Financing Adaptation: 11 Financial Instruments that Help Build Climate Resilience

November 19, 2025 By **Carter Brandon**, Aarushi Aggarwal, **Bradley Kratzer**, **Valerie Laxton** and **Celine Novenario** Cover Image by: Oleg Shuldiakov/iStock

Technical Perspective

Topic **Finance**

Climate adaptation has emerged as a high-return investment opportunity. A recent WRI analysis found that adaptation and resilience investments can unlock broad economic, social and environmental benefits that go far beyond simply avoiding losses, even when an extreme event doesn't occur. The study — which evaluates the expected public benefits of 320 adaptation and resilience investments across agriculture, health, infrastructure and water — found that, on average, $1 invested in adaptation and resilience has the potential to generate more than $10 in benefits over 10 years.

FROM BONDS TO BLENDED FINANCE: HOW A DIVERSE RANGE OF FINANCIAL INSTRUMENTS ARE FINANCING CLIMATE ADAPTATION AND RESILIENCE

Explore the findings, including a full dataset of 162 cases, from this study on the fast-evolving landscape of financial instruments used for climate adaptation and resilience.

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Available finance for adaptation, however, must increase to enable countries and communities to realize these benefits. Despite steady increases between 2018 and 2022 to $77 billion, overall tracked adaptation finance flows appear to have decreased in 2023. While this dip may be due to data gaps, available adaptation finance is a fraction of the total annual estimated needs of $250 billion to $350 billion. This so-called "adaptation finance gap" leaves vulnerable countries and communities without the resources they need to invest in adaptation, foregoing the diverse benefits of climate adaptation and resilience.

Closing the adaptation finance gap requires an improved awareness of how different financial instruments can be structured and deployed to address diverse adaptation needs. It also requires greater understanding of how climate adaptation contributes to long-term development objectives, including improved health access and outcomes, enhanced productivity, growth and reduced economic uncertainty. Opportunities exist to scale up private finance of investment that build resilience as well. Under South Africa's leadership, adaptation finance has been a key priority for G20's Sustainable Finance Working Group, which aims to identify and overcome barriers to mobilizing sustainable finance for greener, more resilient and more inclusive economies.

New WRI research examining how 162 financial instruments are used to reduce and manage the impacts of climate change can help governments — from the national level to states, counties and cities — select and tailor financial instruments to their unique contexts. Five key insights can be drawn from this research:

1) Diverse Financial Instruments Can Support Adaptation Efforts

Eleven different types of financial instruments can enable adaptation — far more than just concessional loans and grants. Listed alphabetically, these include:

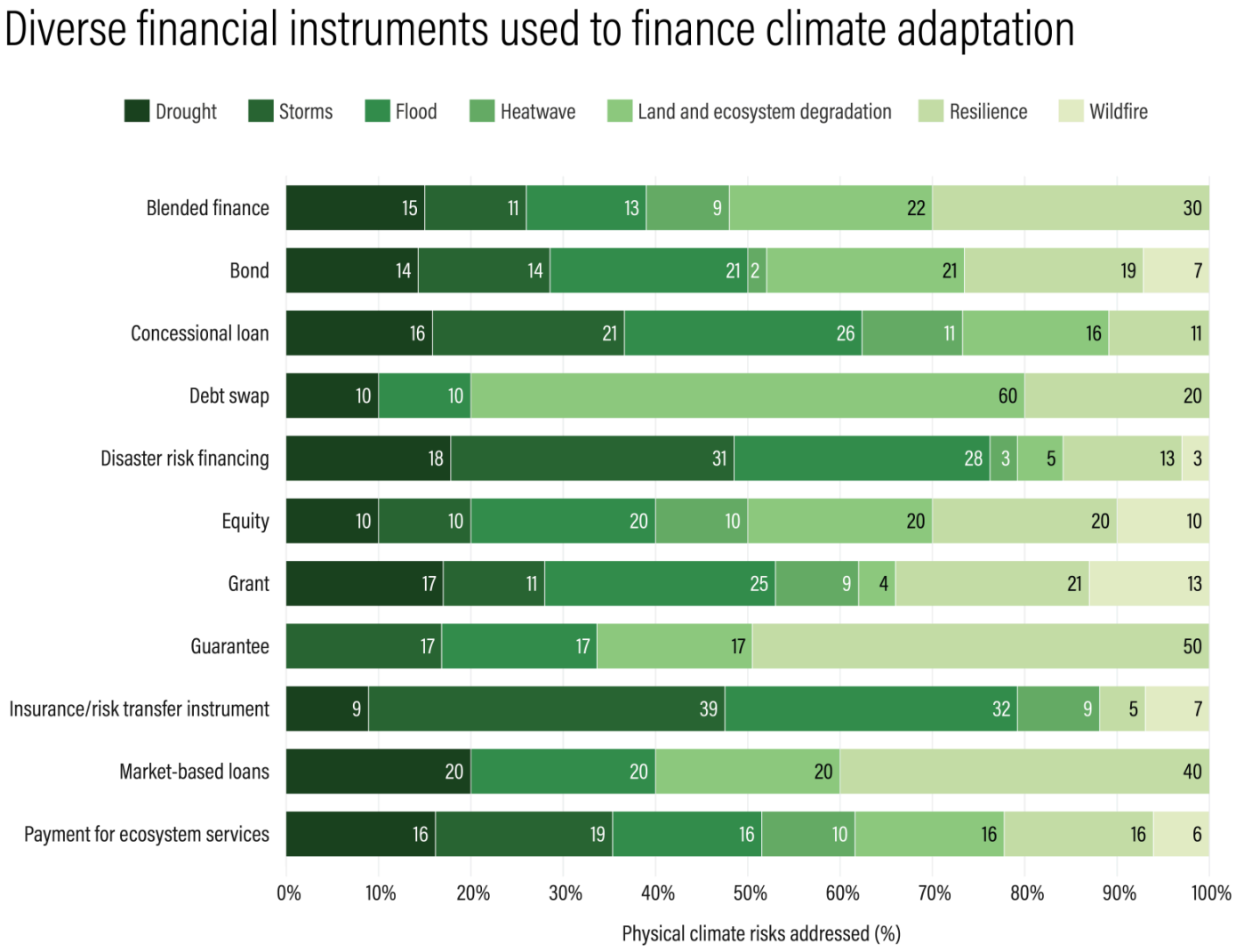
- **Blended finance**: a strategic combination of catalytic capital from public or philanthropic sources to increase private sector investment in sustainable development. The concessional element helps to de-risk investments, making them more financially viable and more attractive to private investors. Blended finance packages may include various components, such as equity, debt, guarantees and other incentives.

- **Bonds**: debt security instruments issued by governments, municipalities, corporations and other entities to raise money from investors willing to lend capital for a certain amount of time at a specific interest rate. Issuers must repay the principal value of the bond at maturity.
- **Concessional loans**: below-market-rate loans offered by major financial institutions, such as development banks and multilateral funds, to developing countries. Concessional loans have more generous terms than market loans, including lower interest rates and/or longer grace periods.
- **Debt swaps**: agreements between a government and one or more of its creditors to replace existing sovereign debt with one or more liabilities (a new debt with different terms or equity) that entail a spending commitment over time toward a specific goal (e.g., climate action, environmental conservation or development goals).
- **Disaster risk financing (DRF)**: a strategic combination of approaches that support countries' financial resilience to natural disasters and helps them address fiscal impacts, economic losses and recovery. A complete DRF package may include precautionary funds, contingent finance, catastrophe insurance, risk-transfer mechanisms and new debt for reconstruction. A DRF initiative may include other of the eleven instruments listed here but is shown separately as it embodies a more holistic approach.
- **Equity**: the market value of assets owned by shareholders with an ownership stake in a company or project after all debts are paid off. By buying a share of the venture, equity investors provide finance to it and share in the potential profits (and losses) of the venture.
- **Grants**: non-repayable funds provided to a recipient for a specific purpose, such as a project or program. They are often used for initiatives that may not generate financial returns but have significant social or environmental benefits.
- **Guarantees**: legally-binding agreements wherein a guarantor assumes responsibility for the debt or performance obligations of the borrower in the event of a default. Guarantees can reduce the perceived risk of an investment and encourage lending among risk-averse investors.
- **Insurance/risk transfer**: instruments that are means of protection from future financial losses incurred due to specific events, such as natural disasters or project failures. An insurer agrees to compensate the insured for those losses in exchange for a premium. Insurance reduces financial risks and can provide a safety net.
- **Market-based loans**: loans provided by banks and some development institutions on commercial terms rather than concessional terms and reflect the borrower's market conditions and creditworthiness.
- **Payment for ecosystem services**: payments in kind or in cash to participants (typically landowners) who volunteer to provide services to a specific user or to society. Payments are conditional on natural resource management practices such as ecosystem protection and conservation rather than on delivery of services.

2) Financial instruments Can Be Used Across Multiple Physical Risks

Each of the 11 financial instruments has mobilized finance for multiple adaptation needs. We mapped each case to a range of physical climate risks — droughts, floods, heat, storms, wildfires and land and ecosystem degradation — and found that none of the instruments were exclusively deployed to address only one physical climate risk. Bonds, disaster risk financing, equity, grants and payment for ecosystem services were applied to all six of the physical risks included in the study, as well as building capacity for climate resilience more generally.

For example, the Climate Investor Two (CI2) blended finance initiative illustrates how a single financial instrument can support diverse adaptation needs. CI2 is designed to support the private sector in developing and constructing climate-resilient infrastructure projects in emerging markets — specifically in the water, sanitation and ocean sectors — and aims to support projects that source, transport and treat water for municipal and industrial users in water-stressed regions experiencing droughts, floods or other water disasters. Notably, CI2 represents the Green Climate Fund's first large-scale private sector program in the water sector and is the largest climate adaptation infrastructure fund with a focus on emerging markets.



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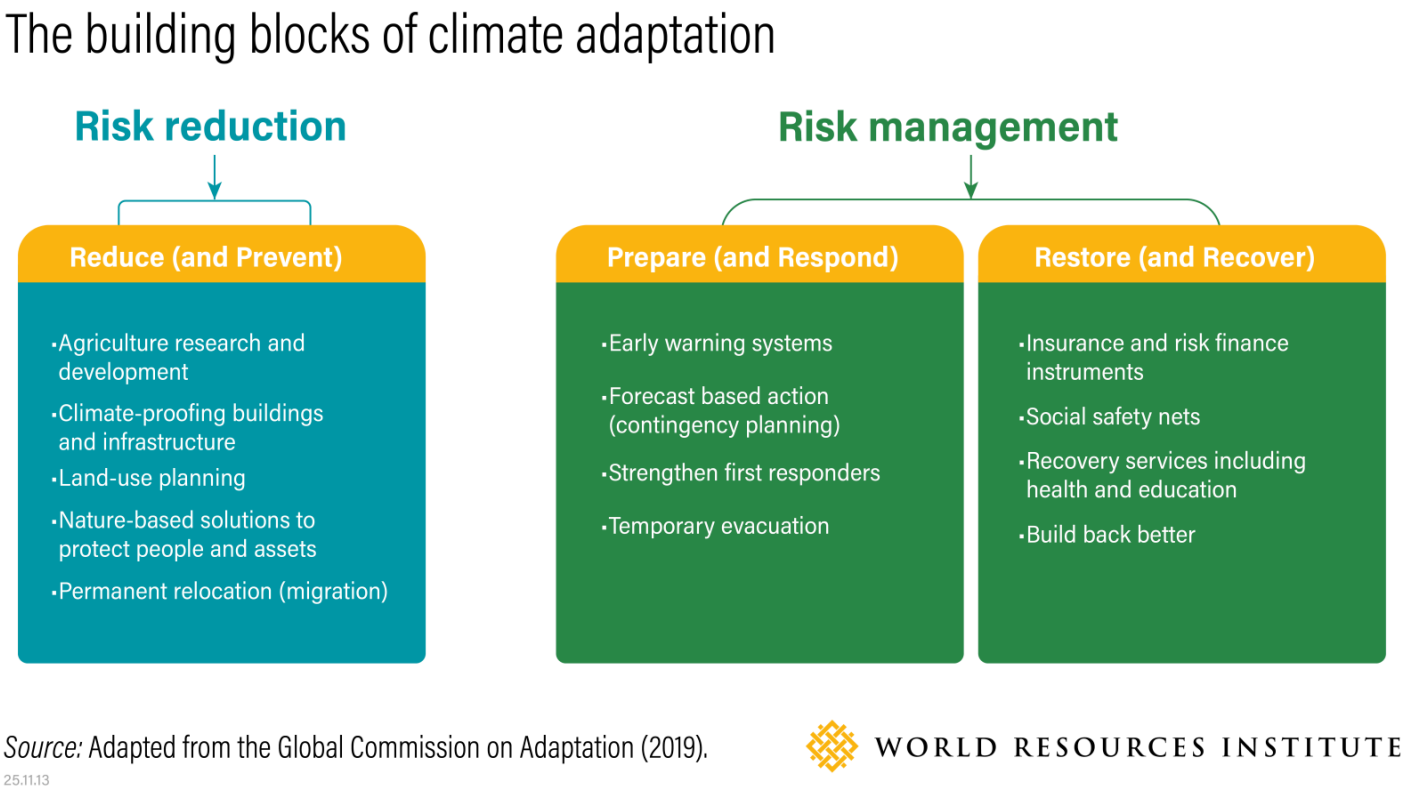
We also found, however, that some instruments have not been applied to certain risks. For instance, blended finance has not been used for wildfires, while debt swaps have not been used for storms, heat or wildfires. While our sample was not exhaustive of all financial instruments for adaptation, this implies that some instruments may align better with certain climate risks than others and highlights the opportunity for further innovation.

3) Adaptation Financial Instruments Focus on Reducing Risks Rather than Managing Them

Climate adaptation generally includes risk reduction and risk management. Risk reduction involves proactive actions in sectors such as agriculture, infrastructure and water that help reduce future climate impacts. On the other hand, risk management refers to the specific disaster risk preparations, response and recovery measures needed to cope with disasters as they strike.



Both are needed — but ex ante expenditures on risk reduction are often seen as investments with high development rates of return, whereas ex post risk management instruments are more generally perceived as necessary costs. Investments in risk reduction investment can unlock significant development benefits even if the anticipated extreme event never occurs. This potential gives them a greater economic upside than risk management expenditures.

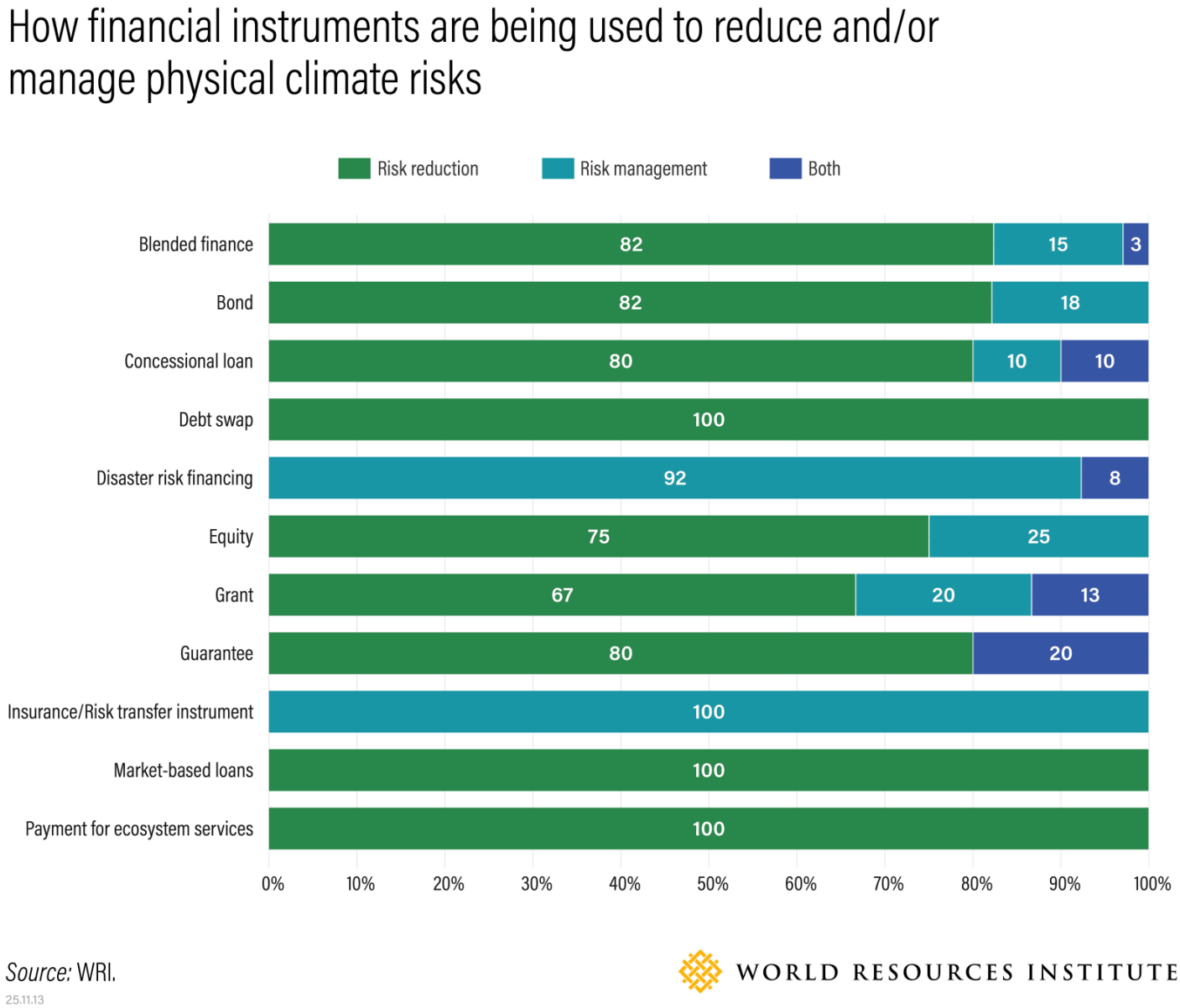
We found that 64% of the cases in this study reduced risks, 31% managed risks and only 5% did both. Blended finance, bonds, concessional finance, debt swaps and grant instruments are especially focused on proactive interventions that enable adaptation to current and future risks, while disaster risk finance and insurance/risk transfer products

focus on mobilizing finance for disaster responses and recoveries and help build back better after climate shocks.

The more frequent use of certain finance instruments for risk management than risk reduction or vice versa is partly a function of their design. Risk insurance/transfer and disaster risk financing instruments — such as the Quintana Roo Reef Protection Policy in Mexico and the multi-country Descartes parametric cyclones insurance scheme — are designed to trigger the rapid deployment of finance for disaster response and recovery.

While other instruments might be used for reconstruction over longer timeframes, their deployment is often too slow to respond to the immediate impacts of a disaster and are better suited for risk reduction activities. Examples of such instruments include FirstRand Limited's Green Bonds, which supports financing or refinancing of investments that address physical climate risk; the Outrigger Impact Fund that provides both debt and equity financing for resilience investments; and the Green Guarantee Company that provides credit guarantees for investments in adaptation and mitigation.

The types of instruments that support both risk reduction and management are diverse and include four examples of grants and one each of blended finance, concessional loans, disaster risk financing and guarantees.



The focus of the financial landscape — both overall and across almost all years included in the study — implies a recognition that proactive adaptation investments can yield high social, environmental and economic returns. Knowing how instruments have been deployed to finance risk reduction versus risk management can help decision-makers identify which instrument might better suit their adaptation needs.

4) Most Adaptation Finance Structures Adopt a Programmatic Approach

Among the financial instruments we analyzed, 75% demonstrated pooled characteristics while only 25% involved project-specific finance. Project finance refers to

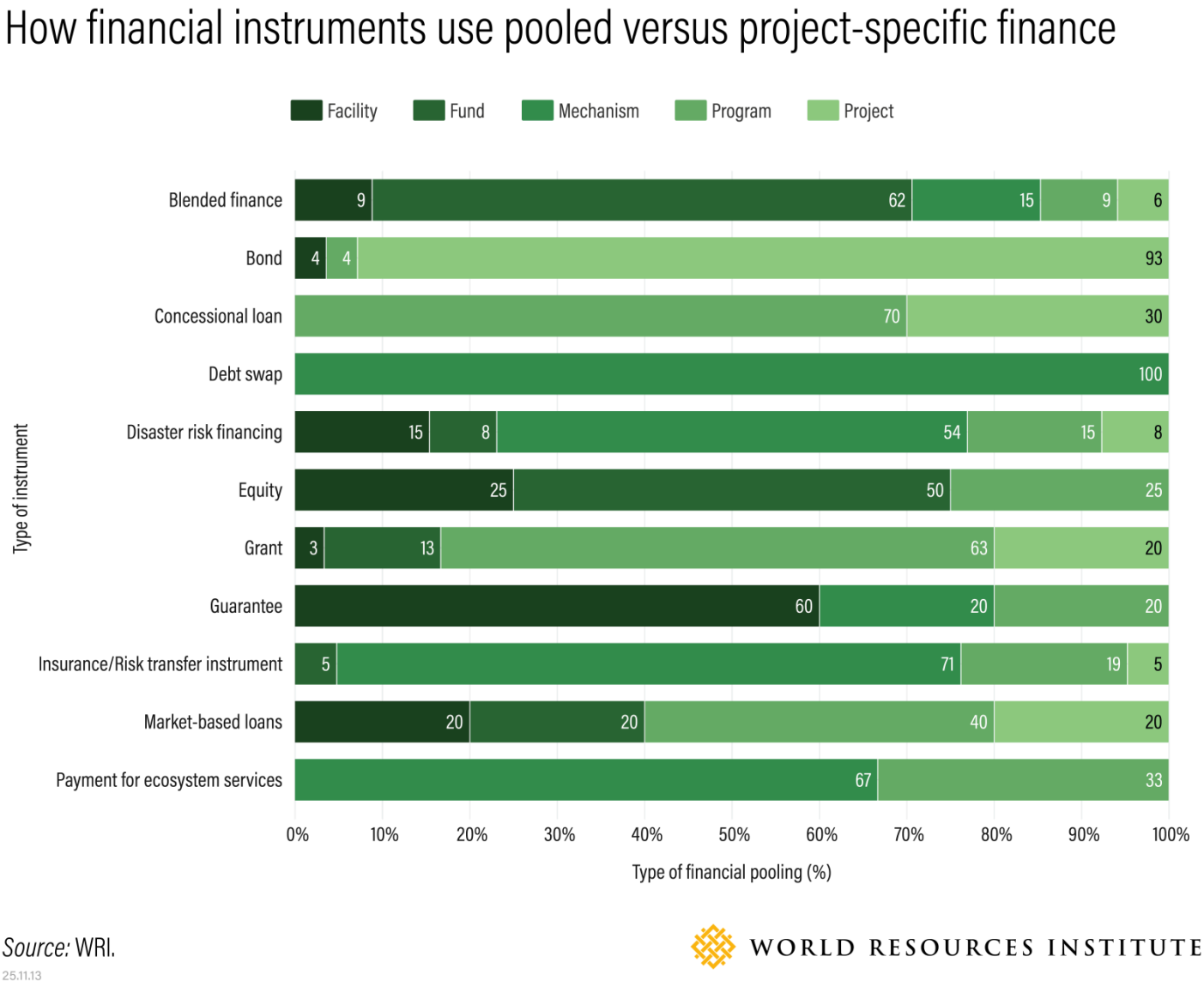
the flow of capital from an investor to the recipient through a single specialized agreement (typically targeted toward a specific outcome or set of outcomes). Pooled finance, on the other hand, brings together capital from different sources, which is then allocated to multiple projects with similar or complementary outcomes.

Two examples of project-specific finance are the Kigali Bulk Water Supply Project and Fiji's sovereign green bond. The Kigali project is a public-private partnership between the government of Rwanda and Kigali Water Limited to develop, design, finance, construct and operate a bulk water facility in Kanzenza. The Fiji green bond helped the Government of Fiji raise around $50 million to help finance its transition toward a low-carbon and climate-resilient economy.

Among the four approaches to pooled finance we identified (funds, facilities, mechanisms and programs), programs were the most frequent. A program is a group of related projects managed in a coordinated way to achieve broader, strategic objectives. One example is the European Infrastructure Bank's (EIB) program enabling adaptation for farmers and women in Senegal. Through a partnership between EIB and La Banque Agricole, the concessional loan program invests in small and medium enterprises leading on climate adaptation solutions in agriculture, with a particular focus on women. Other examples of pooled finance are the ADAPTA Climate Finance Facility, a debt facility to enhance agricultural finance and food security in Sub-Saharan Africa; and the Asia Climate Landscapes Fund, a blended finance fund that provides medium- to long-term senior secured loans to small and medium-sized enterprises in Indonesia.

In our analysis, we also found that 45% of programs are grant-based, such as the African Development Fund's Climate Action Window for African countries and the Community Wildfire Defense Grant Program in the United States. Also, 70% of funds are structured as blended finance, while the highest category of mechanisms is insurance and risk transfer instruments at 37%. The Australian Reinsurance Pool Corporation's Cyclone Pool is an example of such a mechanism. It is a reinsurance arrangement between insurers and the Australian Reinsurance Pool Corporation. The

Cyclone Pool reduces insurance premiums for households and small businesses facing high cyclone risk by lowering the cost of reinsurance.



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We found that pooled finance can help investors balance the political and financial uncertainties typically associated with investing in a country, thereby removing barriers to investment. These pooled risk instruments highlight that both physical and financial risks can be shared — and thus mitigated — while still financing adaptation actions that are responsive to local contexts, governance structures and capacities, and systems for tracking results.

5) Collaboration and Innovation Are Essential to Scaling Adaptation Finance

Pooled structures used in adaptation finance often bring together — and rely on collaboration between — diverse actors. These include multilateral development banks, government agencies, private investors, small and medium-sized enterprises, smallholder farmers and property owners, among many others. They also typically layer different sources of concessional and commercial capital depending on the objectives and risk appetite of financiers. The broad range of actors involved in financing adaptation is likely due to both the pervasive impacts of climate change, as well as the diverse economic, social and environmental benefits that climate adaptation can generate. The financial instrument type and institutional arrangement used to finance climate adaptation depends on the broader development contexts and investment objectives.

Collaboration and new partnerships can support the innovation that is required to help advance and expand adaptation finance markets, which could reach up to $1.3 trillion annually by 2030. More research is needed to determine which instrument is best suited to address a specific risk in different sectoral and development contexts. Research on enabling policies and environments can also help understand how policymakers can foster a wider and more diverse group of investors. Innovation can emerge from funders, recipients, guarantors, governments and implementation agents who seek to match adaptation needs with available resources.

Financing the Future of Climate Adaptation and Resilience

Mobilizing finance for adaptation requires an awareness of the fast-evolving landscape of financial instruments that can deliver tangible benefits for vulnerable countries, communities and businesses. Despite the world's current adaptation finance gap, WRI's new study shows that diverse stakeholders are committed to designing financial solutions that respond to a range of adaptation needs. This study has positive implications for discussions in global climate and economic forums on how to meet adaptation finance targets.

Relevant Work