climate adaptation targets to signal private investors about an investment opportunity.
- **Performance-based incentives.** Incentivizing FSPs to serve and support vulnerable customers by rewarding climate adaptation and resilience achievements and gender-related impact targets through reduced capital costs or impact bonuses.
- **Contingent lines of credit and contingency clauses.** Reassuring private investors that FSPs have access to emergency lines of credit or access to debt management tools in cases where climate-related shocks affect portfolios.

Nonfinancial:

- **Technical assistance.** Strengthening local capital markets to enable domestic and foreign investment in climate adaptation and resilience, including support for the development and issuance of climate adaptation and resilience-focused bonds, which can help inclusive FSPs attract public and private investment.
- **Research.** Providing market intelligence and insights into the impact and business opportunities tied to investing in businesses that support climate adaptation and resilience among low-income and vulnerable customers.
- **Publication and advocacy.** Demonstrating the viability, sustainability, and impact potential of investing in an inclusive FSP or a particular product category. Public investor credibility and recognized due diligence processes create confidence among private investors.

Examples for Entry Point 1b

- **Blended finance facility for climate adaptation and resilience.** Managed by the Lightsmith Group, the Climate Resilience and Adaptation Finance and Technology Transfer Facility invests in businesses that provide resilience intelligence or resilience products and services. The facility has mobilized significant private investment by leveraging equity, debt, and TA grants from the Nordic Development Fund, the Green Environment Facility, the Green Climate Fund, and other public funding sources (Lightsmith Group 2022).
- **Providing financing through green bonds.** To support CRDB Bank scaling its climate adaptation financing initiative in Tanzania, the International Finance Corporation (IFC) subscribed to 29 percent (the equivalent of US\$20 million) of the bank's first green bond (Maylie 2023). The Kijani Bond launched in August 2023 to raise funds for investment in climate-smart agriculture among other eco-friendly industries (CRDB Bank 2023).
- **First loss guarantee and TA for climate-responsive financial products.** Managed by GAWA Capital, the Kualu Fund leverages public resources from the Green Climate Fund, the European Union, and the Spanish Agency for International Development Cooperation to mobilize private investment in climate adaptation and mitigation in Latin America and the Caribbean and in India. The fund invests debt and equity in inclusive FSPs and climate tech companies that create opportunities for smallholder farmers. The fund allocates US\$240 million for private investments and US\$42 million for a first loss tranche to safeguard private investments (Nagel et al. 2024).



ENTRY POINT 2: Climate risk and data

Climate risk management capacity remains nascent in most emerging markets and developing economies (EMDE) due to limited climate-related data and limited capabilities to analyze and translate information into action. Governments and development funders may strengthen capacity by (2a) strengthening climate risk data ecosystems and partnerships with the financial sector, (2b) building FSP climate risk management capacity, and (2c) incentivizing climate risk transfer solutions for low-income households and FSPs.

Entry Point 2a. Strengthening climate risk data ecosystems and partnerships with the financial sector

FSPs regularly point to a lack of data as the reason they do not actively invest in climate adaptation and resilience. High-quality data on weather and climate,³ customer exposure and vulnerability to risks, information on customer risk tolerance and management capacity, and customer financial behaviors and needs are prerequisites to adequately pricing risk and designing climate-responsive financial services. Increased collection and analysis of sex-disaggregated climate vulnerability and adaptability data could positively affect the ability of FSPs to respond to women's climate adaptation and resilience needs (see Section 3, Box 2). Customers, too, need to understand their climate risk exposure, options to strengthen their climate adaptation and resilience capabilities, and how financial services can enable investment in them. Governments and development funders can use this data to target support to those most vulnerable to certain climate risks. Better data on climate risks and their impact on various segments can also strengthen investors' ability to track climate adaptation impacts, which, in turn, can increase investment interest and abilities.

Primary actors

- International: MDBs, bilateral donors, international climate funds

- National: Financial sector authorities, line ministries, agencies responsible for climate data and disaster risk management

Interventions

Financial:

- **Grants or debt.** Helping finance investments in climate risk data infrastructure accessible to both public and private sector actors, including services tailored to the financial sector. This type of infrastructure may become a public good and part of a digital public infrastructure stack.

Nonfinancial:

- **Tools and data platforms.** Developing data dashboards and tools for collecting, analyzing, and disseminating climate-related data to the financial sector. Tools and platforms should offer sex-disaggregated information to enable development of solutions tailored to the needs of different genders.
- **Technical assistance.** Building capacity of climate risk data collectors, analysts, and targeted climate risk management services providers for the financial sector.
- **Impact metrics and measurement tools.** Developing, disseminating, and guiding adoption of standards to measure climate adaptation and resilience impact for different segments and genders.

³ Climate-related information needs to go beyond early warning systems and should also include spatially and temporally granular climate data such as long-term trends, short term deviations, extreme climate events, and their respective probabilities.



Examples for Entry Point 2a

- **Rural credit and climate risk database for the financial sector.** The Central Bank of Brazil created the Green Credit Bureau, used by FSPs to support rural credit compliance related to climate, environmental and social risks. The Bureau's system links databases from various agencies, including the Rural Environmental Registry (Dias et al. 2024).
- **Drought risk data for disaster risk management.** The World Bank's Next Generation Drought Index Dashboard provides open access to transparent and actionable data. Financed by the Global Shield Financing Facility, the dashboard also offers sophisticated, accessible, and practical risk analytics. It is currently available for Horn of Africa countries and will soon be available for others (Plevin 2024).
- **Climate adaptation and resilience measurement framework for investors.** This framework was developed by the Adaptation and Resilience Investors Collaborative (ARIC), a DFI coalition that seeks to accelerate and scale private investment in climate adaptation and resilience in developing countries. The objective is to streamline measurement approaches among investors and demonstrate the benefits of investing in climate adaptation and resilience (Cartan et al. 2024).
- **Methodology for monetizing resilience.** The International Fund for Agricultural Development (IFAD) is developing a methodology to establish tradeable "resilience credits." In collaboration with the Egyptian Ministry of International Cooperation and Duke University, the initiative seeks to offer a new asset class to incentivize private sector investment in climate adaptation and resilience, particularly in low- and middle-income countries (Al-Mashat et al. 2024).

Entry Point 2b. Building FSP climate risk management capacity

FSPs need support to manage their physical infrastructure and portfolio exposure to climate hazards. To continue serving low-income customers and expand services to women, farmers, and those living in highly exposed climate disaster regions, inclusive FSPs need to understand and have tools to manage climate risks across segments. This may require support in providing solutions that help reduce customer exposure and/or vulnerability (e.g., climate-resilient seed varieties, training on climate-resilient practices and livelihoods, etc.). Access to financing before, during, and directly after climate shocks allows FSPs to keep their balance sheets and capital adequacy ratios in check and provide emergency funding to affected customers.

Primary actors

- International: International DFIs, MDBs, bilateral donors
- National: Financial sector authorities, domestic DFIs

Interventions

Financial:

- **Contingent credit.** Providing FSPs with rapid access to liquidity to continue operations through events that affect their portfolio. Contingent credit can be prearranged (i.e., a contingent line of credit) and released against an agreed-upon trigger, or ad hoc as the need arises (i.e., a recovery loan).
- **Emergency loans.** Providing FSPs with short-term liquidity to continue operations through events that affect large portions of their portfolios.
- **Risk pooling mechanisms.** Promoting risk aggregation across regions, countries, or risk types and reducing exposure to any particular risk. Within a region or sector, risk pools can be shared among private sector actors, public sector actors, or both.
- **Flexible repayment schedules.** Allowing FSPs to pause repayments when liquidity is limited due to customer exposure to a climate emergency.



Nonfinancial:

- **Technical assistance.** Training FSP staff on how to integrate climate risk data and management tools into processes and operations, including compliance with climate-related risk management regulations. This includes training and tools that help FSPs assess and respond to the needs of different customer segments, such as women, youth, smallholder farmers, etc.
- **Peer exchange.** Facilitating and promoting the exchange of good practices and relevant tools within the industry.

Examples for Entry Point 2b

- **Contingent credit for MFIs to provide emergency liquidity to affected customers.** A \$US10 million contingent disaster finance credit line from German development bank KfW's InsuResilience Investment Fund and risk capital from the Natural Disaster Fund allow VisionFund MFIs to access affordable financing when a climate-related disaster triggers the underlying index. Thanks to this African and Asian Resilience in Disaster Insurance Scheme, MFIs can continue operating and provide customers with affordable emergency loans to cope and recover (VisionFund International and Global Parametrics 2018).
- **Climate risk data app for FSPs.** Through UNEP's Microfinance for Ecosystem-based Adaptation project, the MFI FINCA Peru received training and access to the fintech YAPU's climate resilience data platform. FINCA Peru integrated physical climate risks into its credit analysis and product development functions, including helping customers identify climate adaptation and resilience investments (YAPU Solutions 2024).
- **TA for understanding customer climate risks.** Through its FSG Plus TA facility, British International Investment (BII) partnered with Advans International to assess climate risks and opportunities to enhance resilience among microfinance clients in Ghana, Cote d'Ivoire, and Tunisia. The collaboration focuses on understanding how climate risk affects customers and how it will play out over time across the customer base. The goal is to build a strategy and design climate-responsive products (Advans Group 2022).
- **FSP climate risk management standards and practices.** The UN Environment Finance Initiative has developed good practices for commercial banks to identify, measure, disclose, and manage climate risks. One such tool offers information on the structure, coverage, and methodologies of assessment tools commonly used for physical climate risks (Connell et al. 2018).



Entry Point 2c. Incentivizing climate risk transfer solutions for low-income households and FSPs

Risk transfer solutions, most notably insurance, can help individuals and businesses protect their livelihoods and assets against climate-related losses and damages and help FSPs manage climate risk in their portfolios. However, an estimated 70 percent of climate-related economic losses worldwide are uninsured (AON 2024). The greatest protection gaps occur in EMDEs and among low-income populations. In addition to product inadequacies and limited customer awareness (see Entry Point 3), key challenges include affordability, risk perception, product design, and regulatory limitations. One approach is to transfer risks from the individual to the FSP (e.g., as credit life insurance linked to climate risks), then from the FSP to insurance markets. Local governments can step in to cover the most extreme losses (see Entry Point 5), although their own resources and capacity are limited. New and innovative approaches to insurance and risk transfer are necessary, including for public-private partnerships. The goal is to facilitate uptake of risk transfer solutions by low-income customers on a commercial basis where possible and with public support where necessary.

Primary actors

- International: MDBs, bilateral donors
- National: Financial sector authorities, particularly insurance regulatory authorities

Interventions

Financial:

- **Premium subsidies and capital support.** Financing to bring down the initial costs of offering insurance to vulnerable customer segments while creating pathways to commercial viability. SMART Premium and Capital Support Principles provide guidance for designing subsidies in a sustainable, efficient, equitable, transparent, and impactful way without distorting local insurance markets (Töpper and Stadtmüller 2022).
- **Concessional debt.** Providing insurers with low-cost or interest-free debt (e.g., repayable grants) to prefinance premium payments. Can increase insurance uptake.

Nonfinancial:

- **Technical assistance.** Supporting regional reinsurance schemes or risk pooling mechanisms development for specific risks or vulnerabilities. Supporting insurers in developing and pricing products for vulnerable customers (see Entry Point 3: Product development).
- **Capacity building.** Expanding support functions and actors, including local and regional reinsurers, actuaries, insurance brokers, distributors, etc.
- **Consumer training.** Creating demand for insurance through awareness campaigns and educational programs.
- **Insurance mandates.** Requiring insurance for certain climate risks and customer segments (e.g., homeowners, business owners, farmers), retail activities (e.g., construction, transport), or those tied to certain services through policy and regulation (e.g., mortgages, agricultural lending).
- **Partnership building.** Facilitating partnerships among private and public/private sector actors to provide relevant, affordable insurance products as well as products that bundle insurance with other financial or nonfinancial climate adaptation and resilience solutions.



Examples for Entry Point 2c

- **Subsidized crop insurance alongside agricultural loans.** India implemented Pradhan Mantri Fasal Bima Yojana, a mandatory crop insurance scheme for farmers taking agricultural loans. The government-backed program provides financial protection against crop loss due to climate-related disasters like drought, floods, and cyclones. Farmers pay a subsidized premium while the government covers a significant portion of the insurance cost, ensuring widespread coverage for climate risks in the agricultural sector (Haq 2023).
- **Credit line to boost climate adaptation and resilience reinsurance capacity.** The Agence Française de Développement allocated a US\$11 million standby and subordinated credit line to the African reinsurance company ZEP-RE. The goal was to enhance ZEP-RE's financial structure and reinsurance capacity and, by extension, that of the insurance sector. It is complemented by TA to support ZEP-RE in developing climate risk insurance for smallholder farmers and offering advisory services for regulators (Wika 2024).
- **Repayable grant to prefinance agricultural insurance premiums.** Through its Climate Innovation Facility, BII provided the insurance technology provider, or Insurtech, Pula with a US\$5 million repayable grant to prefinance premiums for its Pay-at-Harvest insurance product. Farmers pay premiums at the end of the season through deductions offtakers make at harvest time (UK Parliament n.d.).
- **Phased subsidies and labor-based insurance premium payments.** The R4 Rural Resilience Initiative provides insurance premium subsidies to drive adoption of weather index-based insurance. In the first year of enrollment, farmers paid 100 percent of their insurance premium through labor by working on risk reduction projects such as soil and water conservation. In subsequent years, they paid a portion of their premium in cash (10-15 percent) and the remainder through labor (Sosa Valles 2017).



ENTRY POINT 3: Product development

CGAP's scan of the global climate-responsive financial products and services landscape found that outside of agricultural index insurance, few products are available to directly address customers' climate adaptation and resilience needs. Product offerings remain too generic and lack features that can support low-income populations' climate adaptation and resilience (e.g., built-in hazard insurance, linkages to nonfinancial solutions, flexible repayment, etc.). Innovation is constrained by a limited business case, by capacity, and by an insufficient understanding of the impact of climate on customer needs and financial behaviors.

Entry Point 3. Supporting the development of customer-centric products for climate adaptation and resilience

FSPs need continuous financial and technical support from the early product development and piloting stage through scale up. Promising climate-responsive financial products include insurance products, emergency credit products, adaptation asset finance, and financial and nonfinancial product bundles. More product innovation is needed to respond to the needs of vulnerable customer segments. Women, for example, have different needs and aspirations than men (Notta and Zetterli 2023), and rural women have different needs than urban women (Anderson et al. 2023). Financial solutions that consider these differences are likely to bolster climate adaptation and resilience more effectively.

Primary actors

- International: International DFIs, bilateral donors
- National: Domestic DFIs

Interventions

Financial:

- **Grants.** Financial support for research and customer-centric design; piloting, launching, and scaling climate-responsive financial products.

Nonfinancial:

- **Research.** Conducting or guiding research, including market intelligence, global good practices, or customer research. Research can encourage a differentiated and tailored product and service strategy for different customer segments, including women's segments.
- **Technical assistance.** Providing technical expertise and training to develop specialized products for select customer segments (e.g., young female farmers) or climate risks.
- **Innovation labs, including partnership building.** Supporting the development of innovative business ideas and models by creating spaces where FSPs and innovators can connect, access expert advice, and engage with other public and private sector stakeholders.
- **Knowledge-sharing.** Disseminating learnings and enabling peer exchange to encourage market actors in the same or other markets to replicate successful products and business models.



Examples for Entry Point 3

- **Grant funding for product development.** Arsht-Rock, together with Blue Marble and the Self-Employed Women's Association (SEWA), provided a grant to enable the development and launch of an innovative heat index insurance for vulnerable women in India. Policy holders are paid approximately US\$3.50 per day when the daily maximum temperature exceeds a predetermined factor for two or more consecutive days. Similarly, the Feed the Future Innovation Lab for Assets and Market Access provided BRAC with a grant to develop and launch a contingent line of credit product. Existing customers immediately receive an emergency loan when a weather index trigger is met (Russel 2018).
- **Grant funding to establish a climate adaptation and resilience innovation facility.** The Gates Foundation provided the University of California, Davis with a US\$5 million grant to establish the Resilience+ Innovation Facility. The facility supports climate resilience solutions for smallholder farmers in Sub-Saharan Africa and South Asia through a combination of risk management tools (e.g., drought-tolerant seed, crop insurance) and digital innovations (Russel 2021).
- **Knowledge-sharing for climate-smart financial product innovation.** The Climate Smart Innovation Hub, financed by the Mastercard Center for Inclusive Growth, develops tools and knowledge resources for companies seeking to provide innovative climate-smart financial products to vulnerable communities and businesses in emerging markets. It also offers direct connections to donors and investors that can provide financial support (Gautam et al. 2023).
- **Partnership for innovative climate risk insurance development.** The Access to Insurance Initiative's Inclusive Insurance Innovation Lab supported collaboration between an Insurtech, an insurance company, the association of agricultural cooperatives, and a mobile money provider to develop and launch a satellite-based weather index insurance that aims to protect over 10,000 farmers in Nepal against crop losses due to drought and extreme heat (Insurance Khabar 2025).



ENTRY POINT 4: Policy

Financial sector authorities are responsible for defining the sector's roles in supporting the achievement of nationally determined climate goals. They also set and enforce rules and guidance for climate risk management and responsible delivery of climate-responsive financial services. While sustainable finance, green finance, and climate finance are increasingly prominent elements in the sector's strategies, the emphasis tends to be on mitigation (e.g., renewable energy, energy efficiency) rather than adaptation. Opportunities for and the challenges of financial inclusion and climate adaptation and resilience are rarely considered. Approaches to regulating climate-related financial risks that focus on safeguarding financial stability without considering financial inclusion implications may lead to unintended financial exclusion effects—reducing lending activity to smallholder farmers and micro, small, and medium-sized enterprises (MSMEs) (Dias et al. 2024).

Entry Point 4. Supporting financial policies and guidance that reduces barriers and incentivizes investment in climate adaptation and resilience

As policymakers become more aware of the role inclusive finance plays in climate adaptation and resilience, there is a need to thoughtfully incorporate financial inclusion considerations into climate-related financial sector policies and guidance. Policy actions should lay the foundations for a more just transition and stable financial system while preventing climate risk-driven sector retrenchment. They should increase the chances for vulnerable customer to access the financial services they need to become more resilient, thus contributing to an economy and a financial sector that is both more stable and more sustainable (Knaack and Zetterli 2023).

Primary actors

- International: MDBs, bilateral donors
- National: Financial sector authorities

Interventions

Financial:

- **Policy-based lending.** Providing rapidly disbursed financing to governments for policy and institutional reforms. Could be tied to reforms and policy measures that create an enabling environment for FSPs—especially inclusive FSPs—to manage climate risks and provide climate-responsive financial services to low-income and vulnerable customers.
- **Targeted refinancing tools.** Refinancing FSPs' existing debt at lower rates to encourage lending to climate-vulnerable customer segments or sectors. Often linked to credit allocation policies.

Nonfinancial:

- **National financial sector development strategies.** Setting, monitoring, and enforcing targets for sector activities related to climate adaptation and resilience (e.g., introducing targets and considerations within national financial inclusion strategies, aligning national adaptation plans with financial sector strategies).
- **Prudential tools and disclosure standards.** Setting climate risk management standards, differentiated capital and collateral requirements, credit risk ratios, financial reporting standards, etc., in ways that consider the needs of inclusive FSPs in continuing to serve low-income and vulnerable customers.



- **Climate adaptation product/investment standards.** Developing taxonomies⁴ that define adaptation investments as relevant for the market.
- **Credit allocation policies.** Requiring FSPs to invest a portion of their portfolios in climate-vulnerable customers or sectors. However, more research is needed to understand the effectiveness of these policies and possible externalities on market behavior.
- **Technical assistance and research.** Supporting creation and adoption of international standards, climate-related policy and regulatory clauses, and supervisory practices. Supporting policy impact studies that assess potential or actual changes in market behavior. Supporting consumer research to inform climate-related consumer protection regulations.
- **Knowledge sharing.** Facilitating exchange of good practices and peer learning among authorities to replicate policy actions that have demonstrated positive changes in market behavior.
- **Advocacy.** Promoting adoption of climate-related financial sector policies and regulations that consider the needs of the inclusive finance sector.

Examples for Entry Point 4

- **Integration of financial inclusion in Sustainable Finance Policy.** Bangladesh Bank's Sustainable Finance Policy mentions financial inclusion as a goal. The policy was updated in 2023, introducing requirements for gender disaggregated data to prevent gender-based discrimination and promote solutions adapted to women and third-gender individuals. Since 2022, the Bank has required financial institutions to dedicate 20 percent of their portfolios to climate change mitigation and adaptation (Dias et al. 2024).
- **TA for development of an inclusive Green Finance Strategy.** In 2023, the World Bank provided the Central Bank of Jordan with TA, capacity building, and policy advice to develop a Green Finance Strategy. The strategy is considered a blueprint for how financial sector authorities can integrate financial inclusion considerations into climate-related financial sector strategies (Asktrakhan and Skarnulis 2024).
- **Peer exchange and guidance for central banks on inclusive green finance.** The Alliance for Financial Inclusion, through its Inclusive Green Finance Working Group, helps central banks develop climate taxonomies by promoting clear definitions and criteria for green financial products, supporting sustainable finance strategies, and integrating climate risk into financial inclusion policies (Deary et al. 2021).

4 Green or sustainable finance taxonomies are classification systems for identifying economic activities or assets that support the achievement of specific sustainability objectives. They predominantly cover environmental objectives such as climate change mitigation and climate change adaptation but can also include social objectives (Chalwe-Mulenga et al. 2024).



ENTRY POINT 5: Social protection

Those most vulnerable to climate shocks, particularly marginalized groups and people in very high risk areas, cannot realistically be served with commercial financial services. Moreover, they have limited capacity and resources to invest in measures that may protect them from potential shocks or stresses. Their priority is usually to address near-term challenges. Long-term public sector commitment is therefore needed to ensure that climate-responsive financial services are both attractive to customers and commercially viable for FSPs.

Entry Point 5. Committing to protecting those most vulnerable

Social protection programs are unique in specifically targeting vulnerable populations, particularly low-income and elderly individuals, women, and children—who are also the most vulnerable to climate risks. These programs increasingly leverage digital payments infrastructure and financial accounts for cash transfers, employing existing public infrastructure to channel emergency grants, insurance payouts, and other public payments in support of climate adaptation and resilience. However, few social protection programs are intentionally designed to help beneficiaries anticipate, prepare for, and recover from climate-related shocks and stresses, including linkages with relevant climate-responsive financial services (e.g., climate risk insurance, emergency credit, community-based savings and loan associations that help beneficiaries build long-term resilience). Key constraints in preparing climate-adaptive social protection schemes include limited integration of social registries and climate-related data, limited payment infrastructure interoperability, and budgetary constraints.

Primary actors

- International: MDBs, international climate funds
- National: Social protection agencies

Interventions

Financial:

- **Grants or budget allocation.** Providing funding for cash transfers to help those most affected by the negative consequences of climate change, in anticipation of and immediately after climate-related shocks and stresses. Grants can be allocated to the design and piloting of new products and approaches that link social protection beneficiaries with climate-responsive financial services.
- **Debt.** Providing concessional finance for governments to build out social protection infrastructure to make it climate-resilient and -responsive (e.g., integrating climate-related data into social registries, open and interoperable payments systems that allow multiple programs to channel cash transfers through multiple providers).
- **Premium subsidies for climate risk insurance.** Encouraging uptake by integrating a subsidized insurance product into social protection schemes. Long term subsidies may be needed in certain scenarios, but in many cases can be reduced over time or structured to specifically target those most vulnerable and potentially catastrophic shocks.
- **Subsidies for cash transfer delivery.** Paying generous fees to FSPs involved in social protection payments delivery to remunerate and incentivize distribution in difficult-to-serve geographies due to remoteness and/or climate risk exposure. Highly subsidized fees can initiate a payments infrastructure build-out by FSPs seeking to capture such fees from otherwise less compelling customer segments.



- **Sovereign disaster risk finance.** Through catastrophe bonds, contingent credit lines, drawdown options from MDBs, or regional sovereign risk insurance, enabling governments and humanitarian agencies to rapidly access funds to provide cash transfers or in-kind support for those most impacted by climate events.

Nonfinancial:

- **Technical assistance.** Supporting the development of climate-ready social protection infrastructure and the design of social protection schemes that support climate adaptation and resilience of those most vulnerable, including integrating climate-responsive financial services into social protection schemes.
- **Training.** Training social program officers and beneficiaries on climate risks and adaptation strategies. Promoting adoption of more resilient assets and livelihoods, including gender-specific adaptation strategies.

Examples for Entry Point 5

- **Grant and debt to integrate climate considerations into a social protection program.** Through International Development Association financing and the World Bank's technical support, Ethiopia's Urban Productive Safety Net Programme integrated climate adaptation activities (e.g., tree planting, solid waste collection, urban agriculture promotion) into its public works component. The program encourages women to participate by offering mobile childcare and early learning facilities (World Bank Group 2021).
- **Grant and concessional debt to scale emergency cash transfers.** The Government of Malawi received a US\$21 million grant from the Global Shield Financing Facility (GSFF), along with US\$312.5 million in International Development Association financing. The funds enabled the government to access pooled insurance and contingency resources to scale cash transfers during droughts. In August 2024, Malawi's Social Cash Transfer Programme used the funds to disburse US\$11.9 million across 10 districts, benefitting approximately 142,000 households (GSFF 2025).
- **Deferred drawdown option for governments to protect vulnerable people.** Benin Disaster Risk Management Development Policy Credit with Catastrophe Deferred Drawdown Option (Cat DDO) provides Benin with immediate liquidity through a World Bank contingent line of credit that can be accessed in the event of a climate-related disaster or public health emergency. One aim of the emergency fund is to strengthen social and climate resilience (Fisseha 2019).
- **Climate risk insurance for humanitarian organizations.** The African Risk Capacity Replica is an innovative insurance product that enables humanitarian partners like the World Food Programme (WFP) to quickly access funds when beneficiaries are hit by climate-related disasters. The product pools risk across humanitarian agencies and regions, allowing humanitarian actors to accelerate emergency response (WFP 2018).



ENTRY POINT 6: Market coordination

Significant silos remain between the worlds of inclusive finance, climate action and social protection, as well as within and between the public and private sectors. If inclusive finance is to achieve its potential in enabling climate adaptation and resilience, actors from related fields (e.g., financial inclusion, development, climate, disaster risk management, agriculture, social protection, and others) must form coalitions for action. Actors from these sectors currently tend to be unaware of commonalities and potential synergies, use different terminologies, and hence struggle to coordinate and collaborate around a shared vision.

Entry Point 6. Facilitating coordination and dialogue among stakeholders

It is crucial to establish a platform that allows relevant stakeholders to come together and coordinate. Ideally, efforts would be led by a government entity with an interministerial task force, complemented by a multi-stakeholder platform to facilitate public/private dialogue and monitor progress.

Primary actors

- International: MDBs, bilateral donors, international climate funds
- National: Financial sector authorities

Interventions

Financial:

- **Grants.** Supporting a platform or facilitator that can lead market coordination and convening. Grants may also be required to incentivize participation in a coordination effort, at least initially, until public and private sector actors see value in participating.

Nonfinancial:

- **Cross-sector dialogue and coordination.** Bringing financial and climate-related sector actors together to develop a shared understanding of the most pressing climate risk management needs and priorities.
- **Technical assistance.** Supporting the capacity and convening power of local actors (e.g., ministries of finance, financial sector facilitators) to facilitate market coordination.
- **Advocacy.** Identifying and strengthening a local champion who can drive public and private sector actions and collaboration. Ensuring that consumer groups and local communities are represented. Communicating the benefits and opportunities of participating in such platforms and related coordination efforts.



Examples for Entry Point 6

- **National initiative to promote and guide sustainable finance.** The Indonesia Sustainable Finance Initiative, led by the country's financial services authority OJK, brings together policymakers, regulators, banks, and nonbank financial institutions to promote sustainable finance and implement the country's Sustainable Finance Roadmap. The initiative helps FSPs align with national climate goals by providing resources, tools, and capacity-building activities to encourage environmentally and socially responsible investment (Green Finance Platform 2018).
- **Stakeholder coordination for disaster risk financing.** As part of an in-country process, the Global Shield against Climate Risks supports partner governments in bringing together stakeholders from various sectors to identify priority climate risks and actions to strengthen a country's climate and disaster risk finance architecture (Global Shield against Climate Risks 2024).
- **Facilitation of public/private dialogue for regional collaboration and learning.** In 2022, the United Nations Capital Development Fund (UNCDF) helped establish an Inclusive Insurance Solutions Hub within the Pacific Insurance and Climate Adaptation Programme to facilitate regional dialogue and learning among public and private sector stakeholders (UNDP 2023).

Keeping these six entry points in mind, the next section outlines a process for assessing gaps and identifying interventions to improve incentives, capacities, and relationships among financial system actors. The goal is to build a resilient financial system capable of handling increasing climate risks around the globe.

SECTION 3

Diagnostic process to identify gaps and priority interventions

THIS SECTION OUTLINES CGAP'S four-step diagnostic process governments and development funders can use to identify interventions and develop action plans for strengthening a select country's financial system. The process assesses the local context (i.e., climate risks, vulnerabilities, financial system actors and functions), identifies gaps, and leverages the previously discussed CGAP framework and entry points to identify opportunities to strengthen the financial system. It can guide public and private sector stakeholders in building a shared vision, evaluating promising opportunities, and identifying who will implement and fund prioritized interventions. The following four steps emerged from CGAP-led diagnostics in Bangladesh and Ghana (see Box 3). Each step is expanded upon below.

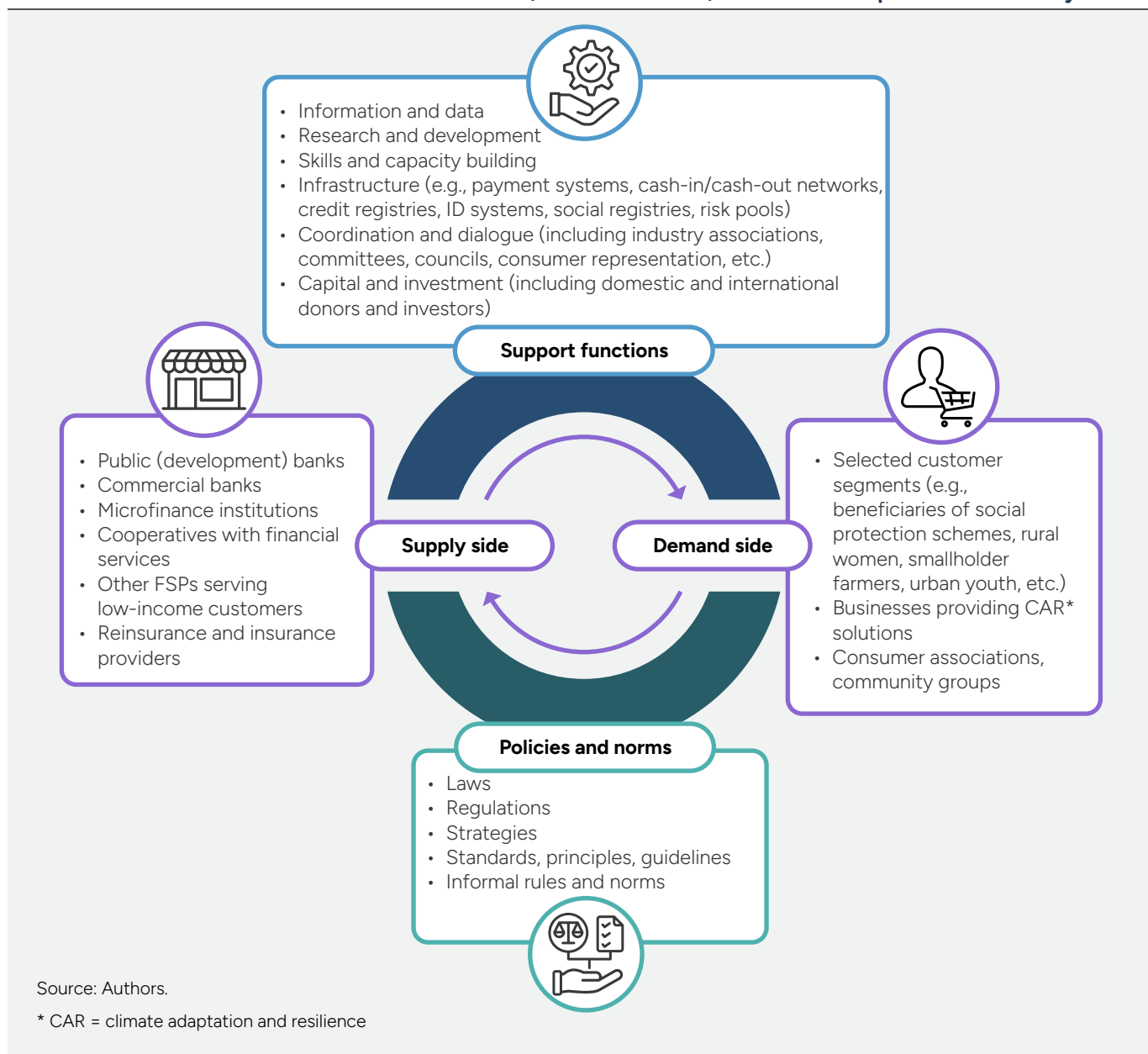
- **Step 1. Systems and risk mapping**
- **Step 2. Interventions stocktaking**
- **Step 3. Gap analysis**
- **Step 4. Action plan development**

Step 1. Systems and risk mapping

The first step is to map the financial system to identify key actors performing functions essential to the responsible provision and use of climate-responsive financial services (see Figure 6), including:

- International donors and investors
- Policy makers, regulators, and supervisors with mandates over banking, insurance, social protection, and various climate-related sectors
- Support organizations and functions, such as weather and climate risk data, financial and social protection infrastructure (e.g., payments processing, social registries, ID systems), market research, capacity building and training, market facilitation, coordination and dialogue, consumer representation, industry risk pools, capital markets, and domestic donors and investors
- Relevant FSPs such as commercial banks, MFIs, mobile money providers, payments providers, insurance companies, and reinsurers
- Vulnerable customer segments, consumer groups, and public and private programs that seek to directly support the climate adaptation, resilience, and financial literacy of vulnerable customers (e.g., humanitarian and social protection programs, consumer awareness and information campaigns)

FIGURE 6. **Functions and actors essential for inclusive, climate-resilient, and climate-responsive financial systems**



The first step should also map climate risks and assess risk vulnerability⁵ among different customer segments. For example, it is very important to understand gender differences in climate risk exposure and vulnerability (Box 2). For the remaining steps, prioritizing climate risks and segments can be useful in narrowing the scope and focus of interventions that can effectively

support a select customer segment and/or address vulnerabilities to a select risk. For example, the diagnostic may focus on rural communities in arid and semi-arid areas, women in agriculture, urban entrepreneurs affected by severe floods, etc.

5 Vulnerability is defined 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 (IPCC 2022).

BOX 2. Understanding women's climate vulnerabilities and adaptation capabilities through sex-disaggregated data

Understanding how climate change affects different genders and the differentiated responses necessary to support their climate adaptation and resilience remains limited due to a lack of comprehensive and sex-disaggregated data on exposure and adaptability. Existing data has been collected based on inconsistent methodologies and definitions. It often focuses on households rather than individuals, is missing intra-household gender differences, and lacks detailed breakdowns by age, race, disability, sexual orientation, and migration status, which makes cross-sectional analyses difficult (Data2X 2023).

Several organizations have developed indicators and guides to aid the understanding of select segments, including women, exposure, vulnerabilities, and adaptation opportunities in the context of climate change:

- **CARE's Climate Vulnerability and Capacity Analysis** assesses access to land, time spent on unpaid care work, decision-making power, access to early warning systems, and mobility constraints in an effort to understand differences in climate risk exposure and adaptive capacity (Dazé et al. 2019).
- **Data2X** explores access to gender-disaggregated data for (i) access to and control over

environmental resources (e.g., land ownership and security; natural resource management; water, sanitation, and hygiene; clean energy); (ii) responses to climate change (e.g., environmental decision-making, disaster risk management); and (iii) gendered impacts of climate change (e.g., disaster-related mortality and morbidity, climate migration and displacement, sexual and reproductive health and rights, gender-based violence, unpaid care work) (Grantham 2023).

- **The Food and Agriculture Organization's (FAO) Resilience Index Measurement and Analysis** assesses asset ownership/control (e.g., land, livestock), access to credit and inputs, education level, and participation in farmer cooperatives to understand food security and resilience (FAO 2025).
- **UN Women** tracks climate exposure, reliance on climate-sensitive livelihoods, care burden, and time poverty (Aguilar et al. 2023).
- **CGAP** is developing indicators for regulators to conduct gender-disaggregated data analysis to unlock the data's potential to support women's financial inclusion and economic empowerment (Alonso and Dezso 2024).

Relevant actions and tools for Step 1

- Desk research to identify relevant system actors and functions.
- Desk research to identify priority climate risks and the populations and sectors most exposed and vulnerable to them, including gender differences.
- Compliment both of these pieces of desk research with primary research (i.e., interviews, surveys, etc.) as needed.

Step 2. Interventions stocktaking

The second step is to research and list interventions by actors identified in Step 1 that aim to support climate adaptation and resilience. Stocktaking may capture the following for each intervention:

- Intervention's name
- Primary public sector actor(s)
- Primary recipient(s): Type and name
- Primary beneficiary(ies)
- Market barriers being addressed per CGAP's six entry points and the approaches in Table 1
- Role performed: Foster inclusive, climate-ready markets; mobilize the private sector; protect vulnerable individuals
- Type of intervention per the CGAP framework in Figure 7
- Funding commitment (if applicable)
- Eligibility criteria for recipients (if applicable)
- Performance and impact (if available)

This exercise helps governments and development funders map existing interventions and identify gaps. This can be visualized by mapping interventions in the CGAP framework (Figure 7) based on the role they aim to fulfill and the market function or actor targeted. Since interventions may not fit neatly into a single area of the framework, they may be categorized into more than one.

Relevant actions and tools for Step 2

- Desk research to identify relevant interventions and detailed information about actors, recipients, commitments, objectives, etc.
- Map interventions in CGAP framework.
- Complement both of these pieces of desk research with primary research (i.e., interviews, surveys, etc.) as needed.

Step 3. Gap analysis

The third step is to conduct a gap analysis that assesses:

- Market actor needs and preferences related to support from governments and development funders
- Market actor awareness and experience with existing support services and initiatives: what works well and what is missing
- Experience and perspectives of market actors funding and/or implementing interventions, including objectives, incentives, capabilities, and relationships to provide or fund interventions

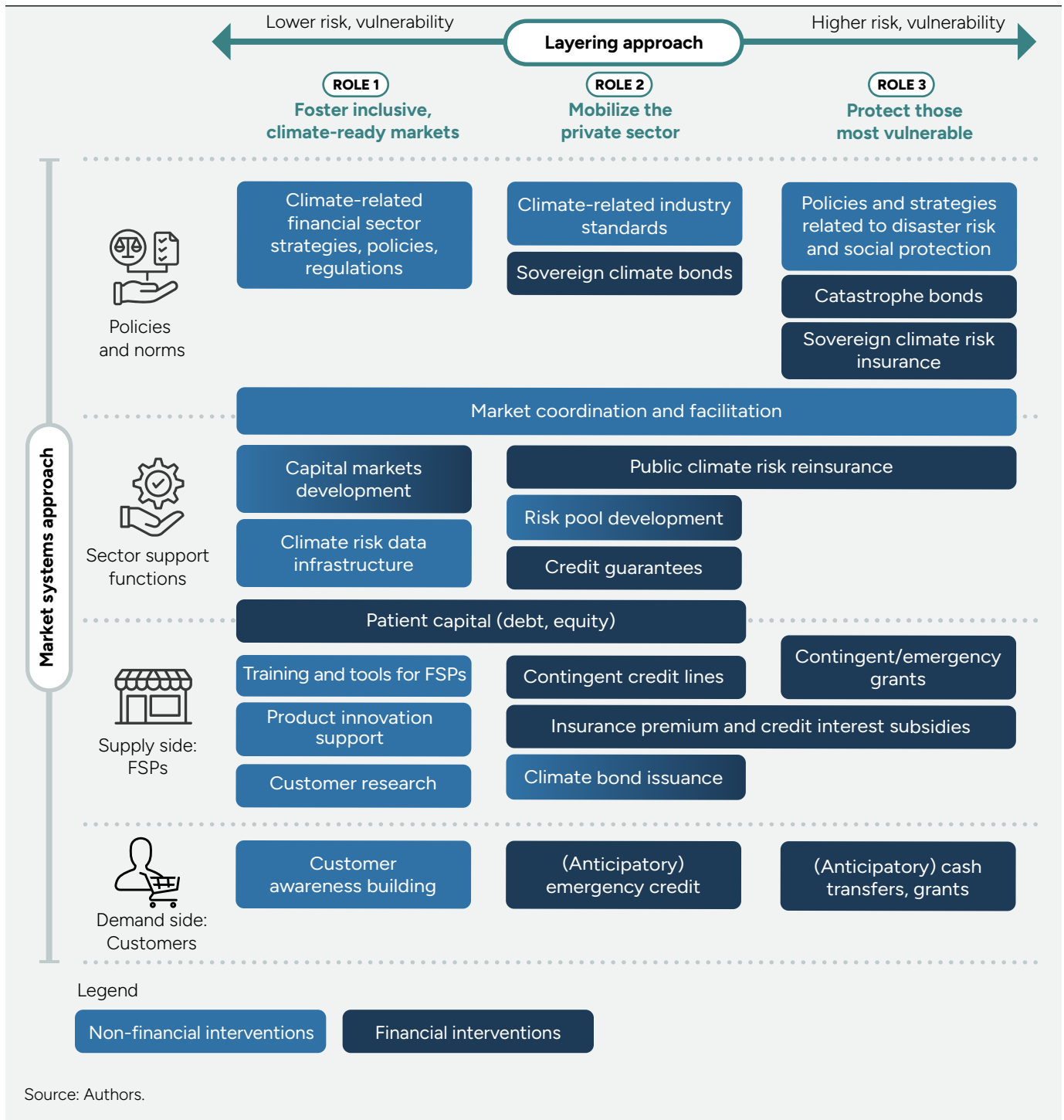
The gap analysis should carefully assess why market actors neither perform nor use certain functions important to enabling inclusive, climate-resilient, and climate-responsive financial systems (see Figure 8 for common constraints in the Annex A). Attention should be given to how these interventions respond to the climate risks and the needs of the customer segments prioritized in Step 1. In most cases, nonperformance or underperformance stems from lack of incentives, capacities, or relationships. Only by fully understanding root causes can actors identify entry points and design interventions that effectively address those constraints.

The findings can be synthesized by mapping gaps against the six entry points presented in Table 1 and visualized in the framework as a clear, concise summary of the current state of the market.

Relevant actions and tools for Step 3

- Survey and/or key informant interviews with providers and recipients of relevant interventions. May uncover actors, functions, or interventions not identified in prior steps, which should be added to the systems mapping and the interventions stocktaking.
- Analyze, synthesize, and map strengths and gaps against the six entry points.
- Visualize key findings in the framework.

FIGURE 7. **CGAP framework: Financial and nonfinancial interventions to strengthen financial systems in the face of climate risks**



Step 4. Action plan development

The final step is to identify opportunities for strengthening the financial system. Having mapped gaps against the six entry points in the previous step, use the list of approaches within an entry point and the list of possible interventions presented in Section 2. Opportunities can then be mapped in the framework, illustrating how they correspond to the three roles and support select market functions or actors. Depending on the diagnostic's scope, this step may involve a stakeholder workshop where public and private sector actors jointly review opportunities and prioritize interventions.

As a result of this step, develop an action plan that lays out the prioritized interventions and stakeholder responsibilities and capabilities for funding, carrying out, and/or monitoring them. The plan can be used to approach development funders for technical, financial, or advocacy support.

Relevant actions and tools for Step 4

- Identify opportunities based on gap analysis and CGAP entry points and intervention options.
- Visualize opportunities in the framework.
- Stakeholder workshop.
- Action plan development.
- Funding requests, as relevant.

This four-step diagnostic process helps to understand select customer segments' vulnerabilities to prominent climate risks, how well the financial system is set up to meet those needs, and which interventions may effectively address weak incentives, resources, capacity, or relationships of various financial system actors.

BOX 3. Applying the diagnostic process in Ghana and Bangladesh

CGAP applied the diagnostic process in Ghana and Bangladesh to identify gaps and inform climate adaptation and resilience-focused financial system interventions. The four-step process was developed through two pilot applications of the CGAP framework in these countries.

Ghana was selected to build on and complement findings from the Global Shield against Climate Risks' In-Country Process performed there a few months earlier, leveraging market momentum to enhance climate adaptation and resilience. Bangladesh was chosen due to its vulnerability to climate shocks, history of climate adaptation and resilience initiatives, including in the financial sector, and to build on CGAP's previous research on climate-related supply and demand dynamics in the country.

The diagnostic process provided new insights compared to existing climate-related assessments. Previous assessments in either country did not differentiate types of risks and vulnerabilities or consider gaps and opportunities across all financial system actors. The findings helped stakeholders expand their understanding of climate adaptation- and resilience-related activities in the financial sector and identify concentrations of efforts and unmet needs.

Various public and private sector actors participated in **Ghana's** In-Country Process, which included an assessment of the Climate and Disaster Risk Financing and Insurance (CDRFI) landscape and links to social protection schemes. Their gap analysis identified opportunities in integrating insurance into social protection programs, increasing uptake of climate risk insurance among vulnerable populations and strengthening disaster risk management through improved risk analytics (Global Shield against Climate Risks 2023).

CGAP's diagnostic process complemented this previous gap analysis in Ghana through an analysis of activities, perspectives, and needs in the inclusive finance sector. It identified weaknesses across all six entry points, with local stakeholders highlighting significant gaps in three of them: capital (incentivize private sector investment), climate risk and data (strengthen the climate risk data ecosystem), and market coordination. A workshop with 45 stakeholder representatives jointly developed draft action plans for a centralized climate risk database, a collaboration and coordination facility, and public awareness campaigns. Feedback indicated that participants found the process inspiring, with hopes that a prominent actor would lead the coordination of a working group to pursue prioritized actions. Together, the Global Shield's In-Country Process and CGAP's diagnostic process provided a comprehensive overview of climate risk management gaps and opportunities in Ghana at the macro, meso, and micro levels through risk transfer, reduction, and avoidance solutions.

In **Bangladesh**, the CGAP diagnostic built on previous CGAP-led market research (CGAP et al. 2023). While the diagnostic identified gaps across all six entry points, those most pertinent related to capital (incentivize private sector investment) and climate risk and data (build FSP climate risk management capacity, incentivize climate risk transfer solutions). Since no workshop was held, the opportunity for stakeholder-led prioritization did not arise. However, based on the diagnostic process, effective interventions for the country's financial systems could include guarantees for inclusive FSPs to invest in climate adaptation and resilience (e.g., through a climate-focused guarantee facility), product design support (e.g., through TA or a product innovation hub), and well-planned subsidies for climate risk insurance, including by incorporating climate risk insurance into social protection programs.

Conclusion

THE AFTERMATH OF THE 2022 FLOODS IN Pakistan may have looked different had FSPs been equipped to access emergency funds, maintain operations, and help customers recover quickly. Social protection systems could have been ready to disburse timely support through digital payment channels. And FSPs and customers may have had the opportunity to invest in preventive measures in advance. A more robust response and recovery effort may have been possible with an inclusive, climate-resilient, and climate-responsive financial system in place. Had Pakistan's financial system been better prepared, low-income communities could have prevented losses and recovered faster and more fully. While governments and development funders cannot prevent climate shocks that are already underway, they can act now to plan ahead—and reduce the social and economic fallout that often follows.

CGAP presents the following concrete recommendations for governments and development funders, based on the mandates and instruments of each:

GOVERNMENTS

Governments—primarily financial sector authorities, including ministries of finance, central banks, and insurance regulators; ministries responsible for social protection programs, climate, and disaster response; and other ministries—may consider:

- **Integrating climate resilience and responsiveness objectives into national financial sector strategies and policies**, alongside financial inclusion goals, to ensure a proportional approach to climate-related risk reporting and management that does not force inclusive FSPs to withdraw from vulnerable sectors or customer segments.

- **Investing in a public ecosystem for climate adaptation and resilience investments**, such as climate-related research, data and training centers, and climate-resilient interoperable payment systems.
- **Facilitating a national dialogue and coordination around climate adaptation and resilience** action to ensure that interventions by public and private sector stakeholders address the financial system's main constraints.
- **Engaging in international dialogue and exchanging learnings with peers** to enable replication of successful policy practices, disseminate lessons learned, and feed insights into international discourse where the voice of countries most affected is often underrepresented.

BILATERAL AND MULTILATERAL DEVELOPMENT ORGANIZATIONS

Bilateral and multilateral development organizations—including financial sector, disaster risk finance, climate and environment, agriculture, social protection, and other teams—may consider:

- **Ensuring that inclusiveness is core** to programming and interventions respond to the risks and vulnerabilities faced by women, excluded groups, and other climate vulnerable populations.
- **Supporting public investment in the ecosystem for climate adaptation and resilience investments**, such as climate-related research, data and training centers, and climate-resilient interoperable payment systems.
- **Supporting and empowering local market facilitators** and other platforms that can facilitate national dialogue and coordination around climate adaptation and resilience actions.

DEVELOPMENT FINANCE INSTITUTIONS

Development finance institutions—both international and domestic development banks—may consider:

- **Scaling investments in and support for FSPs deploying innovative climate adaptation and resilience solutions** that can provide influential market-wide demonstration effects, whether through direct investment in debt and equity, indirect investment through funds, or TA.
- **Mobilizing commercial capital into climate adaptation and resilience investments** through risk-sharing and instruments such as guarantees, first loss capital, and junior debt to amplify the scale of DFI investments and resources.
- **Actively promoting climate adaptation and resilience investments** by other DFIs and impact-oriented investors, leveraging their influential role at the top of the investment supply chain by providing clear taxonomies for climate adaptation and resilience investments (distinct from mitigation), setting ambitious targets, and supporting industry-wide impact indicators.
- **Investing in the ecosystem for climate adaptation and resilience investments** by building the capacity of key financial system support functions through investment in research, data portals, training, trading platforms, etc.
- **Supporting inclusive FSPs in developing better financial solutions for climate adaptation and resilience** through knowledge sharing and TA.
- **Ensuring that inclusiveness remains core** to investments and that FSP portfolios can respond to the risks and vulnerabilities faced by women, excluded groups, and other climate vulnerable populations (e.g., providing contingent lines of credit, flexible repayment schedules FSPs can pass along to clients).

DISASTER RISK FINANCING COMMUNITY

The disaster risk financing community may consider:

- **Partnering with climate adaptation actors** to help vulnerable populations manage risk through a combination of risk retention, transfer, and reduction solutions, ultimately helping risk transfer solutions become more affordable and risk retention more viable (e.g., shared programming or co-investments, data sharing, shared country dialogues, etc.).
- **Engaging with the inclusive finance sector** to explore how disaster risk finance solutions can benefit low-income populations (e.g., exploring links between sovereign risk insurance and inclusive insurance, opportunities to link insurance with credit default protection for inclusive lenders).

MULTILATERAL CLIMATE FUNDS

Multilateral climate funds may consider:

- **Channeling funding through the inclusive finance sector** to quickly and accountably get adaptation finance directly into the hands of vulnerable households and businesses.
- **Mobilizing development and private capital into climate adaptation and resilience investments** through catalytic risk-sharing financial structures and instruments (e.g., guarantees, first loss capital, junior debt).
- **Supporting inclusive FSPs in developing better financial solutions for climate adaptation and resilience** through knowledge sharing and TA.

New partnerships can strengthen financial systems for climate adaptation and resilience. For example, DFIs rarely interact with the disaster risk finance community yet the latter's risk transfer instruments could support the resilience of DFI investments. In addition, climate funds have yet to promote locally led adaptation by channeling significant funds through domestic financial systems, let alone inclusive providers.

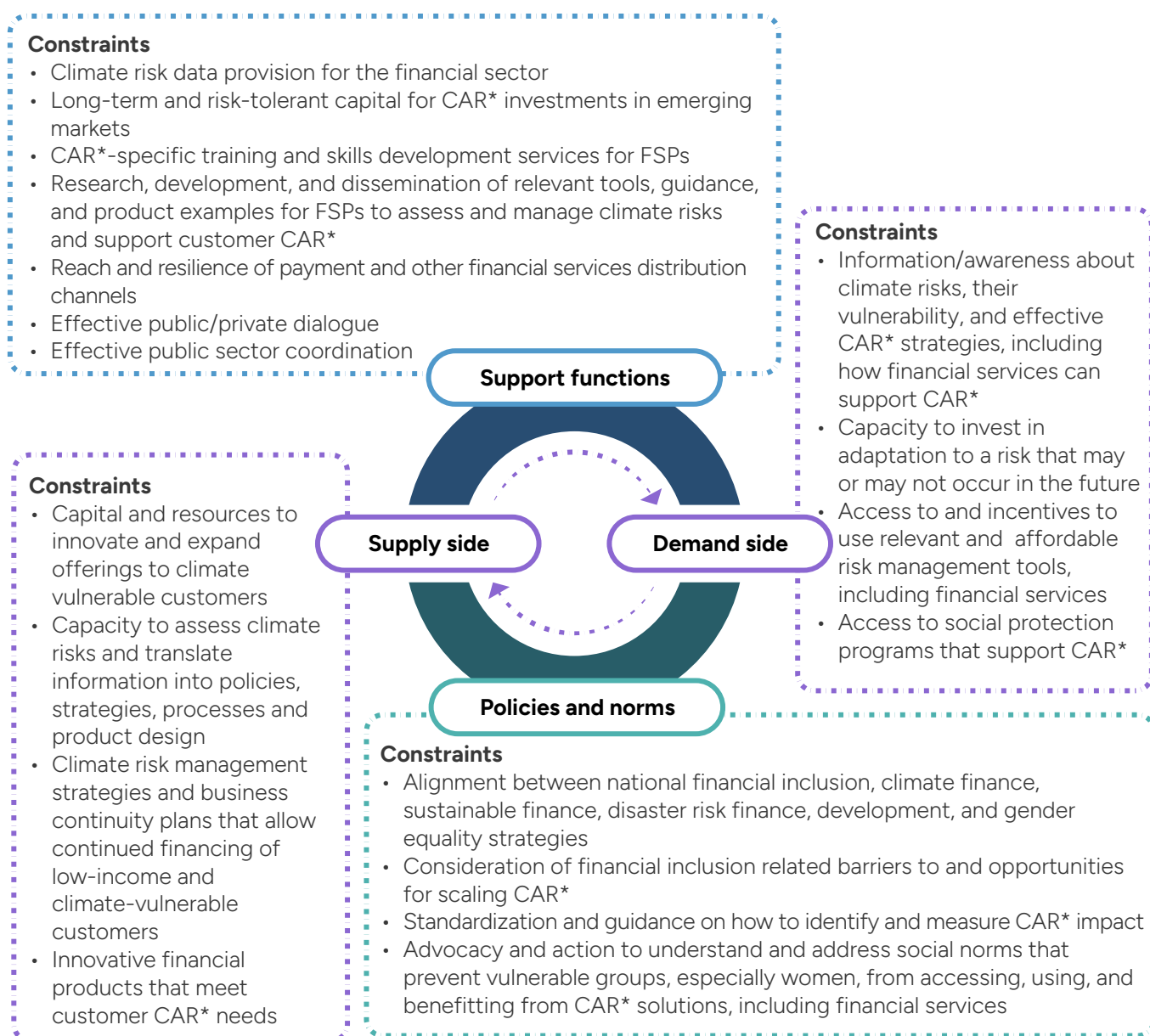
Dealing with climate risks (and opportunities) takes traditional approaches to inclusive finance into new areas of development and public policy. It requires new relationships between public and private sector stakeholders across financial inclusion, development, climate, disaster risk management, agriculture, social protection, and other sectors.

As the Pakistan floods unfortunately revealed, when financial systems are not equipped for climate shocks the costs to individuals, households, and economies can be devastating. Governments and development funders must act to strengthen financial systems to ensure that investments are sustainable, partnerships inclusive, and interventions designed to support both market development and the resilience of low-income customers. Only through collective action among public and private sector actors and coordinated cross-sector action can governments and development actors build financial systems that help those most vulnerable to navigate a climate-affected future.

ANNEX A

Reference material

FIGURE 8. Typical constraints in financial systems preventing provision and uptake of climate-responsive financial services



Source: Authors.

* CAR = climate adaptation and resilience

TABLE 2. **Entry points for climate-responsive interventions: Objectives, primary actors, and typical instruments**

Entry point	Intervention objective	Primary actors (international and national)	Instruments (financial and nonfinancial)
Capital	Allocating development capital to inclusive FSPs that support climate adaptation and resilience	International: International DFIs, international climate funds National: Domestic DFIs	Financial: Equity, debt, contingent lines of credit, contingency clauses, performance-based incentives Nonfinancial: Impact narratives, impact measurement and management, knowledge sharing
	Incentivizing private sector investment in inclusive FSPs and climate adaptation and resilience	International: International DFIs, MDBs, international climate funds National: Domestic DFIs	Financial: First loss capital, junior/senior equity, guarantees, subordinated debt, mezzanine tranches, bond purchases, performance-based incentives, contingent lines of credit, contingency clauses Nonfinancial: Publication and advocacy, market intelligence research, TA
Climate risk and data	Strengthening the climate risk data ecosystem	International: MDBs, bilateral donors, international climate funds National: Financial sector authorities, line ministries and agencies responsible for climate data and disaster risk management	Financial: Grants, debt Nonfinancial: Climate risk tools and data platforms, TA, impact metrics and measurement tools
	Building FSP climate risk management capacity	International: International DFIs, MDBs, bilateral donors National: Financial sector authorities, domestic DFIs	Financial: Emergency loans, contingent credit, risk polling mechanisms, flexible repayment schedules (loan deferment or forbearance) Nonfinancial: TA, peer exchange
	Incentivizing climate risk transfer solutions for low-income households and FSPs	International: MDBs, bilateral donors National: Financial sector authorities, particularly insurance regulatory authorities	Financial: Premium subsidies and capital support, concessional debt Nonfinancial: TA, capacity building, consumer training, insurance mandates, partnership building
Product development	Supporting the development of customer-centric products for climate adaptation and resilience	International: International DFIs, bilateral donors National: Domestic DFIs	Financial: Grants Nonfinancial: Research, TA, innovation labs, knowledge sharing, partnership building
Policy	Supporting financial policies and guidance that reduces barriers and incentivizes investment in climate adaptation and resilience	International: MDBs, bilateral donors National: Financial sector authorities	Financial: Debt (policy-based lending), targeted refinancing tools Nonfinancial: Policies and strategies, prudential tools and disclosure standards, TA, research, knowledge sharing, advocacy
Social protection	Committing to protecting those most vulnerable	International: MDBs, international climate funds National: Social protection agencies	Financial: Grants, budget allocation, subsidies, sovereign disaster risk finance Nonfinancial: TA, training
Market coordination	Facilitating stakeholder coordination and dialogue	International: MDBs, bilateral donors, international climate funds National: Financial sector authorities	Financial: Grants Nonfinancial: Cross-sector dialogue and coordination, TA, advocacy

Source: Authors

TABLE 3. List of intervention examples mentioned in the paper

Intervention objective	Example intervention	Primary actor providing support	Primary recipient	Primary instruments	Relevance for climate adaptation and resilience of low-income customers
Entry Point 1: Capital					
Allocating development capital to inclusive FSPs that support climate adaptation and resilience	AFAWA, Financing Climate Resilient Agricultural Practices in Ghana Project	International climate fund (GCF), multilateral donor (AfDB)	Local FSPs	Debt, grant for TA	Enables women-led MSEs and farmer-based associations to invest in climate-resilient agricultural practices.
	Aceli Africa	Bilateral donor (Canada, Norway, Netherlands, Switzerland, UK, USA); Private foundation (IKEA Foundation)	FSPs	Performance-based rewards (origination benefits), first-loss guarantees	Rewards incentivize lending for climate-smart agriculture.
	Climate resilience enhanced debt	International climate fund (Natural Disaster Fund [NDF])	MFIs	Blended risk transfer, contingent credit lines	Impact investor can channel liquidity to MFIs through insurance, enabling MFIs to provide smallholder farmers with emergency loans.
	Climate resilience investment framework	International DFI (FMO)	FSPs	Impact narrative and metrics	Through the new framework and interventions, FMO's FSP investees will receive more targeted financial and nonfinancial support to assess and support climate adaptation and resilience of low-income and vulnerable customers.
Incentivizing private sector investment in FSPs that support climate adaptation and resilience	Climate Resilience and Adaptation Finance and Technology Transfer Facility (Lightsmith Group)	International DFIs (NDF); International climate fund (GEF)	Climate resilience focused businesses	Debt, equity	The blended finance facility invests in businesses supporting climate resilience in developing countries.
	Kijani Bond	International DFI (IFC)	FSP	Debt	Through the bond, CRDB Bank raises capital for investments in climate smart agriculture.
	Kuali Fund (GAWA Capital)	International climate fund (GCF); Multilateral donor (EC); Bilateral donor (Spain)	MFIs, climate tech companies	Guarantee, TA	The blended finance facility invests in MFIs and climate tech companies that create opportunities for smallholder farmers.

TABLE 3. List of intervention examples mentioned in the paper (continued)

Intervention objective	Example intervention	Primary actor providing support	Primary recipient	Primary instruments	Relevance for climate adaptation and resilience of low-income customers
Entry Point 2: Climate risk and data					
Strengthening the climate risk data ecosystem	Green Credit Bureau	Central Bank (Brazil)	FSPs	Rural credit and climate risk database	The database facilitates FSP compliance with climate and Environmental, Social, and Governance risk management requirements, making agricultural lending easier and less costly.
	Next Generation Drought Index Dashboard	Multilateral donor (World Bank); International climate fund (Global Shield Financing Facility)	Public, including FSPs and FSAs	Climate data and data analytics	Access to this data can support climate risk insurance and contingent lines of credit for FSPs and customers.
	Adaptation and Resilience Impact: A measurement framework for investors	International DFIs (Adaptation and Resilience Investors Collaborative)	DFIs, impact investors	Measurement framework	A harmonized measurement approach can help FSPs identify and report climate adaptation and resilience investment opportunities, making it easier to access financing.
	Methodology for resilience credits	Multilateral donor (IFAD)	Multiple	Methodology for monetizing outcomes	"Resilience credits" can incentivize private sector investment in climate adaptation and resilience, including by FSPs.
Building FSP climate risk management capacity	Microfinance for Ecosystem-based Adaptation Project	Multilateral donor (UNEP)	FSP	Climate data analysis tool	A climate analysis tool by Yapu Solutions enables FINCA Peru to consider physical climate risks in credit decisions and product development and to help customers identify climate adaptation and resilience investments.
	African and Asian Resilience in Disaster Insurance Scheme (VisionFund International)	Bilateral donor (UK); International DFI (KfW, FMO); Private foundation (Rockefeller Foundation)	FSPs	Contingent line of credit	Contingent debt from the InsuResilience Investment Fund enables VisionFund International to offer a contingent line of credit to partner MFIs so they can offer affordable emergency credit to customers affected by a climate-related disaster.
	Climate risk assessment of Advans customers in West Africa	International DFI (BII)	MFI	TA	The TA helped Advans to assess climate risks and opportunities to enhance the resilience of their microfinance clients in Ghana, Cote d'Ivoire, and Tunisia.
	Navigating a New Climate: Assessing Credit Risk and Opportunity in a Changing Climate	Multilateral donor (UNEP)	FSPs	TA, guidance	The report provides good practices for FSPs to identify, measure, disclose, and manage climate risks.
Incentivizing climate risk transfer solutions for low-income households and FSPs	Pradhan Mantri Fasal Bima Yojana	Government of India	Insurers	Premium subsidies	Promotes uptake of climate risk insurance among smallholder farmers.
	Scaling climate risk insurance through strengthening local reinsurance capacity	Bilateral donor (France)	Reinsurer (Zep Re)	Subordinated credit line, TA	Enhances ZEP-RE's reinsurance capacity for climate risk insurance for smallholder farmers and ability to address regulatory barriers.
	Pula Pay-at-Harvest Insurance	International DFI (BII)	Insur-tech (Pula)	Repayable grant	The grant prefinances premiums for smallholder farmers, who cannot afford insurance premiums until they earn harvest income.
	R4 Rural Resilience Initiative	Bilateral donors (Australia, South Korea, Germany, USA); Multilateral donors (WFP, EU); International climate fund (GCF); International NGO (Oxfam America)	Smallholder farmers	Insurance premium subsidies, cash for work	Smallholder farmers can afford climate risk insurance by paying premiums through their earnings from public works programs.

TABLE 3. List of intervention examples mentioned in the paper (continued)

Intervention objective	Example intervention	Primary actor providing support	Primary recipient	Primary instruments	Relevance for climate adaptation and resilience of low-income customers
Entry Point 3: Product development					
Supporting the development of customer-centric products for climate adaptation and resilience	Heat Index Insurance (SEWA)	Private foundation (Arsht-Rock Foundation)	MFI	Grant	The insurance product provides women remuneration for lost work on days with extreme heat.
	Feed the Future Innovation Lab for Assets and Market Access	Bilateral donor (USAID)	MFI	Grant	BRAC developed a contingent line of credit product for customers to access liquidity in response to climate-related disasters.
	Resilience+ Innovation Facility	Private foundation (Gates Foundation)	University	Grant	The Facility supports the development of climate resilience solutions for smallholder farmers in Sub-Saharan Africa and South Asia, including crop insurance.
	Climate Smart Innovation Hub	Private sector (Mastercard Center for Inclusive Growth)	FSPs, Fintechs	Grant	The hub develops tools and knowledge resources for companies that seek to develop innovative, climate smart financial products for vulnerable communities and businesses.
	Inclusive Insurance Innovation Lab (Access to Insurance Initiative)	Bilateral donors (Germany, Netherlands)	Insurance providers	Grant	The lab supported the development of a climate risk insurance that protects over 10,000 farmers in Nepal.
Entry Point 4: Policy					
Supporting financial policies and guidance that reduce barriers and incentivize investment in climate adaptation and resilience	Bangladesh Sustainable Finance Policy	Central Bank (Bangladesh Bank)	FSPs	Regulation, regulatory guidance	The policy promotes solutions adapted to women and third gender individuals.
	Jordan Green Finance Strategy	Multilateral donor (WB)	Central Bank (Bank of Jordan)	TA	The strategy is considered a blueprint for integrating financial inclusion considerations in climate-related financial sector strategies.
	Inclusive Green Finance Working Group	Sector support organization (AFI)	Central Banks	TA, knowledge sharing, guidance	Through knowledge exchange and technical support, central banks learn about ways to promote inclusive green finance.
Entry Point 5: Social protection					
Committing to protecting those most vulnerable	Ethiopia Urban Productive Safety Net Program	Multilateral donors (WB, IDA)	Government of Ethiopia	Debt, grant	Through public works and cash transfers, the Government of Ethiopia supports climate adaptation among those most vulnerable, particularly women.
	Malawi Social Cash Transfer Programme	International Climate Fund (Global Shield Financing Facility); Multilateral donor (IDA)	Government of Malawi	Debt, grant	The Government of Malawi can access pooled insurance and contingency resources to scale cash transfers during droughts to protect vulnerable households.
	Benin Disaster Risk Management Development Policy Credit with Cat	Multilateral donors (WB, EC, UNDP); Bilateral donors (France, Japan)	Government of Benin	Debt, Catastrophe Deferred Drawdown Option	By accessing liquidity in an emergency, the Government of Benin can support climate resilience among its population.
	African Risk Capacity (ARC) Replica	Governments; Multilateral donor (WFP)	Governments; Humanitarian agencies	Risk pool	ARC Replica allows humanitarian organizations to complement and/or enhance the insurance policies purchased by ARC Member States, or as a last resort, allows it to protect vulnerable people when governments are unable to purchase an insurance policy.

TABLE 3. List of intervention examples mentioned in the paper (continued)

Intervention objective	Example intervention	Primary actor providing support	Primary recipient	Primary instruments	Relevance for climate adaptation and resilience of low-income customers
Entry Point 6: Market coordination					
Facilitating stakeholder coordination and dialogue	Indonesia Sustainable Finance Initiative	Financial sector authority (OJK Indonesia)	FSPs	Public-private dialogue, guidance	The initiative helps FSPs with increasing environmentally and socially responsible investments, including investments in climate adaptation and resilience.
	Global Shield against Climate Risks In-Country-Process	Bilateral donors (Germany, France, UK); Global initiative (Global Shield Secretariat)	Governments	Stakeholder dialogue	This process brings together actors from the public and private sectors in a selected market to identify priority actions to strengthen climate resilience, especially among vulnerable populations.
	Inclusive Insurance Solutions Hub, Pacific Insurance and Climate Adaptation Programme	Multilateral donor (UNCDF)	Governments; Private sector actors	Regional dialogue, knowledge sharing	Through this platform, insurers can share their needs to serve low-income customers and learn about ways to offer more affordable and relevant products.

Source: Authors

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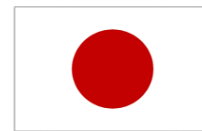
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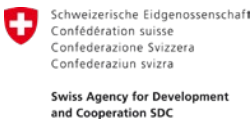
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CGAP Members (continued)



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