The Rise of the Adaptation Economy

Investing in Adaptation and Resilience in a World Beyond 1.5C

Main Report

November 2025

Produced by

Financial support

Technical partners

About this Report

Morphosis, with its partners the Center for Sustainability Studies at Fundação Getulio Vargas, Instituto Itaúsa, the Paulson Institute, and Basilinna, have come together to identify *which policy measures can catalyze markets that enable the profitable delivery of climate adaptation solutions, thereby attracting the required private capital, enabling innovation, scale, affordability, and enhanced development outcomes*.

Our efforts have built on the evolving body of work on adaptation economics by academics, think tanks, consultancies, international organizations and businesses, which is itself a testimony to the growing recognition of the importance of the adaptation agenda.

The work combines a review of the global landscape for adaptation finance, country-based research including deeper dives into two significant countries - Brazil and China, a technical paper on the adaptation economy, and this synthesis paper offering the first iteration of a general-use, high-level Adaptation Economy Policy Framework. These elements are published as five separate papers, with this paper providing the overarching synthesis.

Although still at an early stage, our efforts have helped to shed light on where, why and how adaptation-related goods, services and investment flows are already emerging in practice and have provided a foundation for identifying policy areas and measures that can unlock adaptation markets more broadly in both the global south and global north.

Our policy perspectives and recommendations are encapsulated in this paper as the first generally applicable policy framework for advancing adaptation markets and economies. This contribution is without doubt a work-in-progress that will evolve as experience expands and learning deepens. We hope, however, that it is sufficient to engage policymakers and businesses in exploring how best to make markets work better in advancing adaptation in a rapidly changing, severely climate impacted world.

About the Partners

Morphosis is an integrated adaptation solutions business for a climate-impacted world beyond 1.5°C. Our purpose is to deliver affordable transformative adaptation solutions to low and middle-income households by catalyzing the adaptation economy through investment, policy engagement, research and advisory work. Morphosis orchestrates a network of private capital investors, market, policy and other stakeholders, and invests in a growing portfolio of adaptation solution businesses.

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The Center for Sustainability Studies at Fundação Getulio Vargas (FGVces) at FGV's São Paulo School of Business Administration is a dynamic space for learning, innovation and knowledge production, driven by a multidisciplinary team committed to societal transformation. FGVces develops public and corporate strategies, policies and management tools for sustainability across local, national and international contexts.

www.portal.fgv.br/en Contact: ces@fgv.br

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https://www.itausa.com.br/sustentabilidade/instituto-itausa/ Contact: ri@itausa.com.br

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Acknowledgements

Morphosis, The Center for Sustainability Studies at Fundação Getulio Vargas, the Instituto Itaúsa, the Paulson Institute and Basilinna would like to acknowledge the following people for their invaluable contributions to this report.

Lead co-authors are Jennifer Blanke and Simon Zadek, with contributing authors Annelise Vendramini, Gustavo Breviglieri, Johanna Costigan and Ruihan Huang.

We are grateful for the contributions made by other team members from all four organizations: Elisabeth Erasmus, Samruddhi Kothari, Ingrid Kukuljan, Feifei Lu, Deborah Lehr, Natalia Lutti, Niall Murphy, Natalia Nunes, Lucy Oulton, Gracie Sun and Camila Yamahaki.

We extend our thanks to the external reviewers who provided constructive, insightful and fearless comments: Silja Baller, Gemma Corrigan, Pamela Divinsky, Callum Douglas, Ceandra Faria, Mark Halle, Gregory La Montagne, Dorothy Maseke, Andreas Merkl, Guo Peiyuan, Rick Samans, Atsuko Toda, Terry Townshend, Simon Winter and Chunping Xie.

This report would have not been possible without the financial support of our partner, Instituto Itaúsa, and many thanks in particular to Marcelo de Camargo Furtado and Natalia Cerri Oliveira.

All errors and omissions in this report are the responsibility of the authors and partner institutions.

Suggested citation:

Morphosis. The Rise of the Adaptation Economy: Investing in Adaptation and Resilience in a World Beyond 1.5C. In: Investing in Adaptation to Climate Change. Geneva: Morphosis Solutions SA, 2025.

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Contents

Exhibits

MAIN REPORT

The Rise of the Adaptation Economy

Investing in Adaptation and Resilience in a World Beyond 1.5C

Morphosis, in partnership with Fundação Getulio Vargas, the Itausa Institute, the Paulson Institute and Basilinna has developed a framework of policy measures that can catalyze markets to enable the profitable, scaled delivery of affordable adaptation solutions, thereby attracting the required private capital.

1.

Executive Summary

Adaptation is emerging as a keystone of future climate action.

The lived experiences of climate impacts such as wildfires, storms, floods and droughts are capturing the attention of citizens and businesses worldwide and pressuring politicians of every persuasion to consider what actions to take.

The impacts of climate change are surging worldwide.

Economic losses from physical climate-related impacts in 2024 exceeded US$300 billion[1]. Failure to advance ambitious adaptation actions could result in losses rising to an astonishing 20-50 percent of global GDP by mid-century[2].

Such impacts will be unequally distributed through a 'might-is-right' competition for scarce resources such as water and food, exclusion of climate impacted countries from affordable capital, and erosion of international governance and solidarity.

Inclusive prosperity in the future requires a phased shift in economic practices.

Tomorrow's global economy will be very different. Effective adaptation could support inclusive prosperity. Without concerted action, on the other hand, the global economy is likely to be smaller, more fragile and more unequal.

Improving the resilience of today's economy is insufficient to ensure the well-being of the growing number of vulnerable communities. A systemic approach is required to deliver inclusive prosperity underpinned by the scaled deployment of affordable adaptation solutions.

Nature is an essential part of any systemic approach to adaptation.

Action on adaptation is entwined with advancing a zero-carbon economy and restoring and preserving nature. Adaptation strategies need to both deliver a resilient and affordable energy system and protect and restore nature's ability to reduce climate change and its impacts and support the global economy.

Business is still largely absent from the delivery of adaptation solutions.

Today's markets rarely reward adaptation solution businesses and assets. Climate risks are mispriced, nature is under-valued, consumer expectations are actively suppressed, and enabling policies are missing or, worse still, favor unsustainable business practices. As a result, adaptation solution businesses are too often unprofitable, undervalued and under-capitalized, limiting private investment.

Policy-supported financing for adaptation financing will be limited.

Financial innovations can help align private capital flows with adaptation outcomes. Blended financing can boost the profitability of private investments–using guarantees, performance-linked financing, labelled loans, and bonds and nature credit markets.

Such financing will be limited given an increasingly constrained fiscal space. The average government debt to GDP ratio of Organisation of Economic Cooperation and Development (OECD) countries has doubled over the last decade by over 110 percent[3]. International development assistance is in decline, falling 7.1 percent in real terms in 2024 and projected to

1 https://www.munichre.com/content/dam/munichre/mrweb-sitespressreleases/MunichRe-NatCAT-Stats2024-Full-Year-Fact-sheet.pdf/_jcr_content/renditions/original./MunichRe-NatCAT-Stats2024-Full-Year-Factsheet.pdf

2 https://www.nature.com/articles/s41586-024-07219-0

3 https://www.oecd.org/en/publications/2025/06/government-at-a-glance-2025_70e14c6c/full-report/general-government-gross-debt_d52f12cd.html#figure-d1e24609-fa0b630446

decline by a further 9-17 percent in 2025.[4]

Scaling adaptation financing requires adaptation markets and economies.

What is needed is the development of adaptation markets and economies. These can be thought of as '*the activities, policies and institutions that deliver the goods, services and systems that advance inclusive prosperity in a climate-impacted world*'. Developing these markets and economies create the conditions that reward adaptation solution businesses and thereby attract private investment.

Policy action is needed to catalyze adaptation markets and economies.

Policy action is essential to advance adaptation markets and economies, enabling the innovation, competition and scale needed to ensure such solutions are available and affordable. Comparable success has been achieved in transforming the renewable energy sector into a multi-trillion-dollar market -- including feed-in tariffs, industrial strategies and financial regulations.

Adaptation economics can underpin macroeconomic and job creation strategies.

Policies that channel capital into adaptation solutions offer a basis for more robust macroeconomic conditions. This can help to create a virtuous cycle of growing factor productivity, more stable markets, improved fiscal performance, and lower costs of capital. Many adaptation investments, notably nature-based infrastructure, will tend to be more labor intensive, generating jobs.[5]

4 https://www.oecd.org/en/publications/cuts-in-official-development-assistance_8c530629-en/full-report.html

5 https://www.ilo.org/resource/news/nature-based-solutions-can-generate-32-million-new-jobs-2030-investments

There is no standardized policy playbook to catalyze adaptation economies.

Policies to advance adaptation-friendly markets remain ad hoc and fragmented. As a result, investors and solution providers struggle to identify which countries are the most attractive destinations for their capital or products. This compares unfavorably with the largely standardized policy frameworks to incentivize renewable energy, enabling investors and businesses to assess the attractiveness of different markets.

Progress is needed to standardize policy frameworks to drive adaptation markets.

Policy standardization in advancing adaptation markets and economies presents challenges given the heterogeneity of adaptation solutions across sectors, technologies and products. However, some progress has been made, mainly focused on improving finance supply-side conditions.

A comprehensive standardized policy framework has been developed.

An Adaptation Economy Policy Framework (summarized in Exhibit 1) has been developed to support the advancement of roadmaps for policy makers to:

- **Catalyze private investment** by shaping markets that reward adaptation solutions.
- **Expand access** to affordable adaptation products and services, especially for low- and middle-income households in climate-vulnerable regions.
- **Integrate adaptation** into macroeconomic, industrial and social policy as a core competitive strategy.

The Framework establishes a basis for dialogue and cooperation a basis for investors and solution providers to engage more productively with policy makers.

The Framework is relevant across diverse contexts and priorities.

There is no one-size-fits-all in advancing adaptation markets. Context counts, as do policy priorities, both of which will evolve over time. The Framework is therefore not sector-, technology- or product-specific. It focuses instead on the cross-cutting policy domains that can create the underlying foundations on which adaptation economies are built.

The Framework can be used for sector, regional, city and asset-level analysis.

The Framework at this stage is focused on the development of sovereign adaptation markets and economies. Going forward, on-going work points to a need for more in-depth analysis at sub-sovereign, sector-specific and asset levels.

The Framework enables measurability, comparability and accountability.

The Framework as presented is qualitative. However, it has been designed with a view to providing a basis for policy progress to be measured. An indexed version of the Framework is already under development, enabling comparability against commitments over time, as well as between countries.

Policies to advance adaptation economies can be implemented now.

Adaptation economics is at an early stage of development, but there are clear steps that can be taken by all policymakers, in consultation with investors, businesses and other stakeholders in building Adaptation Economy Policy roadmaps.

1. Map existing adaptation markets to identify and assess the state of key adaptation markets, starting most urgently with those delivering basic needs.

2. Identify constraints to adaptation markets to explore, in particular, risk pricing, wider citizen expectations, and existing and absent policies.

3. Identify and prioritize markets and policy levers to advance selected adaptation markets in complex cases, possibly at a sandbox or pilot level.

4. Integrate into broader adaptation economic roadmaps starting with selected markets but extending to all transversal policy aspects set out in the Framework.

Applications of the Framework can deliver short-term benefits.

There are potential shorter-term benefits from targeted applications of the Framework, complementing the longer-term gains of improving inclusive economic resilience and productivity. For example, the Framework can be used to shape:

1. Public procurement: a direct and potentially powerful policy lever to deploy in incentivizing targeted adaptation markets.

2. Policy-linked borrowing: to establish a basis for adaptation economy policy-linked borrowing, especially by developing countries from Multilateral Development Banks (MDBs).

3. Sovereign risk: positively impacting risk ratings by demonstrating robust adaptation economics embedded in macroeconomic strategies and plans.

4. Adaptation finance: embedding adaptation risks into financial markets to incentivize investments in adaptation solution businesses and assets.

5. Carbon and nature: aligning investments in clean energy and nature landscapes with the rise of adaptation markets and related opportunities.

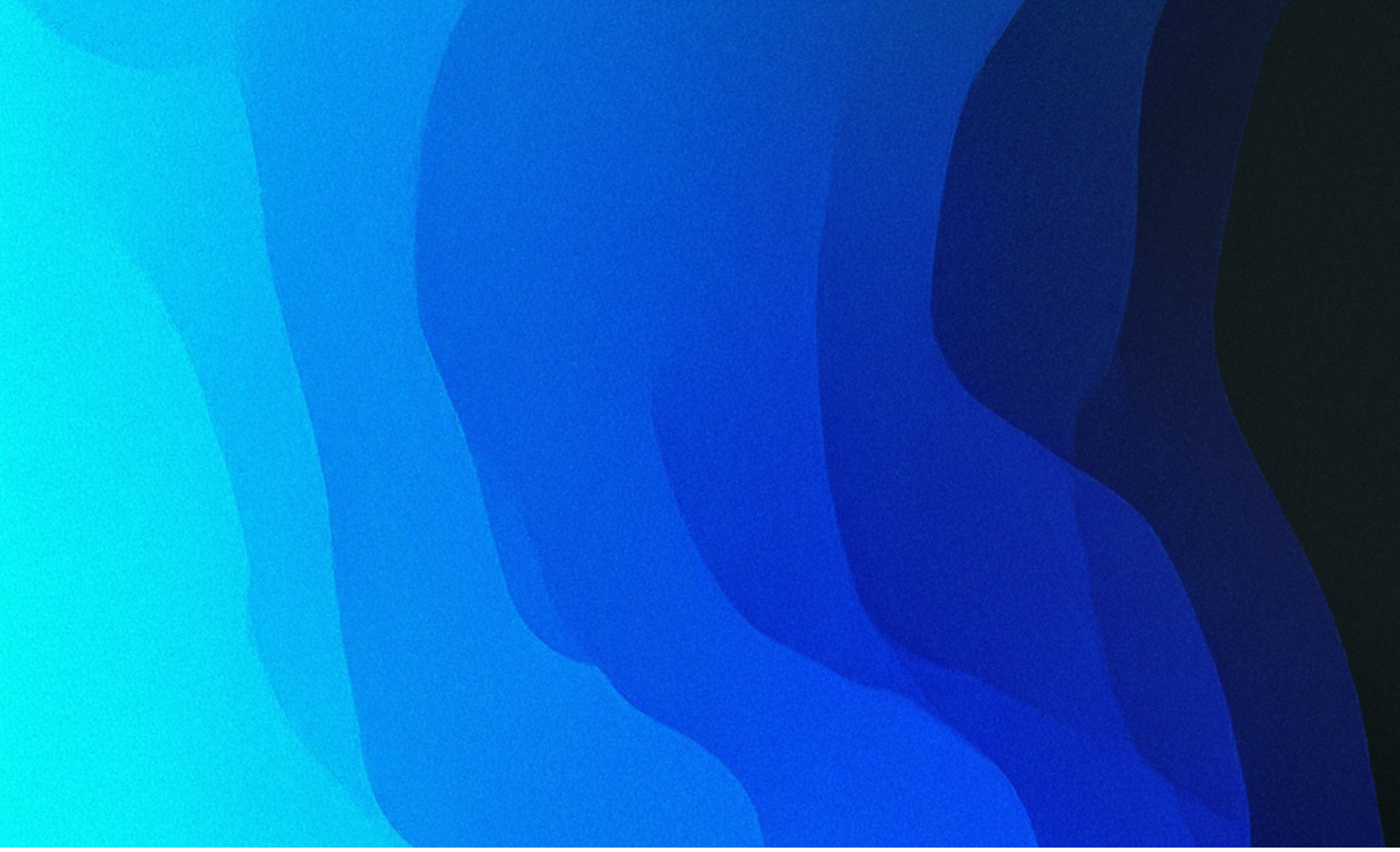
Advancing adaptation economies is key to inclusive prosperity.

There is much to do in advancing transformative adaptation, including accelerating emissions reductions, meeting the needs of the growing numbers of refugees, and securing social safety nets for the most vulnerable. None of these goals can be successfully addressed unless accompanied by markets that can deliver, at scale, affordable adaptation solutions.

The proposed Adaptation Economy Policy Framework is a step forward in providing a practical, systematic comparable basis for developing and executing policy roadmaps to catalyze the adaptation markets and economies needed to secure more inclusive prosperity in tomorrow's severely climate-impacted world.

EXHIBIT 1: ADAPTATION ECONOMY POLICY FRAMEWORK – SUMMARY

Policy Domain	Description	Relevance to Adaptation	Key Policy Levers
1. Economic Resilience	The economy's capacity to absorb shocks and keep markets functioning	Predictable macro conditions and well-functioning markets lower cost of capital and keep prices and demand stable.	• Macroeconomic and fiscal stabilization measures • Diversification and resilient trade/logistics strategies • Property rights/land-use reforms
2. Risk Expectations and Behavioral Change	How households, firms and financiers perceive climate risk—and how signals shift behavior.	Accurate, visible and priced risk turns latent need into real demand, directing capital to adaptation solutions.	• Mandatory climate-risk disclosure and stress tests • Open climate risk data/ early warning systems and risk mapping • Consumer protection and awareness raising
3. Financial Market Strength	Depth, reach and sophistication of financial systems for long-term, resilience-oriented investment.	Properly regulated financial systems, with appropriate investment vehicles, determine whether capital can flow at scale prices that make solutions viable.	• Framework for green, resilience and catastrophe bonds • Public spending alignment with adaptation priorities • Prudential regulation and supervision incorporating climate and disaster risk
4. Entrepreneurship, Innovation and Technological Diffusion	Generation, scaling and adoption of technology and business models needed in a warmer climate.	Innovation expands the menu of solutions and drives costs down; policies ensure new adaptation goods, services and business models can scale.	• Research focused on adaptation priorities • Incubators, extension services and tech-transfer partnerships • Workforce development and vocational training
5. Quality and Robustness of Infrastructure	Standards reinforce strength, adaptability and reliability of infrastructure systems in the face of climate/ economic stresses.	Resilient infrastructure is both a market in itself and the platform many other adaptation markets depend on.	• Climate-resilient codes/ standards • Risk-informed spatial planning/zoning • Public Private Partnership (PPPs) frameworks with resilience requirements
6. Governance Efficiency and Integrity	Capability, coherence and credibility of public institutions to design, coordinate and implement complex reforms that support transition.	Strong and transparent governance creates conditions for adaptation markets to create and scale without unduly burdening limited public resources.	• Mechanisms for regulatory responsiveness to emerging private sector needs • Regulatory streamlining/ one-stop permitting for solution providers • Open contracting, anti-corruption controls
7. Social Cohesion	Inclusion, trust and social protection underpinning public interventions and the emergence of stable, functioning adaptation markets.	Inclusive access and trust foster real, scalable markets; cohesion reduces conflict risk and smooths reform adoption.	• Adaptive and shock-responsive social protection systems • National insurance or catastrophe pool laws establishing shared risk mechanisms • Participatory planning, community ownership and grievance mechanisms



2.

The Design Challenge

Morphosis, with partners Fundação Getulio Vargas, the Itausa Institute, the Paulson Institute and Basilinna, have undertaken a joint inquiry to identify and develop a framework of *policy measures that can catalyze markets that enable the profitable, scaled delivery of affordable adaptation solutions, thereby attracting the required private capital enabling innovation, scale, affordability, and enhanced development outcomes*.

Our efforts have built on the evolving body of work on adaptation economics by academics, think tanks, consultancies, international organizations and businesses, which is itself a testimony to the growing recognition of the importance of the transformative adaptation agenda.

The work has combined a review of the global landscape for adaptation finance, country-based research including deeper dives into two significant countries - Brazil and China, a technical paper on the adaptation economy, and this synthesis paper offering the first iteration of a general-use, high-level adaptation economy policy framework. These elements are published as five separate papers, of which this paper provides the overarching synthesis.

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[this is] ... the first generally applicable policy framework for advancing adaptation markets and economies.

Our policy perspectives and recommendations are encapsulated in this paper as the first generally applicable policy framework for advancing adaptation markets and economies. This contribution is without doubt a work-in-progress that will evolve as experience expands, and learning deepens. We hope, however, that it is sufficient to engage a wider community of policymakers and businesses in exploring how best to make markets work better in advancing adaptation in a rapidly changing, severely climate impacted world.

3.

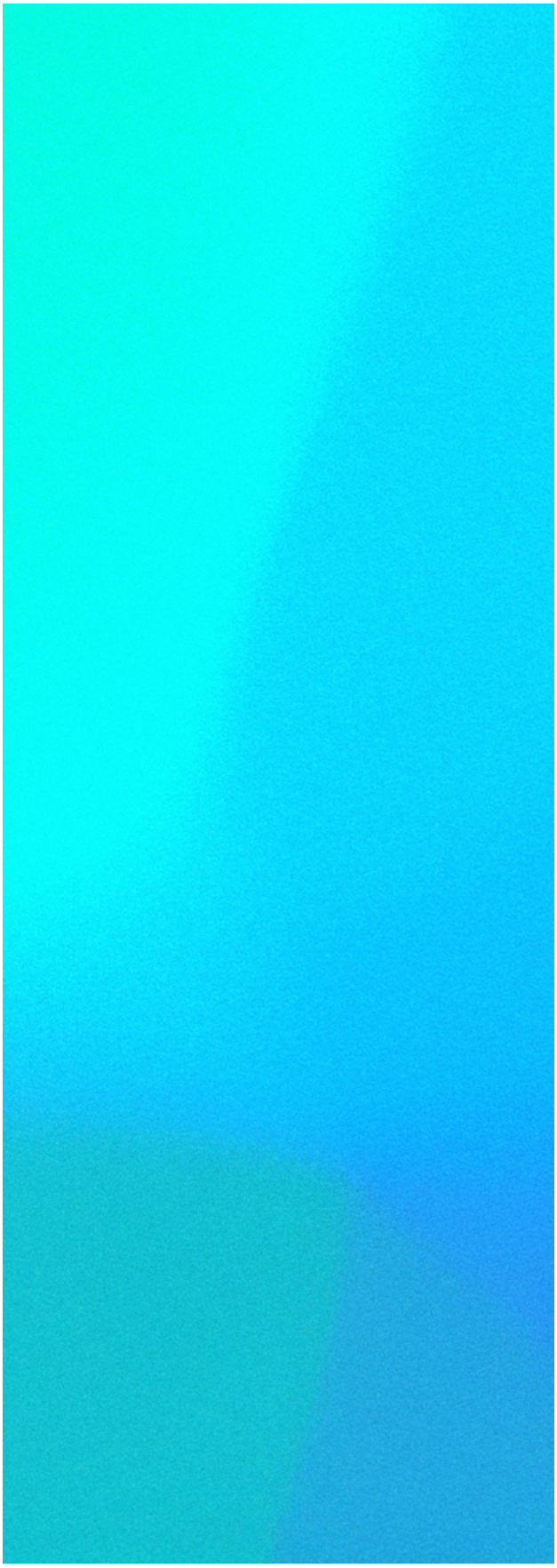
Towards an Adaptation Economics

Adaptation is the foundation of tomorrow's value.

The climate crisis is no longer a distant risk—it is a lived reality shaping the experiences and well-being of growing numbers of households, communities and businesses. While the future is uncertain, there is little doubt we are entering a climate of extremes for which many of our current practices are ill-suited or inadequate for the adaptations required.

Climate losses are already severe: valued at more than US$300 billion in 2024.[6] Such losses are devastating for those affected, largely concentrated in 55 countries, home to 3.6 billion people, considered by the UN to be highly vulnerable. Yet sadly this is just the beginning, amounting to less than 0.3 percent of global GDP. Without effective adaptation, these losses could escalate by some estimates to 20 percent of global GDP by 2050 and as high as 50 percent by 2070.[7]

After a decade's focus on goals and action to reduce emissions, the experience of wildfires, floods and droughts, alongside the science, are increasingly capturing the attention of every political and ideological persuasion. Clearly there is a need to continue to act ambitiously to reduce emissions, thereby minimizing the need for adaptation. However, across governments, businesses and civil society, there are growing calls for urgent action on adaptation as the evidence mounts that adaptation measures to date have been wholly inadequate, notably in advancing transformative adaptation in light of science-based predictions that we are heading into unknown climate change territory (Exhibit 2).[8]

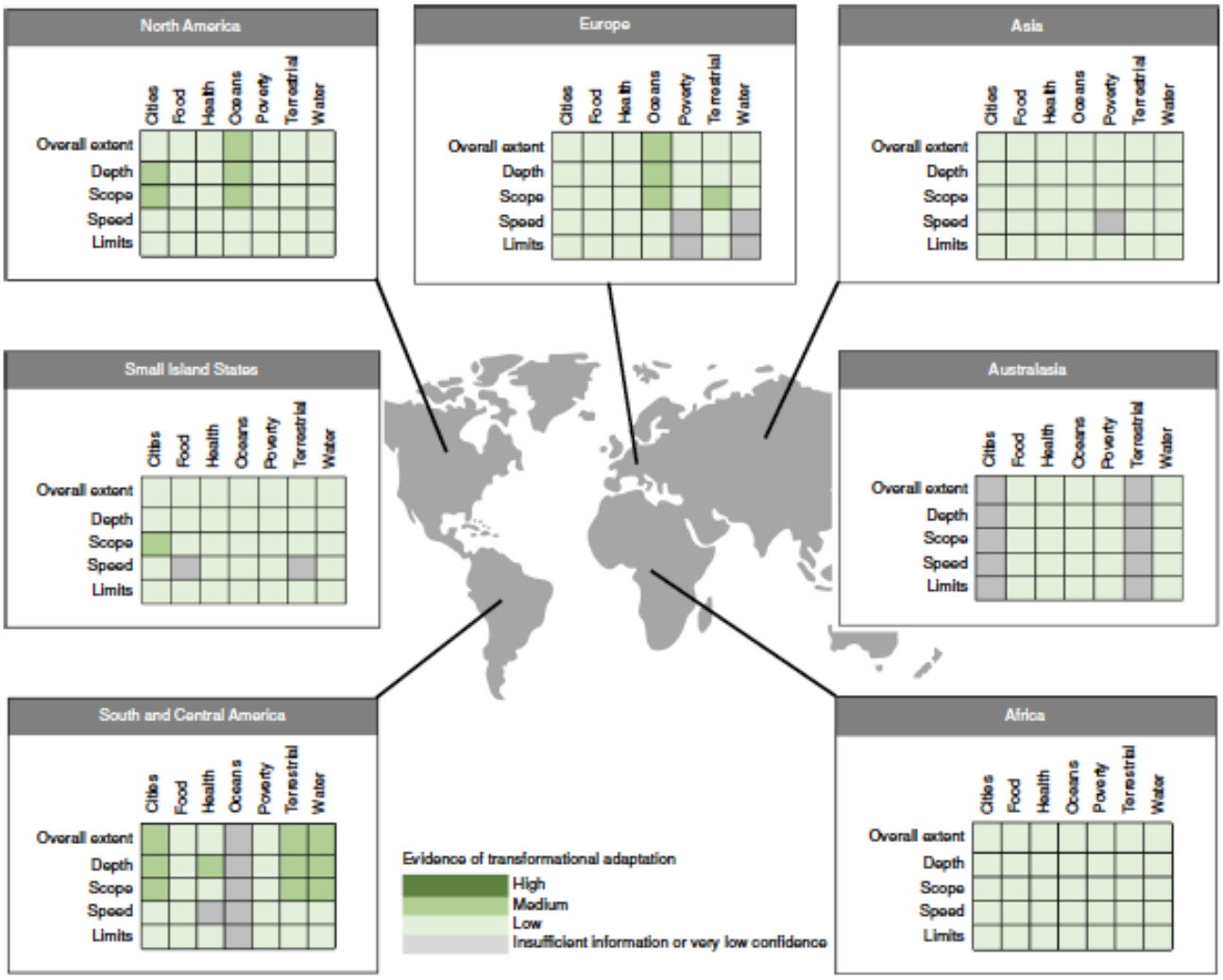


6 https://www.munichre.com/content/dam/munichre/mrweb-sitespressreleases/MunichRe-NatCAT-Stats2024-Full-Year-Fact-sheet.pdf/_jcr_content/renditions/original./MunichRe-NatCAT-Stats2024-Full-Year-Factsheet.pdf

7 https://www.nature.com/articles/s41586-024-07219-0

8 https://doi.org/10.1038/s41558-021-01170-y.

EXHIBIT 2: INADEQUATE ADAPTATION MEASURES – WEAK EVIDENCE OF IMPLEMENTATION



Source: Berrang-Ford, L, 2021

Adaptation will transform the global economy, but how?

Climate change, and our response to it, will fundamentally reshape the global economy. This is already clear to most through the lens of a transition to a low carbon economy. But it is less obvious when it comes to the broader adaptation agenda.

Adaptation, both in response to the physical impacts of climate change and the ways it will lead to policy, technology and market responses, will clearly disrupt existing norms, render many business and economic models redundant, and will, indeed must, catalyze new products and services, businesses and economies.

The adaptation imperative challenges everyone to reassess, reset and plan forward. Policymakers should reassess and reframe their approach to ensuring the availability of public goods and relevant, affordable products and, notably in meeting basic needs-=nutritious food, potable water, access to health and education, infrastructure, security and sound governance. Investors should recalibrate risk and back firms that profitably deliver adaptation goods and services.

The economies of tomorrow are unlikely to resemble those we have inherited.

Tomorrow's global economy will be a very different place. Climate change is one major reason for this, but by no means the only one. Artificial intelligence, robotics and a wider set of technological developments will combine with profound shifts in our political economies and broader geopolitics. Political systems are in flux, as are the bases on which those with power are held to account and the basis on which the fruits of economic progress are distributed.

The challenge of climate adaptation will not be about making yesterday's economic and social conditions more resilient. Looking forward, it will have more to do with figuring out what kind of local, national and global economies can and should emerge to serve the purpose of inclusive prosperity in a world impacted by multiple transformations in the context of severe climate change.

The challenge of climate adaptation will not be about making yesterday's economic and social conditions more resilient.

Adaptation economics has macroeconomic and labour market implications.

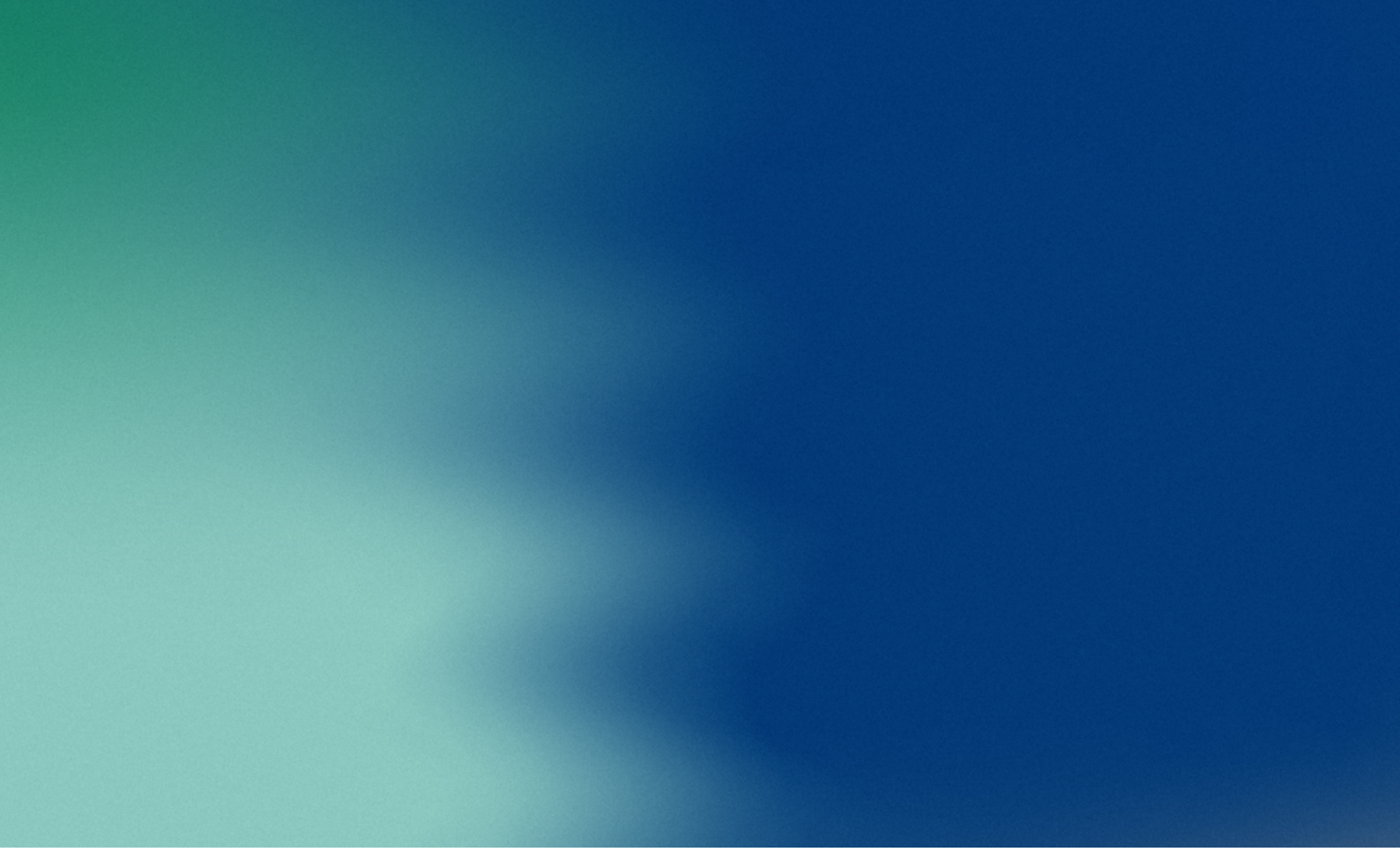
Effective adaptation will not only provide much-needed products but also underpin robust macroeconomic conditions. Resilient physical infrastructure, enhanced and relevant human capabilities, and forward-looking and -acting businesses providing adaptation-relevant products and services, should and can deliver increased productivity, improved profitability, higher labour income, increased tax receipts and improved fiscal conditions.

Many adaptation investments, moreover, such as nature-based infrastructure and climate-smart agriculture, are likely to be labour-intensive, providing more jobs and further improving labour income and associated tax receipts. Evidence from relevant investments in sectors such as infrastructure can generate 2–5 times more jobs per dollar than fossil-fuel industries, while investments in water and sanitation yield strong productivity gains.[9]

Adaptation can therefore provide immediate employment opportunities while enhancing long-term competitiveness and resilience. For governments, this 'double dividend' makes adaptation policy smart macroeconomics, not just smart climate policy. What is required is a new adaptation economics, with the challenge, need and opportunity being to catalyze an inclusive global adaptation economy.

Adaptation can therefore provide immediate employment opportunities while enhancing long-term competitiveness and resilience.

9 https://www.ilo.org/resource/news/nature-based-solutions-can-generate-32-million-new-jobs-2030-investments and https://impact.economist.com/new-globalisation/harnessing-economic-benefits-investment-water-sanitation-and-hygiene-africa



4.

Landscaping Adaptation Finance

The economics of adaptation has been largely framed as a financing challenge.

Demands, analysis and debate have centered on 'adaptation finance' volumes, sources and gaps, and instruments. This current landscape of adaptation financing has been mapped by the Fundação Getulio Vargas in *Climate Change Adaptation Financing: From Tracked Flows to Untapped Potential*, published as part of the overall research and engagement efforts reported on here.[10]

Estimated adaptation finance levels are abysmally low.

Despite growing recognition of its importance, adaptation finance remains insufficient when compared to estimated needs. Bottom-up analysis indicates that developing countries alone require an estimated US$222 billion per year through to 2030, and US$248 billion per year from 2031-2050, to cover the costs of the economic impacts of climate change. Estimates made from policy commitments set out in National Adaptation Plans (NAPs) and Nationally Determined Contributions (NDCs) of developing countries indicate needs of US$387 billion per year until 2030.[11]

Although large, these numbers remain modest compared to estimates of overall annual climate investment needs, estimated at between US$ 9.3 and US$12.2 trillion per year through to 2050.[12] That said, these estimates have been made within an optimistic 1.5C scenario, and it is likely that the relative and absolute scale of adaptation financing needs would increase significantly under more severe climate change scenarios.

Labelled private adaptation finance has been customised and subsidised.

Actual climate finance flows reached an all-time high of US$1.9 trillion in 2023, with initial estimates suggesting that flows exceeded US$2 trillion in 2024, according to the Climate Policy Initiative. Of this total, adaptation finance accounted for an estimated 3.4 percent in 2023 (US$65 billion). These investments were particularly focused on water and waste treatment, land use and fisheries, and disaster risk management. To this total should be added the finance that serves a dual-purpose in addressing both mitigation and adaptation elements, estimated as an additional US$58 billion in 2023.[13]

10 Vendramini, A. & Breviglieri, 2005a

11 https://www.unep.org/resources/adaptation-gap-report-2023

12 https://www.climatepolicyinitiative.org/the-cost-of-inaction/

13 https://www.climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2025/

EXHIBIT 3: OVERVIEW OF FINANCIAL MECHANISMS FOR CLIMATE ADAPTATION

Instruments, Strategies and Mechanisms	Description	Illustrative Examples	Prevalence in Adaptation Finance
Concessional loans and grants	Loans with below-market interest rates or direct grants from public sources.	Green Climate Fund, Adaptation Fund, bilateral donor programs, MDBs.	High (main mechanism in public finance).
Blended finance	Use of concessional capital to de-risk private investment.	GCF Private Sector Facility; IFC's blended finance platform.	Moderate, increasing but still limited.
Green bonds (and/or sustainability-linked, catastrophe or similar bonds)	Debt instruments earmarked for climate-related investments, including adaptation.	World Bank Green Bonds; subnational green bond programs (e.g. Mexico, India).	Low for adaptation; dominated by mitigation.
Impact investing	Investments seeking both financial return and measurable adaptation outcomes.	Adaptation SMEs, local infrastructure funds.	Low, though promising in niche markets.
Public-Private Partnerships (PPPs)	Long-term contracts between public entities and private firms, particularly for infrastructure projects.	Climate-resilient water and sanitation systems; early warning infrastructure.	Low to moderate, highly context dependent.
Insurance-linked instruments	Products that transfer climate risk to capital markets.	Resilience bonds, catastrophe bonds, microinsurance.	Emerging, with potential for scale.

Source: Adapted from FGV, 2025[14]

14 Vendramini, A. & Breviglieri, 2005a

Labelled or tagged private investment flows into adaptation have been characterized as being customized, hence not yet scaled and expensive to organize, such as through green bonds and impact investing. Moreover, much of what has been identified has been supported by the public purse, for example of de-risking guarantees, concessional loans and other forms of blended finance (see Exhibit 3).

Adaptation finance as a framing device has conceptual and strategic challenges.

Conventional wisdom treats adaptation finance as a labelled, purposeful flow aimed explicitly at resilience outcomes**.** Unsurprisingly, such a basis for defining adaptation finance creates both conceptual and measurement challenges. Especially problematic is that these definitions seek to combine notions of intentionality (i.e. purposeful adaptation), with normative perspectives (i.e. not just that it is meant to do good but that it does so in practice).

Intentionality is not a useful way of defining adaptation or adaptation financing.

The Brazil country case undertaken by Fundação Getulio Vargas as part of the investigation underlying this paper highlighted that many Brazilian agri-businesses are investing in adaptation but in ways inextricably linked to their overall investment activities[15]. Research led by the International Institute for Environment and Development (IIED) concluded that smallholder farmers, responsible for one-third of global food production, were investing US$368 billion annually of their own income into climate adaptation, many times the total tracked global adaptation finance.[16]

Definitions focused on the impact of investments are also problematic.

For this lens to be effective requires a view of what might constitute a 'sufficient' difference, and this can only be measured by in-depth, ex-post analysis. Such analysis is fraught with difficulties and available evidence is not encouraging. One global stock take of implemented human adaptation to climate concluded from an analysis of almost 50,000 articles and reports that robustly verified adaptations were "*largely fragmented, local and incremental, with limited evidence of transformational adaptation and negligible evidence of risk reduction outcomes*".[17]

Many businesses are not motivated by the adaptation imperative ... but by profitability and operational continuity.

15 Vendramini, A. & Breviglieri, 2005b

16 https://www.iied.org/smallholder-farmers-worldwide-spending-368bn-annually-adapting-climate-change-nature-loss

17 https://www.nature.com/articles/s41558-021-01170-y

The reality of adaptation financing is a long way from most definitions.

Many businesses are not motivated by the adaptation imperative, at least not consciously, but by profitability and operational continuity, or even work-life balance and improved health outcomes. The large majority are untagged, from heat-resistant building materials to drought-tolerant crops to investment in improving supply chain security and productivity. Moreover, many solutions tagged as being about mitigation are just as much about adaptation, but it is not straightforward to unbundle, for example, which investments in renewables do or do not contribute to adaptation.

The 'adaptation financing' lens is far more than a data and measurement problem.

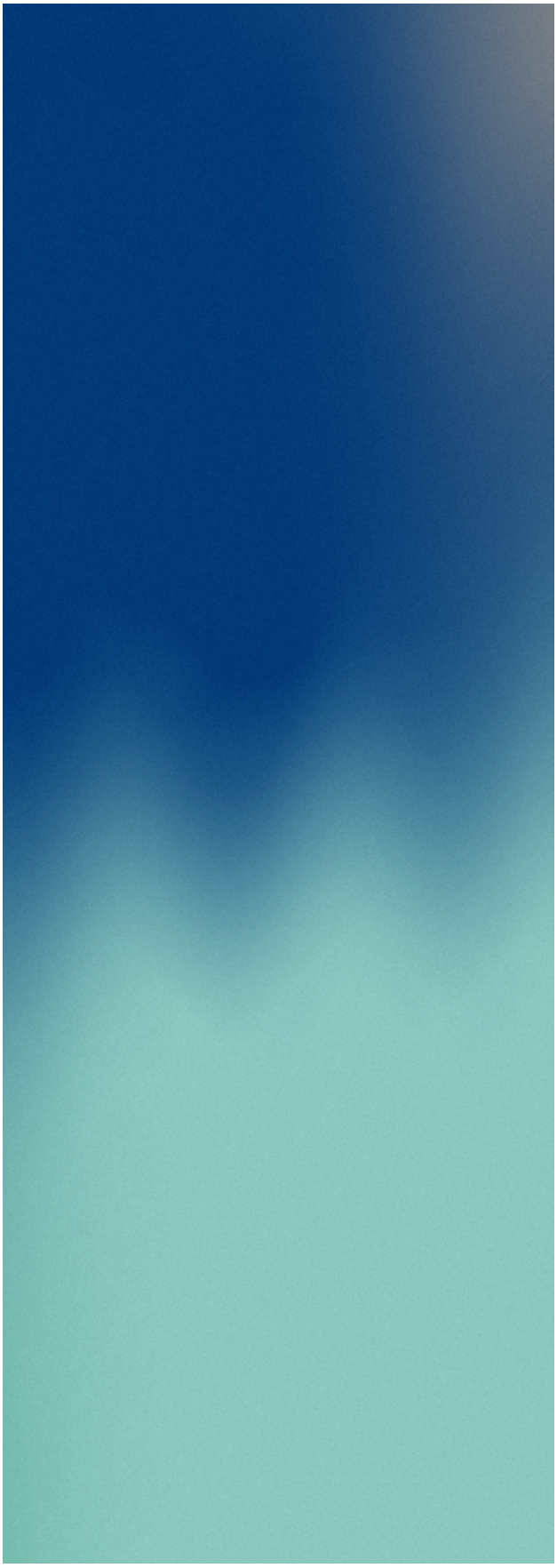
For the reasons set out and illustrated above, it is a conceptual and analytical dead-end. That said, there is a real need to understand the adaptive features of financial flows.

- For **policy** purposes, intentionality and measures of adaptative outcomes are likely to be more important, as will be the distribution of their benefits.

- For **businesses**, factors such as productivity and security of supply will take priority, and for new products and services, their likely profitability.

- For **investors**, of greatest interest will be the risk profile of investments, and their likely returns given changing market (and climate) conditions.

That is, adaptation, and its financing, should not be considered as a distinct rationale or asset but needs to be seen as a more transversal, embedded feature of the development process.



5.

Imagining a Global Adaptation Economy

Adopting a whole economy approach

An adaptation economy lens emphasizes a whole economy approach to catalyzing private investment in adaptation solution businesses and assets. Rather than focusing solely on the financial innovations that can de-risk and in other ways incentivize such investments, it emphasizes the need to stimulate effective demand for affordable adaptation goods and services in ways that reward businesses sufficiently to attract private investment.

Defining the adaptation economy.

The 'adaptation economy' has emerged as an organizing concept over the last decade simultaneously through the research, financial and policy communities (see Exhibit 4). It can most generally be thought of as the *activities, policies and institutions that deliver the goods, services and systems that advance inclusive prosperity in a climate-impacted world*.

EXHIBIT 4: MULTI-FACETED ROOTS OF THE ADAPTATION ECONOMY

Category	Core Definition	Primary Objective	Key Characteristics
Research	The total spending on activities defined under adaptation and resilience to climate change	Measurement and Analysis	Backward-looking, expenditure-based, analytical tool for tracking and comparison.
Financial	A commercial proposition which can generate market returns	Investment and Mobilization	Forward-looking, opportunity-based, promotional tool for attracting private capital.
Policy	Adjustments in ecological, social or economic systems	Implementation and Governance	Holistic, process-oriented, normative framework for guiding national and international policy.

Source: Authors definitions

Adaptation markets exist but are ad hoc and fragmented.

Adaptation markets are those that can adequately reward private solution providers in delivering affordable adaptation solutions, attracting profit-seeking private capital that in turn enables solutions to scale and deliver adaptation and resilience advantages.

Adaptation markets already exist across the economic landscape. Solutions such as drought-resistant seeds, heat-resilient construction materials, digital climate services, water innovations and insurance products can and are being profitably delivered through these markets.

While these early-stage developments are to be welcomed, they remain fragmented and unevenly accessible and so attract insufficient private capital to drive innovation and scale. Few reach low- and middle-income households, except in cases.

The adaptation economy is on the rise.

Despite the modest levels of measured private investments in adaptation to date, there is growing optimism that exposure to adaptation will become increasingly important in the coming years. That said, estimates differ widely and are based on very diverse lenses and methodologies (see Exhibit 5). For example, Singapore's sovereign wealth fund, the GIC, is the first sovereign wealth fund to frame adaptation explicitly as a strategic investment opportunity, predicting substantial growth from US$1 trillion today to US$4 trillion by 2050.[18]

GIC's estimates resonate with other estimates such as those put forth by the London Stock Exchange Group and the World Economic Forum. The Boston Consulting Group and Temasek have further analyzed the adaptation landscape for private investors. In highlighting opportunities for private equity strategies, they conclude that the adaptation and resilience market may grow to between US$0.5 trillion and US$1.3 trillion by 2030.[19]

There is growing optimism that exposure to adaptation will become increasingly important in the coming years.

18 https://www.gic.com.sg/thinkspace/sustainability/sizing-the-climate-adaptation-opportunity/

19 https://web-assets.bcg.com/b0/07/11ba848b4ae8a55e-19ce9955aa92/the-private-equity-opportunity-in-climate-adaptation-and-resilience-may-2025.pdf

EXHIBIT 5: THE RISE OF THE GLOBAL ADAPTATION ECONOMY

Source	Base Year Value (US$)	Forecast Year Value (US$)	Key Methodological Assumption
London Stock Exchange Group	2024: US$1 trillion	N/A	Bottom-up analysis of revenues from 2,100 companies in 35 green micro-sectors.
World Economic Forum	N/A	2026: US$2 trillion/ year	Broad market opportunity analysis.
GIC / Bain & Company	2025: US$1 trillion	2050: US$4 trillion	Investment trend analysis.
Fortune Business Insights	2024: US$30.13 Billion	2032: US$104.93 Billion	Market analysis of specific adaptation solutions and technol-ogies.
Polaris Market Research	2024: US$22.90 Billion	2034: US$59.84 Billion	Market analysis of specific adaptation solutions and technologies.
Boston Consulting Group and Temasek	N/A	2030: US$0.5-1.3 trillion	Exclusively focused on private equity investment opportunities.

Market-based approaches are only one part of any adaptation strategy.

Not all efforts to improve resilience and advance adaptation solutions can or need to be profitable. Many forms of adaptation, such as flood defenses, early warning systems, or safeguarding public health, are classic public goods, where benefits are widely shared and revenues are difficult to capture. Others address essential services for vulnerable communities, where affordability must take precedence over financial return. In these cases, public finance and policy support will remain indispensable. Broadly, there are three market-non-market scenarios to consider (Exhibit 6):

- **Pure market solutions** like resilient construction materials are commercially viable, needing policy to remove barriers.

- **Subsidized solutions** such as drought- and heat-resistant seeds can require temporary support until markets can sustain them.

- **Non-market solutions** like flood barriers depend on public funding but can unlock private investment in adjacent sectors.

These conditions are not, however, immutable. What may be financed as a public good today may over time become addressable through market-based solutions. Domestic air pollution for households, for example, using kerosene and wood for cooking and heat has increasingly been addressed through the purchase or rental of decentralized clean energy infrastructure and cooking apparatus. Market information and access for smallholders previously delivered through state-financed rural services are increasingly provided through smart phones.

What may be financed as a public good today may over time become addressable through market-based solutions.

EXHIBIT 6: MARKET AND NON-MARKET ADAPTATION SOLUTIONS

Adaptation activity	Examples of activities	Usually publicly funded	Mixed (below-market)	Commercially viable
Enabling environments	Development of national adaptation plans and strategies			
	Provision of climate-related data and risk maps			
	Implementing Early Warning Systems covering climate related			
	Development of new technologies and services for adaptation			
	Development of financial services to support adaptation (e.g. credit and insurance)			
	Consultancy services for adaptation			
Agriculture	Afforestation and reforestation			
	Changing production towards better-adapted crops and varieties			
	Installing water ellicient ingation			
Coastal zones	Restoration of coastal wetlands			
	Relocation of properties from high-risk areas			
	Beach nounshment			
	Flood defences			
Infrastructure	Integrating climate resilience into the design of new infrastructure			
	Increase backup systems in infrastructure networks			
	Making existing infrastructure resilient			
Water	Expanding water storage capacity			
	Desalination			
	Reducing leaks in existing infrastructure			
	Protecting watersheds			
	Improving water efficiency of major water users			

Source: OECD, 2023

Adaptation markets will become more important as public finances decline.

The importance of market-based approaches will increase as governments, with few exceptions, face increasingly constrained fiscal conditions and shifting priorities. There has been an explosion in the last two decades of the average government debt-to-GDP ratio of OECD countries to over 110 percent.[20] International development assistance, a key source of enabling public capital for multilateral development banks, is in decline, falling 7.1 percent in real terms in 2024 and projected to decline by a further 9-17 percent in 2025.[21] The extent of deployment of available public finance for climate related purposes is also under threat, both because of the growing political backlash against 'green' investments and the pivot in many wealthier countries towards increased expenditure on defense.

Against this backdrop, adaptation investment delivers macro dividends, and scarce public funds should be used where they are most catalytic. It raises productivity, stabilizes markets, strengthens fiscal performance, and lowers risk premia; many projects, especially nature-based and distributed infrastructure, are labour-intensive and support jobs.

Adaptation investment can raise productivity, stabilize markets, strengthen fiscal performance, and lower risk premia.

20 https://data.worldbank.org/indicator/GC.DOD.TOTL.GD.ZS?locations=OE

21 https://www.oecd.org/en/publications/cuts-in-official-development-assistance_8c530629-en/full-report.html

Private investment is constrained by absent and distorted markets.

Despite the growing investor appetite for exposure to adaptation solution businesses and assets, the broader market sentiment remains that investing in adaptation solutions is unprofitable in today's markets. Notwithstanding the oft stated helicopter-level statements that there are extraordinary societal returns to adaptation investment, negative market sentiments are often correct. Barriers include poor climate risk data, distorted pricing signals, entrenched perverse subsidies, and lagging and suppressed expectations (see Exhibit 6).

This creates a vicious cycle of undervaluation and underinvestment in adaptation solutions businesses and assets, which in turn constrains innovation, scale and through this affordability. This in turn constrains access for low- and middle-income households to greatly needed adaptation solutions; think of home cooling for example, or access to potable water through desalination, or protection of home and livelihoods through effective water management and appropriate building materials.

EXHIBIT 7: WHY PRIVATE INVESTMENT IN ADAPTATION IS SO LOW

Theme	Drivers	Barriers
Business Incentives	Firms invest to protect assets or to access new adaptation markets.	Perceived high risk and uncertain returns. High costs and climate uncertainty delay action.
Information and Risk	Investors seek returns and risk diversification, relying on good disclosures.	Lack of climate and related risk data hinders pricing and targeting.
Market Demand	Demand for resilient infra-structure and sustainable practices attracts capital.	Adaptation lacks direct revenue, reducing financial appeal.
Impact Investing	Investors pursue both fi-nancial returns and positive societal outcomes.	Lack of robust data, and absence of accepted metrics for measuring adaptation impacts.
Systemic Challenges	_____	Firms prioritize self-interest, sometimes shifting risks to others.
Market Distortions	_____	Mispricing of climate risks and lack of valuation standards.

Sources: Adapted from FGV, 2025[22]

22 Vendramini, A. & Breviglieri, 2005a

A strategic approach to adaptation markets and economies is needed.

By way of comparison, the clean energy transition has not just sparked a wave of new technologies, value chains and capital flows. It has shaped a new way of thinking and acting to deliver a low-carbon future for the entire global economy, impacting an ever-widening circle of businesses, sectors and economies. Likewise, the surging focus on the economic role of nature has precipitated a vision of a nature positive global economy, which in turn is reshaping supply chains, markets and the wider global financial and economic architecture.

Adaptation economies will build on the clean energy transition and the drive to shape an inclusive bioeconomy, impacting the future trajectory of every sector and every economy. Unlike clean tech and nature, however, adaptation solutions are not a 'vertical' sector, technology suite, or even an enabler like 'nature as infrastructure'. Adaptation to climate change is an imperative across all households, societies, communities, sectors and businesses, requiring the best and most widely deployed technologies and the restoration and sustainable use of nature. Adaptation is in this sense the overarching, human-centric lens into how we have to evolve.

Adaptation economies will be shaped by other factors in addition to climate.

Adaptation solutions are more likely, for example, to be an integral part of the trend towards national economic and industrial planning, policies enforcing greater national economic sovereignty and security, the changing shape of cross border trade, and the impacts of AI and robotization.

These and other dynamics need to be harnessed in pursuit of both the adaptation imperative and the need for investors to channel funds into assets that will be resilient and profitable in the context of the impacts of climate change. Localized supply chains and more distributed, tech-powered infrastructure such as localized energy production and water distillation, for example, are already a direction of travel, and could prove to be more resilient in multiple ways to the physical impacts of climate change, the need to secure supply in the face of wider policy and market dynamics, and the greater autonomy needed by households and communities in the face of weakened government provisions.

Nations face very different challenges in creating adaptation economies.

The situation, potential and strategies needed will vary dramatically between countries. Location will count, of course, given the importance of the physical impacts of climate change. Beyond that, however, the resilience to climate change by existing sources of economic development will be key, as will each country's capabilities and ambition to respond to changing circumstances. As is so often the case, poorer and many smaller nations that tend to be more climate vulnerable and have less responsive capabilities will tend to face the gravest challenges, although the physical impacts of climate change will by no means leave wealthier nations untouched.

Adaptation economy strategies will inevitably differ widely across countries.

While all nations could benefit from resilient, distributed, and clean energy systems, access to affordable capital will increasingly determine which countries can pursue such capital-intensive pathways and which cannot. The same applies to labour-intensive activities: for example, as robotics continues to erode the traditional industrial "escalator" that once enabled poorer countries to grow through labour-intensive production and exports,

alternative strategies will become more important. These may include local-for-local production, labor migration where feasible, and the expansion of virtual service exports.

Tomorrow's adaptation economics will often need to break with convention.

Today's economic arrangements may be the problem not the solution. For example, severe climate disruption, particularly for low- and perhaps also some climate-impacted middle-income countries, will result in financial market actors significantly raising the price of capital, or withdrawing altogether. Dependency on global trade for critical supplies such as food and medicine, will become more problematic as climate impacts food supplies elsewhere (see Exhibit 8).

Adaptation markets must be shaped in the public, as well as private, interest.

Without deliberate action, these barriers prevent the full emergence of commercially viable solutions, leaving enormous economic potential on the table. To break this cycle, governments must move beyond tracking financial flows and take up their central role as market facilitators and shapers: lowering barriers, sending credible signals, and creating the conditions for adaptation solutions to scale profitably and inclusively.

By lowering entry costs, reducing risks, and creating the conditions for private capital, entrepreneurship, and innovation to scale, governments can unlock adaptation markets that generate both high returns and broad societal impact.

Today's economic arrangements may be the problem not the solution.

EXHIBIT 8: BREAKING WITH CONVENTION

Openness to moving beyond conventional wisdoms will be essential in establishing an inclusive adaptation economy. Innovations and practices conventionally rejected may be needed at scale. For example:

Financial regulation will remain a primary driver to incorporating climate and nature risks into global finance, but to accelerate this may require them to have extended policy mandates, as do many non-OECD central banks such as the People's Bank of China.

Citizens' direct investing, a marginal area today except for the significant investment-linked remittances from migrants, may become far more important as segments of the mainstream financial community withdraw from severely impacted nations.

Resilient infrastructure will look very different, more linked to nature and at the same time more decentralised physically, in use and in ownership largely due to technological developments and related financing innovations.

Onshoring for resilience: production patterns are changing for many reasons, with greater on-shoring delivering, intentionally or otherwise, adaptation-friendly supply security, employment and macroeconomic safeguards.

Such innovations already exist on the margin, but need to be incentivised, standardized and guided to achieve purposeful scale. Tax code reforms, for example, improved licensing of citizen investment platforms, and advances in retail and sovereign performance linked resilience bonds, can all play a role in aligning financial market design to adaptation investments.

6.

The Need for Strategic Public Policy

Public institutions co-create vast markets.

The multi-trillion dollar a year renewable energy revolution is a case in point. While today it is underpinned by growing energy needs, technology, private finance and intense competition, it was unlocked by deliberate policy, including feed-in tariffs, power purchase agreements, technical standards, reverse auctions, industrial strategies and many and often innovative forms of public financing. Germany and China, notably, have played among the most important systemic policy roles, the former as an anchor purchaser and the latter in scaling production and bringing down costs.

Likewise for the sustainable bioeconomy, which is being supercharged and scaled through publicly generated scientific data, international collaboration in on agreeing standards for measuring impact, dependencies and risks, statutory approaches to nature related corporate disclosure, and increasingly forceful nature-related measures being taken by central banks and financial regulators. Brazil seeks to play an anchor policy role in advancing this agenda starting with its G20 Presidency in 2024 and now via its role in hosting the COP30 climate negotiations.

The adaptation economy will only scale if governments act strategically.

The challenge should not primarily be understood as the need to mobilize more money. Rather, scaling investments will result from broader market developments that reward innovators, businesses, and investors for delivering affordable solutions across income levels and geographies.

This requires the deployment of a far wider array of policy instruments, including standards and regulation, but also public procurement, trade and investment policies and industrial and economic planning. Such instruments need to be deployed systemically, ensuring a smart sequencing of reforms, correcting distorted subsidies, improving risk data, embedding adaptation into national development plans, and building the institutions that crowd in capital, talent and innovation.

Scaling investments will result from market developments that reward innovators, businesses, and investors for delivering affordable solutions across income levels and geographies.

Adaptation-related restoration and preservation of nature is a case in point.

Reversing the current unsustainable use of nature, and its continued degradation, requires, above all, policies and regulations that shape the market-nature nexus.

The easiest place to start is to eliminate harmful government subsidies that directly lead to biodiversity loss in ecosystems such as forests, wetlands, grasslands, oceans and more. Pricing the true value of nature into financial and broader business decision-making requires the value as opportunity and risk to be measured and reported, feeding through into everything from asset allocation to consumer and even labour market decisions. In that context, there is certainly a catalytic role for fiscal support, from concessional loans to tax incentives, and other tools that will provide additional stimuli to attract essential private sector investment in conservation and adaptation.

How governments act will play a critical role in determining whether adaptation markets can form, whether they remain a boutique niche, how they support adaptation of the most vulnerable households and communities, and whether they become a stable foundation of inclusive growth and development.

There is no standard adaptation economy playbook.

Scaling clean technology has a well-established playbook. From Sudan to Switzerland, from Cambodia to Canada, there is remarkably little variation in the basic policy toolbox for creating renewable energy markets, low carbon building standards, and more recently an enabling environment to scale electric vehicles. Such standardization, despite widely differing contexts, enables solution providers to enter markets they understand, attracting investors by de-risking the investments they make.

Adaptation does not yet have a standardized pathway for creating associated markets that in turn attract private capital, even though it will increasingly underpin wider economic development. The challenge, often said, is that the diversity of adaptation makes it complex to navigate and even harder to standardize and scale.

Adaptation does not yet have a standardized pathway for creating associated markets that in turn attract private capital.

Adaptation's inherent heterogeneity is no reason to allow ad hoc approaches.

Quite the contrary, it is the rationale for standardization. Standardization of economic policy frameworks is entirely routine and indeed expected across diverse economies, from the most complex and dynamic to comparatively simple commodity-based economies. Indeed, although there are often sector, product and process-specific standards, the more powerful standards are those that apply in specific ways but have cascading effects across multiple 'verticals', for example in the spheres of financial regulation, product labelling standards, public procurement and integrity measures.

A generalizable policy framework is needed that can align and build synergies across governments, investors, and solution providers, taking into account their differing interests and needs, in their development of a global adaptation economy.

Policies to catalyze the adaptation economy already exist in practice, if not in name.

Adaptation policy has gained increasing interest in recent years. Some academic work has focused on understanding the relationship between policy interventions for adaptation and improvements in household welfare.[23] Others have focused on the types of policies and interventions needed to harness markets and more broadly the commercial logic in addressing adaptation challenges and needs.[24] Through a financing lens, several international organizations have identified some of the policy measures needed to attract private capital, including the OECD's *Climate Adaptation Investment Framework*,[25] the World Bank's *Enabling Private Investment in Adaptation and Resilience*,[26] and the International Finance Corporation's *Enabling Environment for Private Sector Adaptation*.[27] Standard Chartered has led much of the financial community in using the adaptation economy to frame its thinking, analysis and approach, summarized in its *Guide for Adaptation and Resilience Finance*.[28]

These and other frameworks and analyses have been widely welcomed for bringing clarity to a fast-evolving space. Policymakers gained a clearer sense of where to focus regulatory and fiscal reforms. Investors found reassurance that adaptation is being framed in the language of risk, returns, and markets—rather than vulnerability alone. By spotlighting financing gaps, modeling adaptation's value-preserving potential, and identifying practical entry points, these efforts have created momentum and legitimacy for investment in resilience.

Effective policy frameworks, whether for climate adaptation or broader governance, are widely recognized as essential for guiding action, reducing uncertainty and unlocking investment. Experts emphasize that strong frameworks are clear, flexible and evidence-driven, linking local needs with strategic priorities while creating incentives for innovation, coordination, and resilience. They provide the "rules of the game" that allow governments, businesses and communities to plan, adapt and act with confidence.

The Framework builds directly on existing groundwork while taking it a step further.

By integrating the demand side of the adaptation economy into a discussion that has primarily focused on the supply side of finance, we show how specific policy choices, institutions and market conditions can make or break investment flows. This more prescriptive approach offers governments a roadmap for enabling private capital, while giving investors a clearer view of where opportunities will emerge. In this way, we connect policy ambition with market appetite, turning adaptation from a financing gap into a growing investment arena.

23 https://cepr.org/voxeu/columns/economics-climate-adaptation-academic-insights-effective-policy

24 https://www.brookings.edu/articles/mobilizing-the-market-the-barriers-to-financing-a-more-scalable-climate-response/

25 https://www.oecd.org/en/publications/climate-adaptation-investment-framework_8686fc27-en.html

26 https://openknowledge.worldbank.org/entities/publication/6219bf23-87e1-5f30-aaf9-30e0cd793ce3

27 https://www.ifc.org/content/dam/ifc/doc/mgrt/Enabling-Environment-for-Private-Sector-Adaptation-Stenek-Amado-Greenall.pdf

28 https://www.sc.com/en/uploads/sites/66/content/docs/Standard-Chartered-Bank-Guide-For-Adaptation-And-Resilience-Finance-FINAL.pdf

7.

Introducing the Adaptation Economy Framework

The proposed Adaptation Economy Policy Framework is needed to guide decision-making across multiple actors.

- Policymakers, both domestic and those engaged in international cooperation and development efforts, need to understand where bottlenecks exist, how enabling environments can be strengthened, and how policies can align with private investment needs.
- Investors require tools to evaluate market conditions, assess jurisdictional and asset level risks, and gauge the credibility of government policies in adaptation-relevant sectors.
- Solution providers benefit from clarity on where supportive policies and infrastructure allow their products and services to be delivered profitably through growing markets, thereby enabling them to raise capital and scale.

Governments that combine the right mix of policies, institutions and incentives can attract the talent, technology and capital necessary to scale adaptation markets

The Framework is designed to address diverse stakeholder needs.

At its core, the Framework we propose rests on a simple but powerful idea: governments that combine the right mix of policies, institutions and incentives can attract the talent, technology and capital necessary to scale adaptation markets. It identifies the domains where public policy shapes private sector engagement in adaptation—from business climate reforms and access to finance to market and trade standards, innovation systems, and workforce development. In so doing, it provides insights and practical guidance for assessing and creating durable, investable adaptation markets.

The proposed Framework identifies seven primary policy domains.

- Economic Resilience
- Risk Expectations and Behavioral Change
- Financial Market Strength
- Entrepreneurship, Innovation and Technological Diffusion
- Quality and Robustness of Infrastructure
- Governance Efficiency and Integrity
- Social Cohesion

These domains, summarized in Exhibit 9, illustrate the economic, social and institutional attributes that determine whether and how affordable adaptation-relevant goods and services emerge, scale and persist. Together, they provide a whole-economy lens to assess how national policies can lower barriers, reduce uncertainty and create durable signals for private actors, combining finance-focused approaches with the real economy dynamics that underpin thriving adaptation markets.

A growing body of academic research and policy frameworks underlines the relevance of these domains to building adaptation-ready economies. Macro-fiscal stability and trade diversification are consistently highlighted by the International Monetary Fund (IMF) and OECD as critical to lowering capital costs and buffering supply shocks,[29] [30] while secure property rights and land-use planning underpin resilience in developing economies.[31]

Behavioral signals such as mandatory disclosure, climate-risk stress testing, and open risk data are emphasized by the Network for Greening the Financial System (NGFS) and UN's Office of Disaster Risk Reduction (UNDRR) as necessary for aligning financial and household decisions with climate realities.[32] [33] Evidence from financial regulators and market platforms shows that appropriately designed resilience bonds and prudential oversight are pivotal in unlocking private and blended capital.[34] [35]

Similarly, innovation, R&D and workforce skills are recognized as essential enablers of scalable adaptation solutions.[36] [37] Infrastructure resilience, embedded in standards, spatial planning and PPP frameworks, is understood by the OECD and the World Bank as both a public good and a foundation for new markets.[38] [39] Transparent, efficient governance and anti-corruption measures create the institutional credibility needed for reform implementation,[40] while inclusive and shock-responsive social protection frameworks enhance social cohesion

29 https://www.imf.org/en/Publications/staff-climate-notes/Issues/2022/03/16/Macro-Fiscal-Implications-of-Adaptation-to-Climate-Change-512769

30 https://www.oecd.org/en/publications/strengthening-climate-resilience_4b08b7be-en.html

31 https://blogs.worldbank.org/en/sustainablecities/securing-land-tenure-to-secure-a-sustainable-future

32 https://en.ndrc.gov.cn/policies/202207/P020220706584756046412.pdf

33 https://www.undrr.org/reports/global-status-MHEWS-2024

34 https://www.climatebonds.net/data-insights/publications/global-state-of-the-market-2024

35 https://www.ngfs.net/en/publications-and-statistics/publications/guide-supervisors-integrating-climate-related-and-environmental-risks-prudential-supervision

36 https://documents1.worldbank.org/curated/en/158861581492462334/pdf/A-Practitioner-s-Guide-to-Innovation-Policy-Instruments-to-Build-Firm-Capabilities-and-Accelerate-Technological-Catch-Up-in-Developing-Countries.pdf

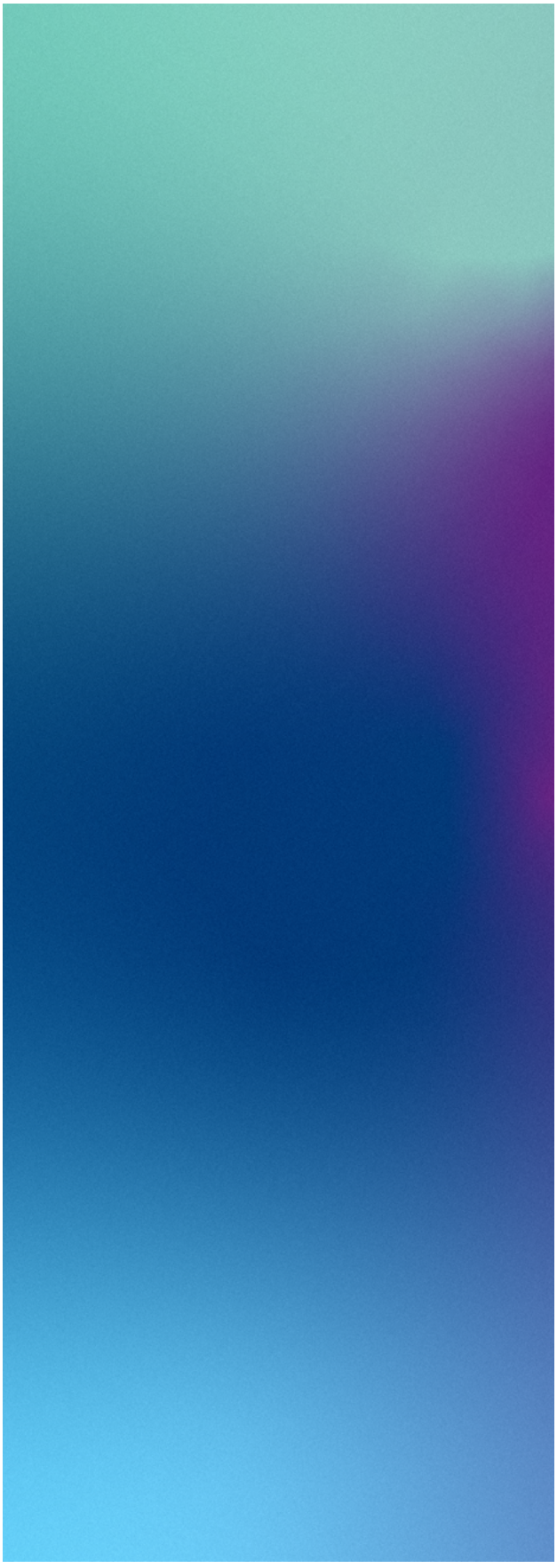
37 https://www.oecd.org/en/topics/science-technology-and-innovation.html

38 https://openknowledge.worldbank.org/entities/publication/c3a753a6-2310-501b-a37e-5dcab3e96a0b

39 Financing Climate Futures: Rethinking Infrastructure. Paris: OECD Publishing, 2018

40 https://www.sciencedirect.com/science/article/pii/S2666188825003788

and ensure that adaptation markets are equitable and stable.[41] [42]Together, this evidence base supports the assertion that the identified policy domains are not abstract categories but reflect well-documented and researched levers for enabling adaptation markets.



41 https://www.oecd.org/en/publications/climate-change-adaptation-and-financial-protection_0b3dc22a-en.html

42 https://ideas.repec.org/b/wbk/wbpubs/2597.html

EXHIBIT 9: ADAPTATION ECONOMY POLICY FRAMEWORK

Policy Domain	Description	Relevance to Adaptation	Key Policy Levers
1. Economic Resilience	The economy's capacity to absorb shocks and keep markets functioning	Predictable macro conditions and well-functioning markets lower cost of capital and keep prices and demand stable.	• Macroeconomic and fiscal stabilization measures • Diversification and resilient trade/logistics strategies • Property rights/land-use reforms
2. Risk Expectations and Behavioral Change	How households, firms and financiers perceive climate risk—and how signals shift behavior.	Accurate, visible and priced risk turns latent need into real demand, directing capital to adaptation solutions.	• Mandatory climate-risk disclosure and stress tests • Open climate risk data/ early warning systems and risk mapping • Consumer protection and awareness raising
3. Financial Market Strength	Depth, reach and sophistication of financial systems for long-term, resilience-oriented investment.	Properly regulated financial systems, with appropriate investment vehicles, determine whether capital can flow at scale prices that make solutions viable.	• Framework for green, resilience and catastrophe bonds • Public spending alignment with adaptation priorities • Prudential regulation and supervision incorporating climate and disaster risk
4. Entrepreneurship, Innovation and Technological Diffusion	Generation, scaling and adoption of technology and business models needed in a warmer climate.	Innovation expands the menu of solutions and drives costs down; policies ensure new adaptation goods, services and business models can scale.	• Research focused on adaptation priorities • Incubators, extension services and tech-transfer partnerships • Workforce development and vocational training
5. Quality and Robustness of Infrastructure	Standards reinforce strength, adaptability and reliability of infrastructure systems in the face of climate/ economic stresses.	Resilient infrastructure is both a market in itself and the platform many other adaptation markets depend on.	• Climate-resilient codes/ standards • Risk-informed spatial planning/zoning • Public Private Partnership (PPPs) frameworks with resilience requirements
6. Governance Efficiency and Integrity	Capability, coherence and credibility of public institutions to design, coordinate and implement complex reforms that support transition.	Strong and transparent governance creates conditions for adaptation markets to create and scale without unduly burdening limited public resources.	• Mechanisms for regulatory responsiveness to emerging private sector needs • Regulatory streamlining/ one-stop permitting for solution providers • Open contracting, anti-corruption controls
7. Social Cohesion	Inclusion, trust and social protection underpinning public interventions and the emergence of stable, functioning adaptation markets.	Inclusive access and trust foster real, scalable markets; cohesion reduces conflict risk and smooths reform adoption.	• Adaptive and shock-responsive social protection systems • National insurance and/ or catastrophe pool laws establishing shared risk mechanisms • Participatory planning, community ownership and grievance mechanisms

Exhibit 9 summarizes the seven domains of the Adaptation Economy Policy Framework in a clear, structured format, highlighting the key dimensions that shape the emergence and scaling of adaptation markets. For each domain, the table provides a concise description, explains why it is critical for enabling private investment and market development, and identifies the top policy levers most relevant to strengthening that domain.

By mapping each domain alongside its relevance for adaptation and actionable policy instruments, the systemic nature of adaptation market formation becomes clear. Interventions across economic resilience, financial systems, infrastructure, governance, innovation, social cohesion and risk management collectively lower barriers, reduce uncertainty and generate credible market signals.

The Framework is designed to be immediately actionable, allowing stakeholders to identify priorities, compare conditions across countries or sectors, and target efforts that can accelerate the provision of adaptation goods and services at scale.

Taken together, these domains provide a holistic view of the adaptation economy.

The Framework intends to show that mobilizing private capital is not solely a question of financing mechanisms but of shaping the broader ecosystem in which businesses, investors and communities operate. This domain-level perspective offers actionable insights for policymakers, investors, and solution providers, highlighting where strategic focus can generate the greatest impact in fostering resilient, innovative and inclusive adaptation markets.

The Framework has been designed to accommodate multiple lenses.

While its elements are broadly applicable across sectors, providing a macro lens on the cross-cutting drivers of the adaptation economy, the seven domains also offer a practical structure for understanding the policies that are particularly relevant to individual industries. Agriculture, for example, can be understood through its reliance on innovation and risk-transfer mechanisms, while construction highlights the centrality of standards and regulation. Similarly, water and sanitation systems reveal the importance of long-term planning and public-private coordination. In this way, the Framework can accommodate the nuances of both the system-wide enablers of adaptation economies and the sector-specific pathways through which resilience can be advanced. The Framework serves both as a guide for system-level transformation and as a tool for diagnosing sector-specific enablers and barriers.

8.

Framework Domains

Unpacking the seven policy domains

Each domain summarizes a distinct set of conditions through which governments shape the emergence, growth and scaling of adaptation markets. By exploring economic foundations, financial systems, innovation ecosystems, governance, infrastructure, social cohesion and risk management, the Framework provides a comprehensive basis for considering how policies and institutions collectively can create an enabling environment for private investment in adaptation goods and services.

For each domain, this document outlines key factors, relevant policy levers, and illustrative case examples that demonstrate how targeted interventions can translate into tangible market outcomes, and concrete ways they are being taken up by governments around the globe.

What ties these domains together is the progression from policy to outcomes. Effective policy action generates clear signals that bring forward demand for resilience solutions; finance tools then translate that demand into transactions by reducing costs and aligning incentives; and robust data and performance metrics make adaptation results visible, comparable, and investable. This through-line—Policy → Signals → Investable Demand → Capital Formation → Resilience Outcomes—provides the connective tissue across the domains. The sections that follow unpack how each domain reinforces a different part of this chain, showing in practical terms how governments and markets can together transform fragmented adaptation activity into a functioning, investable adaptation economy.

A. Economic Resilience

Economic resilience is the foundation for adaptation markets.

A stable and predictable economic environment is essential for firms and investors to commit resources to long-term adaptation solutions. This domain captures both macroeconomic fundamentals and structural vulnerabilities. Elements such as market size, domestic competition, trade openness, property rights and rule of law are critical for enabling firms to innovate and scale. Equally important are policies that address exposure to climate-sensitive sectors or fragile supply chains, which can constrain investment and increase risk.

This domain also highlights the importance of macro-fiscal stability, as high debt burdens or volatile monetary conditions can crowd out both public and private investment in adaptation. Exchange rate and inflation risks are particularly critical in countries heavily dependent on imported technologies or materials for resilient infrastructure. Furthermore, structural reforms that diversify economies away from climate-sensitive sectors, such as rainfed agriculture or coastal tourism, help reduce systemic vulnerability, making adaptation investments more attractive to investors.

As illustrated in Exhibit 10, key policy levers that governments can deploy to strengthen economic resilience including macroeconomic and fiscal stabilization measures that safeguard financial stability, strategies to diversify the economy and ensure resilient trade and logistics systems, and reforms to property rights and land-use planning that secure assets and promote adaptive investment.

When economies are resilient, investors can confidently deploy capital into adaptation goods and services, ranging from resilient housing to climate-smart agriculture, while reducing reliance on increasingly scarce public funding.

EXHIBIT 10: ECONOMIC RESILIENCE IN PRACTICE

Several country-level experiences illustrate how targeted policy reforms can strengthen the economic fundamentals that underpin adaptation markets.

China's Dual Circulation Strategy has prioritized domestic supply chain resilience, especially in sectors such as agriculture and water infrastructure, by encouraging substitution of imports with local production and fostering greater investment in rural logistics and distribution systems. These measures reinforce the policy lever of *resilient trade and logistics strategies*, reducing exposure to external shocks and stabilizing long-term investment conditions for adaptation-relevant industries.[43]

Ethiopia's Homegrown Economic Reform Agenda provides another example, as it seeks to diversify exports and reduce dependence on climate-sensitive commodities by developing agro-processing zones and strengthening linkages between smallholder farmers and industrial markets. By broadening the economic base and integrating climate resilience into export diversification, the reforms advance the levers of *macroeconomic stabilization* and *economic diversification*, directly lowering systemic climate vulnerability.[44]

In **Vietnam**, amendments to the **Investment Law** have introduced land-use and tax incentives designed to stimulate private investment in renewable energy, water management and other climate-relevant sectors. These changes enhance investor confidence by clarifying property rights and aligning fiscal policy with adaptation priorities, thereby encouraging firms to scale resilience solutions in the domestic market.[45]

Finally, **Jamaica's Fiscal Responsibility Framework** has demonstrated how sustained fiscal discipline can enable resilience-oriented investment. By reducing public debt from unsustainable levels and enhancing fiscal transparency, the Framework has created a predictable macroeconomic environment that lowers sovereign risk premiums. This stability makes it easier for both government and private actors to mobilize capital for adaptation initiatives, illustrating the importance of *macroeconomic and fiscal stabilization measures* in supporting long-term resilience.[46]

43 https://en.ndrc.gov.cn/policies/202207/P020220706584756046412.pdf

44 https://www.elibrary.imf.org/view/journals/002/2020/029/article-A000-en.pdf

45 https://investmentpolicy.unctad.org/investment-policy-monitor/measures/3535/viet-nam-amending-law-on-investment

46 https://www.brookings.edu/wp-content/uploads/2024/03/16937-BPEA-BPEA-SP24_WEB-Arslanalp_Eichengree_Henry.pdf

B. Risk Expectations and Behavioral Change

Risk expectations and behavioral change focus on how climate risks are understood, communicated and integrated into decision-making across public and private spheres.

Accurate and transparent risk disclosure reshapes expectations, influencing business strategies, household behavior and capital allocation. Subcategories include climate data transparency, risk integration, societal and business risk expectations, and solution affordability for households. Shifting risk expectations appropriately relies on a set of policy levers that make climate risks visible, manageable and actionable: from mandatory risk disclosure and stress testing to open data and early warning systems, to consumer protection measures and targeted subsidies that guide investment toward climate-smart outcomes.

This domain underscores that information asymmetries are one of the largest barriers to effective adaptation investment. Without credible, comparable and accessible risk data, markets systematically underprice climate risk, leading to misallocation of capital and delayed adaptation. As illustrated in Exhibit 11, strong disclosure frameworks not only shift investor behavior but also influence everyday decisions by households and firms, from where to build to what crops to plant. At the same time, affordability remains a critical constraint: policies that pair risk transparency with financial support mechanisms, such as insurance schemes or targeted subsidies, ensure that vulnerable groups are not excluded from adaptation-smart choices.

By embedding climate risk into decision-making, this domain generates sustained market demand and encourages private actors to scale solutions in a predictable, profitable way.

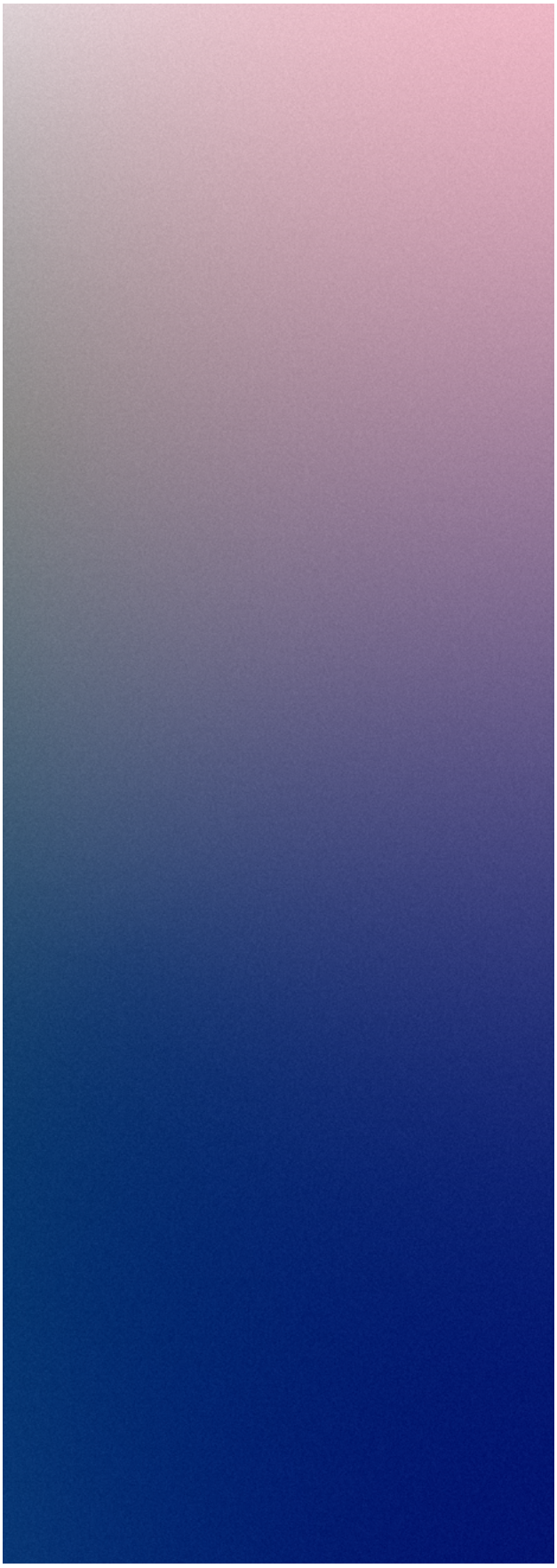


EXHIBIT 11: RISK EXPECTATIONS AND BEHAVIORAL CHANGE IN PRACTICE

A number of country experiences show how well-designed policy interventions can reshape risk expectations and translate them into adaptive investment and behavioral change.

In **Brazil**, the **Rural Insurance Premium Subsidy Program (PSR)** has lowered the cost of agricultural insurance premiums, enabling farmers to access risk management instruments that would otherwise be unaffordable. By reducing upfront costs, the program expands coverage against climate-related shocks and helps shift household and business behavior toward climate-resilient production choices. This illustrates how *targeted subsidies* and *insurance market development* can enhance affordability and mainstream adaptation into agricultural investment decisions.[47]

China's introduction of **mandatory environmental disclosure requirements** for listed firms has spurred the rapid growth of private climate analytics and advisory services. By requiring companies to disclose environmental and climate-related risks, policymakers have improved the visibility and comparability of risk data, which in turn has fueled market demand for specialized services and products. This reflects the power of *mandatory risk disclosure* and *open data frameworks* to catalyze market responses that enhance resilience.[48]

Kenya's agricultural index insurance reforms, including regulatory approval of index-based products and government support for premium subsidies, have enabled providers such as ACRE Africa to scale affordable crop insurance to millions of smallholder farmers. These reforms highlight how *open climate risk data* and *consumer protection measures* can be combined with *targeted subsidies* to create commercially viable products that address systemic vulnerabilities in climate-sensitive sectors.[49]

New Zealand has gone further by requiring **climate-related financial disclosures** under the Financial Sector (Climate-related Disclosures and Other Matters) Amendment Act 2021. These requirements have incentivized insurers to develop detailed, location-specific flood maps and climate-adjusted premiums, making climate risks visible at the household and community level. This demonstrates how *mandatory disclosure and stress testing* can directly influence both financial institutions and household decision-making.[50]

Finally, the **Philippines** has pioneered a **national catastrophe risk insurance program**, which transfers the financial burden of climate disasters to private reinsurance markets. By pooling sovereign and subnational risks and placing them in the global reinsurance market, the program has reduced fiscal exposure while fostering a commercially viable insurance ecosystem for climate hazards. This example shows how *risk transfer mechanisms* and *public–private insurance frameworks* can create durable solutions for systemic climate risks.[51]

47 https://www.oecd.org/en/publications/agricultural-policy-monitoring-and-evaluation-2023_b14de474-en/full-report/brazil_6226dfb7.html

48 Zhang, Lin, and Jinlin Guan. "Environmental information disclosure in China: Policy developments and business responses." In Information, Media and Governance in Contemporary China, edited by Lin Zhang and Honggang Bao, 137–52. New York: Routledge, 2019.

49 https://cgspace.cgiar.org/items/34d65f48-ad14-409b-9e4e-b6da7d28adda

50 https://www.legislation.govt.nz/act/public/2021/0039/latest/whole.html

51 https://documents1.worldbank.org/curated/en/799241548872273775/Insuring-the-Philippines-against-Natural-Disasters-Case-Study.pdf

C. Financial Market Strength

Financial market strength captures the ability of domestic financial systems to mobilize and direct capital toward adaptation-relevant goods and services, including private, public and blended finance.

Financial market sophistication, mobilization of public and private finance, blended instruments, and institutional frameworks collectively shape the scale and efficiency of investment flows. Creating and scaling adaptation markets depends on policy levers that mobilize and direct capital toward climate-resilient solutions: from frameworks that enable green, resilience, and catastrophe bonds, to blended finance instruments and guarantees that align public spending with adaptation priorities, to prudential regulation that integrates climate and disaster risk into market oversight.

This domain also emphasizes the importance of channeling capital to the firms and entrepreneurs that generate adaptation solutions, whether in resilient housing, climate-smart agriculture, water efficiency or digital risk services, particularly those designed to be accessible and affordable for low- and middle-income households in vulnerable regions.

As illustrated in Exhibit 12, financial depth and sophistication determine whether such companies can secure the long-term, patient capital needed to scale, while blended finance and de-risking instruments play a critical role in bridging early market gaps. Equally, the presence of strong regulatory and supervisory frameworks ensures investor confidence, helping adaptation finance flow not just in greater volumes, but into the types of businesses that directly expand resilience on the ground.

EXHIBIT 12: FINANCIAL MARKET STRENGTH IN PRACTICE

Several countries illustrate how policy frameworks and regulatory measures can strengthen financial systems to channel capital into adaptation-relevant goods and services.

In **China**, pilot zones for **green finance**, such as Huzhou in Zhejiang Province, have developed localized taxonomies and financial products to catalyze private investment in sustainable and climate-resilient industries. By combining interest subsidies for green loans, rewards for financial innovation, and penalties for greenwashing, Huzhou has created an environment in which firms and financial institutions can invest confidently in adaptation solutions. These initiatives reflect the importance of *blended finance instruments*, *regulatory support* and *institutional capacity building* in mobilizing private capital for resilience.[52]

In **India**, the **Reserve Bank of India's guidelines on responsible financing** encourage financial institutions to integrate environmental, social and governance (ESG) factors into lending and investment decisions. By providing a regulatory framework that links sustainability with financial risk management, these guidelines make it easier for banks and investors to channel capital toward climate-relevant sectors, illustrating *prudential regulation incorporating climate and disaster risk*.[53]

The **United Kingdom's Prudential Regulation Authority (PRA) climate stress tests** evaluate how banks and insurers would perform under various climate scenarios, incentivizing institutions to strengthen their risk management frameworks and integrate climate risk into their decision-making. Such stress testing is a powerful mechanism to signal market risks, reduce uncertainty and direct private finance toward adaptation solutions, directly operationalizing the lever of *climate-informed prudential supervision*.[54]

Finally, the **Philippines Sustainable Finance Framework** demonstrates how a robust policy and regulatory foundation can support the scaling of adaptation finance. The framework guides financial institutions to incorporate sustainability considerations into operations and investments, enabling private capital to flow into climate-resilient projects, including infrastructure, agriculture and risk management services. This example highlights the role of *financial market sophistication* and *policy alignment with adaptation priorities* in ensuring that investments not only increase in volume but also target solutions that enhance resilience on the ground.[55] These interventions reduce uncertainty, lower the cost of capital and allow investors to allocate resources to infrastructure, water and housing sectors at scale, unlocking markets that extend well beyond public finance capacity.

52 https://rpc.cfainstitute.org/sites/default/files/docs/research-reports/green-finance-huzhou-report_online.pdf

53 https://rsisinternational.org/journals/ijrias/articles/esg-implementation-in-financial-institutions-status-in-india/

54 https://www.bankofengland.co.uk/prudential-regulation/publication/2021/june/climate-related-financial-disclosure-2020-21

55 https://www.bsp.gov.ph/Regulations/Issuances/2020/c1085.pdf

D. Entrepreneurship, Innovation and Technological Diffusion

This domain evaluates the country's capacity to generate, absorb and scale solutions for a warming economy.

This domain encompasses entrepreneurship ecosystems, innovation and R&D infrastructure, workforce skills, digital platforms and technology transfer mechanisms. Scaling adaptation solutions depends on policy levers that foster innovation and entrepreneurship: from research funding and incentives targeting adaptation priorities, to incubators, extension services and technology-transfer partnerships, to workforce development and vocational training that equip people with the skills needed for a resilient economy.

This domain also highlights the importance of creating enabling conditions for both established firms and start-ups to develop and commercialize adaptation solutions. As illustrated in Exhibit 13, policies that enable access to data, digital platforms and technology-transfer networks allows innovations to move quickly from research to market, while workforce development ensures that skilled talent is available to implement and operate these solutions. Moreover, policies that encourage collaboration between the private sector, academia and public institutions help accelerate solution adoption, reduce costs and ensure that innovation is responsive to the needs of vulnerable communities. In this way, the innovation ecosystem becomes a key driver of both the scale and effectiveness of adaptation markets. Strong entrepreneurship and innovation ecosystems accelerate the commercialization of adaptation goods and services, fostering private investment, talent attraction and market dynamism.

EXHIBIT 13: ENTREPRENEURSHIP, INNOVATION AND TECHNOLOGICAL DIFFUSION IN PRACTICE

Countries are beginning to recognize that entrepreneurship, innovation, and technological diffusion are critical for developing scalable solutions to climate adaptation challenges.

In **Brazil**, the **National Internet of Things (IoT) Plan** prioritizes agriculture and environmental sectors for digital technologies. By integrating IoT applications into critical areas such as farming and resource management, the plan strengthens the innovation ecosystem, helping small and medium-sized enterprises adopt adaptive technologies. This approach illustrates how targeted innovation policies and sector-specific incentives can accelerate the development and diffusion of climate-smart solutions.[56]

China's Government Venture Capital funds pair public and private capital to support high-tech adaptation solutions, including agricultural drones and renewable energy technologies. By mobilizing large-scale investment into early-stage ventures, the funds demonstrate how policy can reduce risk, leverage private finance, and create a pipeline of innovative solutions that address adaptation challenges at scale.[57]

In **Kenya**, the **Science, Technology and Innovation Act** provides the institutional backbone for climate-relevant innovation, establishing funding mechanisms, coordinating research activities, and integrating technology development into national priorities. This framework ensures that innovation is structured, sustainable and able to generate solutions that directly contribute to resilience in sectors like agriculture, water and energy.[58]

The Philippines has strengthened support for private startups and research commercialization through the **National Innovation Act (Republic Act No. 11293)**. By establishing the National Innovation Council and providing strategic guidance for the national innovation ecosystem, the Act promotes the development and scaling of adaptation technologies, particularly those that are accessible and relevant to vulnerable communities.[59]

These examples illustrate that fostering entrepreneurship and innovation is not simply about supporting isolated technologies but about creating enabling environments where research, capital and talent converge. Policies that encourage collaboration between the private sector, academia and public institutions reduce costs, accelerate adoption and ensure that technological diffusion contributes meaningfully to building resilient economies.

56 https://cacm.acm.org/sustainability-and-computing/a-brazilian-perspective-on-computing-for-the-planets-sustainability/

57 http://en.ce.cn/Insight/202503/10/t20250310_39315204.shtml

58 https://faolex.fao.org/docs/pdf/ken126311.pdf

59 https://lawphil.net/statutes/repacts/ra2019/ra_11293_2019.html

E. Quality and Robustness of Infrastructure

This domain ensures that markets and communities function effectively under climate and economic stresses.

It enables the evaluation of, and planning for, physical, digital and utility infrastructure, including exposure to hazards, decentralization and integration of ecosystem-based solutions. Scaling adaptation-ready infrastructure relies on policy levers that embed resilience into every layer: from climate-smart building codes and spatial planning regulations to disaster risk management laws, infrastructure lifecycle standards, and ecosystem-based adaptation measures.

This domain also emphasizes the importance of forward-looking, integrated planning that accounts for cascading risks across sectors and geographies. Policies that promote infrastructure modularity, redundancy and decentralized systems can reduce vulnerability and improve system-wide resilience. Incorporating ecosystem-based solutions, such as natural floodplains, urban green spaces, or coastal wetlands, enhances both ecological and social benefits while lowering long-term maintenance and disaster costs. By embedding resilience at every stage, from design through operation and maintenance, governments and investors can ensure that infrastructure not only withstands shocks but also supports the broader adaptation economy.

The cases provided in Exhibit 14 illustrate policy action that helps to create demand for private firms supplying resilient infrastructure solutions. High-quality and adaptation-ready infrastructure is an asset class unto itself and critical to all other sectors by reducing service interruptions, lowering investment risk and enabling markets to deliver essential climate-relevant goods and services reliably, creating conditions for sustained private-sector investment in adaptation.

EXHIBIT 14: QUALITY AND ROBUSTNESS OF INFRASTRUCTURE IN PRACTICE

A number of country-level experiences illustrate how policy interventions can strengthen rules and regulations on the quality and robustness of infrastructure, making markets and communities more amenable to scaling adaptation solutions in the built environment.

In **Bangladesh**, the **Climate Resilient Infrastructure Investment Program**, supported by the Asian Development Bank, has enabled the government to integrate resilience and climate adaptation into critical infrastructure planning and investment. By embedding climate-smart standards into construction, transport and utility projects, the program addresses exposure to hazards while promoting inclusive development. This example demonstrates how targeted financing combined with regulatory guidance can ensure that infrastructure not only withstands shocks but also supports long-term adaptation objectives.[60]

China's Sponge City program provides another useful illustration. By redesigning urban landscapes to absorb, store and purify rainwater, cities participating in the program reduce flooding, mitigate water scarcity, and enhance urban environmental quality. Sponge City interventions integrate ecosystem-based solutions, such as green spaces, wetlands and permeable surfaces. Although implementation has faced challenges, it highlights how forward-looking planning, modular design and nature-based solutions can strengthen infrastructure resilience while delivering social and ecological co-benefits.[61]

In **Chile**, the **National Adaptation Plan** sets a comprehensive framework for enhancing resilience across sectors and territories. Chile's government is focused on reducing vulnerability and improving the reliability of transportation, energy and water infrastructure. By coordinating adaptation actions and establishing lifecycle standards for public investments, Chile illustrates the role of national planning instruments and regulatory frameworks in embedding resilience into infrastructure systems.[62]

Kenya's Vision 2030 Public-Private Partnership Act demonstrates the role of institutional and legal frameworks in mobilizing private investment to strengthen infrastructure quality. The Act provides a structured mechanism for private sector participation in public infrastructure projects, accelerating delivery while embedding standards for resilience and sustainability. This approach illustrates how policy instruments that combine regulation with financial facilitation can drive system-wide improvements in robustness, supporting both economic activity and climate adaptation outcomes.[63]

60 https://www.adb.org/news/adb-approves-400-million-resilient-inclusive-development-bangladesh

61 https://iwaponline.com/wst/article/88/10/2499/98252/Review-of-Sponge-City-implementation-in-China

62 https://unfccc.int/documents/302816 AND https://www.undrr.org/media/105606

63 https://vision2030.go.ke/public-private-partnerships-to-drive-final-leg-of-vision-2030/

F. Governance Efficiency and Integrity

This domain is critical for translating policy intent into action and building investor confidence.

Effective governance involves regulatory quality, anti-corruption measures, inter-agency coordination, and responsiveness to emerging business needs. Strengthening governance for adaptation markets depends on policy levers that enhance efficiency, transparency and responsiveness to private sector needs: from anti-corruption laws and statutory approval timelines to inter-ministerial climate councils and regulatory sandboxes that allow experimentation, to public administration reforms and inclusive stakeholder engagement mechanisms.

Strong governance also ensures alignment across sectors, providing coherent signals to the market and facilitating long-term, sustainable adaptation investments. This domain also highlights the critical role of accountability and trust in shaping investor confidence. Transparent processes, clear legal frameworks and consistent enforcement reduce uncertainty and transaction costs, making adaptation markets more attractive and predictable.

Governance structures that encourage collaboration between government, the private sector and civil society enable more effective identification of barriers, the piloting of innovative solutions, and the scaling of successful adaptation practices. By fostering an environment of reliability and responsiveness, strong governance not only supports individual investments but also underpins the broader development of robust, resilient adaptation economies.

The examples in Exhibit 15 illustrate that strong governance structures, characterized by transparency, coordination, and responsiveness, are vital for scaling adaptation solutions. By embedding resilience into governance frameworks, countries can create enabling environments that attract investment, foster innovation and ensure the effective implementation of adaptation solutions.

EXHIBIT 15: GOVERNANCE EFFICIENCY AND INTEGRITY IN PRACTICE

Effective governance is essential for translating policy intent into action and building investor confidence in adaptation markets. Several countries have implemented innovative governance frameworks that enhance regulatory quality, inter-agency coordination, and responsiveness to emerging business needs.

In **Australia**, the **National Climate Resilience and Adaptation Strategy** serves as a comprehensive policy framework to guide the nation's response to climate change. This strategy emphasizes the importance of transparent processes and clear legal frameworks, which reduce uncertainty and transaction costs, making adaptation markets more attractive and predictable. By fostering collaboration between government, the private sector and civil society, Australia has created an environment of reliability and responsiveness that supports individual investments and underpins the broader development of robust, resilient adaptation economies.[64]

Canada's Pan-Canadian **Framework on Clean Growth and Climate Change** exemplifies a coordinated national approach to climate adaptation. The framework includes over 50 concrete measures to reduce carbon pollution, build resilience to the impacts of climate change, foster clean technology solutions, and create good jobs that contribute to a strong economy. This comprehensive approach highlights the critical role of accountability and trust in shaping investor confidence, ensuring alignment across sectors, and facilitating long-term, sustainable adaptation investments.[65]

Estonia's e-government initiatives demonstrate how digital governance can enhance efficiency and transparency. By leveraging digital platforms, Estonia has streamlined public administration processes reducing bureaucracy and improving service delivery. These initiatives facilitate inclusive stakeholder engagement and allow for experimentation through regulatory sandboxes, enabling the piloting of innovative solutions. Estonia's approach underscores the importance of integrating technology into governance to create adaptive and responsive systems that support climate resilience.[66]

64 https://www.dcceew.gov.au/climate-change/policy/adaptation/strategy/ncras-2021-25

65 https://www.canada.ca/en/services/environment/weather/climatechange/pan-canadian-framework.html

66 https://e-estonia.com/

G. Social Cohesion

This domain underpins collective action and stability which are both critical for adaptation markets.

Social cohesion covers interpersonal trust, civic participation, inclusion of marginalized groups, social protection coverage, and safety and security, which are the fundaments of a coherent society. Building social cohesion for adaptation markets relies on policy levers that share risk and strengthen confidence: from adaptive, shock-responsive social protection systems and national insurance or catastrophe pools to participatory planning, community ownership, and grievance mechanisms that ensure inclusion and accountability.

This domain also underscores that social cohesion directly shapes the effectiveness and uptake of adaptation solutions. Communities with higher trust and inclusive institutions are better able to participate in planning, adopt new technologies, and maintain infrastructure, reducing operational risks for firms and investors. Policies that enhance social safety nets and equitable access to resources help ensure that vulnerable groups can engage in, and benefit from, adaptation markets. By strengthening collective resilience and confidence, social cohesion not only supports immediate protective measures but also fosters long-term sustainability and scalability of adaptation solutions.

Operationalizing equity and access within this domain can be done by pairing market instruments with lifeline tariffs, means-tested vouchers (income-based discounts), and results-based subsidies to ensure inclusion. These can be distributed and tracked by using existing government benefit systems to verify eligibility and make payments and track coverage and affordability by bill-to-income ratios and uptake among lower-income groups

The examples provided in Exhibit 16 underline how policies aimed at enhancing social cohesion, through inclusive governance, equitable access to resources, and adaptive social protection systems, are essential for the success and scalability of adaptation markets. By fostering trust, participation and accountability, such policies create an environment conducive to collective action and long-term resilience.

EXHIBIT 16: SOCIAL COHESION IN PRACTICE

Social cohesion is fundamental for fostering collective action and stability, both of which are critical for the success of adaptation markets. Several countries have implemented policies that enhance social cohesion, thereby strengthening the ability of adaptation solutions to take root and scale.

In **Bangladesh**, the government has recognized the importance of integrating climate resilience into social protection systems, with specific guidelines that aim to create a system that provides safety nets and empowers communities to prepare for, cope with, and adapt to shocks. They emphasize the integration of social protection with disaster management and climate adaptation strategies, focusing on inclusivity, responsiveness, sustainability and adaptability. By prioritizing community engagement and ensuring that the needs and rights of all community members are addressed, Bangladesh is enhancing social cohesion and enabling vulnerable groups to engage in and benefit from adaptation markets.[67]

Brazil's Policy for Territorial and Environmental Management of Indigenous Lands articulates a commitment to inclusivity and equity, which is so important for adaptation efforts. This policy promotes the protection, recovery, conservation and sustainable use of natural resources in indigenous territories and lands. Such inclusive governance structures not only promote social cohesion but can also enhance the effectiveness of adaptation solutions by incorporating diverse perspectives and knowledge systems.[68]

Mexico's Progresa/Oportunidades program, now known as **Prospera**, is a conditional cash transfer initiative that has significantly contributed to poverty alleviation and social cohesion. By linking cash transfers to health and education requirements, the program incentivizes investment in human capital, leading to improved long-term outcomes for beneficiaries. The program's success in reducing poverty and promoting social inclusion underscores the importance of adaptive, shock-responsive social protection systems in building collective resilience, which can help to underpin affordability in adaptation markets.[69]

Norway promotes social cohesion through a variety of inclusive policies. The country's strategy focuses on reducing inequalities and promoting inclusion across various sectors. By integrating considerations of equity and access into adaptation planning, Norway ensures that vulnerable groups are not left behind, thereby strengthening social cohesion and enhancing the sustainability of adaptation solutions.[70]

67 https://socialprotection.gov.bd/wp-content/uploads/2025/08/Guidelines-on-Adaptive-Social-Protection-2.pdf

68 https://www.gov.br/funai/pt-br/arquivos/conteudo/cggam/pdf/2017/decreto-pngati-versao-em-ingles.pdf

69 https://www.worldbank.org/en/news/feature/2014/11/19/un-modelo-de-mexico-para-el-mundo

70 https://www.regjeringen.no/en/topics/equality-and-diversity/id922/

Taken together, these seven domains highlight the systemic nature of the adaptation economy.

They illustrate how private investment is not simply a matter of providing capital but depends on aligned policies that stabilize the macroeconomic environment, integrate climate risk into decision-making, enable financial markets, foster innovation, build resilient infrastructure, maintain effective governance, and sustain social trust.

By providing a generalizable, whole-economy playbook, the Framework aims to help governments, investors and innovators to identify opportunities, reduce barriers, and accelerate the scaling of adaptation goods and services.

The seven domains operate as an interdependent system, not a fixed sequence. In practice, four cross-cutting enablers recur across contexts, each mapping to the domains and combining differently by country/sector:

- Credible rules & delivery capacity (*maps to Governance Efficiency & Integrity; Economic Resilience*): clear mandates, transparent processes, and institutional capability so policies are credible and can be implemented.

- Information, disclosure & measurement (*cuts across Risk Expectations & Behavioural Change; Financial Market Strength*): risk information, consumer signalling, and decision-grade KPIs/MRV so actors can price, verify, and learn.

- Demand formation instruments (*maps to Risk Expectations & Behavioural Change; Infrastructure Quality & Robustness*): climate-adjusted standards/codes, public procurement, and targeted incentives that make resilience adoption attractive.

- Capital formation & intermediation (*maps to Financial Market Strength; Entrepreneurship, Innovation & Technology Diffusion*): guarantees/first-loss, local-currency provision, project preparation and standard contracts that enable firms and financiers to scale solutions.

- Equity & legitimacy (*maps to Social Cohesion*) run through all enablers to ensure access, political durability, and fair outcomes.

9.

Tomorrow's Adaptation Economics - Today

Adaptation is the over-arching imperative in the face of severe climate change.

Adaptation is not another vertical segment or label alongside low carbon, nature, and other public interests and policy goals. It provides a systemic framing of our overall ambition and need in entering tomorrow's climate impacted world.

Finance needs to be in the service of our need to drive adaptation markets.

Decades of work under the rubric of 'sustainable finance' have taught us about the potential and the limits to scaling flows of specialized sustainability-aligned finance. Adaptation economics must harness every possible approach but cannot be restricted to finance supply-side innovations. Policy action must shape adaptation markets and economies that advance deeper changes to our financial and economic architecture.

Policy action must shape adaptation markets and economies that advance deeper changes to our financial and economic architecture.

Embracing the need for a coherent adaptation economics.

Our plea for a coherent adaptation economics does not come in a vacuum. There are many active and impactful people and organizations working in the adaptation space. But there is an absence of a robust narrative and practice that advances a shared, whole-economy approach. This gap leads to confusion, misdirected capital, and ultimately lower ambitions, and impacts. Such an ad hoc approach is courting disaster as we head into a world beyond 1.5C that is more than likely to surge well above 2C.

Investors need to channel capital into tomorrow's inevitable source of value.

Our framing question has been how to catalyze private capital into investments in adaptation. All asset classes will increasingly be impacted by climate change. What investors want to know is what will be the future source and store of value as the world enters an era of severe climate change impacts.

The fundamental answer is that this value will be embodied in resilient nations and adaptation solution businesses and assets delivering the products and services people will need and can afford in a climate impacted world.

Implementing the Framework enables profitable adaptation-aligned investments.

The proposed Adaptation Economics Policy Framework guides action to drive a virtuous circle of policy and market dynamics, that:

- Activates policy makers to create the right adaptation markets, which need to connect scalable supply side innovations with affordable access to all.
- Creates markets that adequately

reward adaptation solution businesses and assets.

● Catalyses investors to channel capital into resilient nations, adaptation solutions and assets.

Policy Action Can be Taken Now.

The Framework can be put to immediate use. There are four straightforward steps that can be taken by all policymakers, in consultation with investors, businesses and other stakeholders in building Adaptation Economy Policy Roadmaps.

1. Map existing adaptation markets: identify and assess the state of key adaptation markets, starting most urgently with those delivering basic needs.

2. Identify constraints to adaptation markets: exploring, in particular, risk pricing, wider citizen expectations and existing and absent policies.

3. Identify and prioritize policy levers: to advance selected adaptation markets in complex cases possibly. at a sandbox or pilot level.

4. Integrate into broader adaptation economic roadmaps: starting with selected markets but extending to all transversal policy aspects set out in the Framework.

Applications of the Framework can also deliver short-term benefits.

There are potential shorter-term benefits from targeted applications of the Framework, complementing the longer-term gains from improving inclusive economic resilience and productivity. For example, the Framework can be used to shape:

● Public procurement: a direct and potentially powerful policy lever to deploy in incentivizing targeted adaptation markets.

● Policy-linked borrowing: to establish a basis for adaptation economy policy-linked borrowing, especially by developing countries from MDBs.

● Sovereign risk assessments: positively impacting risk ratings by demonstrating a robust adaptation economics embedded in macroeconomic strategies and plans.

● Adaptation finance: embedding adaptation risks into financial markets to incentivize investments in adaptation solutions businesses and assets.

● Carbon and nature: aligning investments in clean energy and nature landscapes with the rise of adaptation markets and related opportunities.

The Framework is a work-in-progress.

The Framework will continue to develop through sandboxing, piloting and drawing lessons from the experiences of implementation. Fortunately, some of this work is already in progress.

● Over the coming period, the contents of the Framework will be widely debated through consultations and technical reviews, and on that basis refined and upgraded.

● Work is already underway to turn the currently qualitative approach into a quantitative index of progress,

initially at the sovereign level.

● And finally, there is already progress in advancing more specific applications, for example, at the sub-sovereign, sector, and asset level.

Morphosis and its partners welcome the wisdom of many and diverse expertise.

The central challenge is not whether adaptation will take root, but whether it will do so at the speed, scale and direction needed to safeguard lives, livelihoods and economies. The contribution of this work will depend not so much on it 'being right', but in its role in catalyzing a community of practice that can improve on this work and act ambitiously. We are committed to supporting and engaging in these efforts going forward.

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Main Report

November 2025

Produced by

Financial support

Technical partners