



From Billions to Trillions .. to Millions

Unlocking Finance for Climate and Development

Department of Economics
University of Warwick
February 27, 2026



MAHMOUD
MOHIELDIN



[/mmohieldin](#)

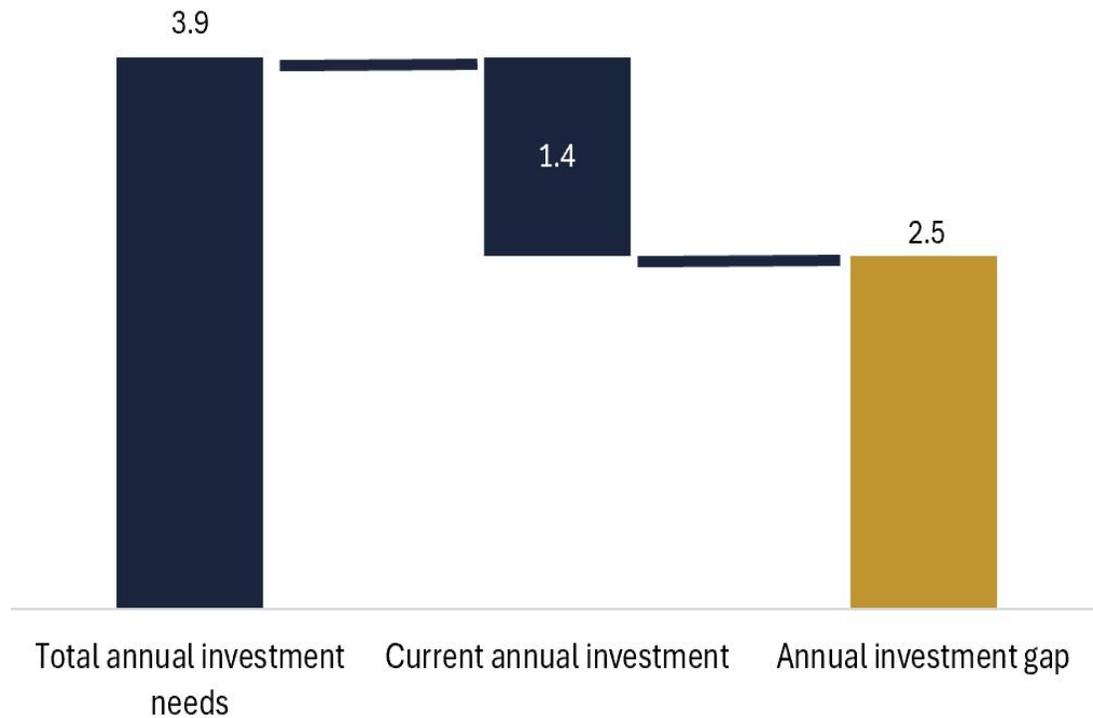


[mohieldin.net/](#)

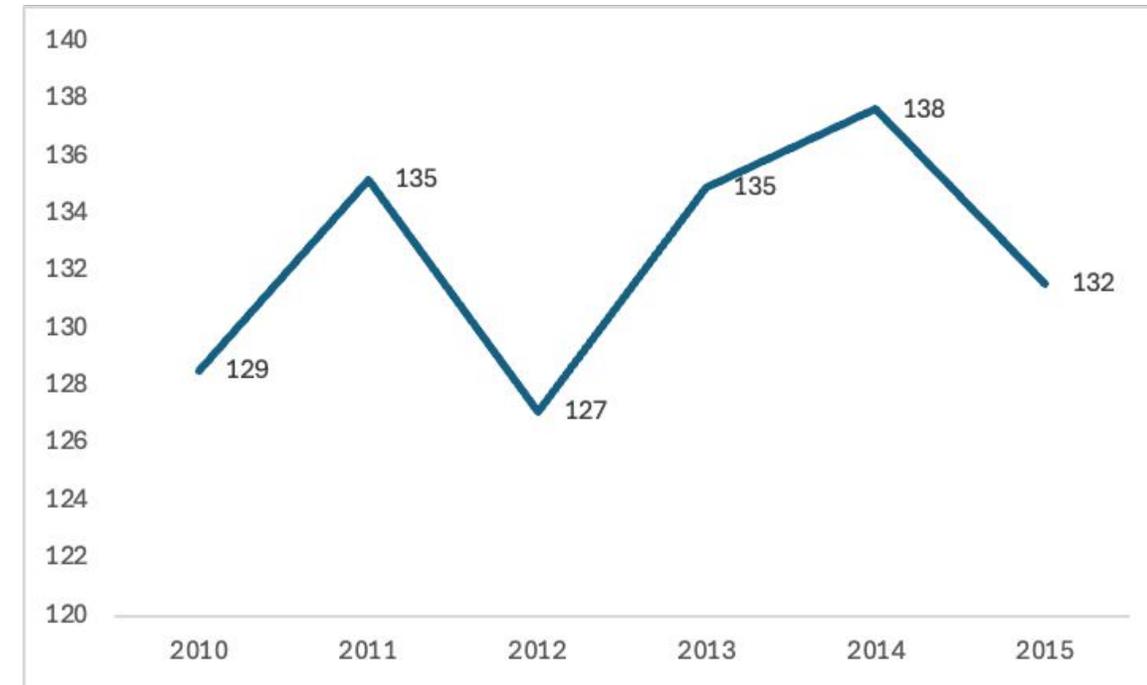


A Throwback to 2015

Estimated annual investment needs and gap in SDGs in developing countries
Trillions of dollars



Official development assistance (ODA), disbursements by DAC countries
Current US dollar, Billions – All recipients





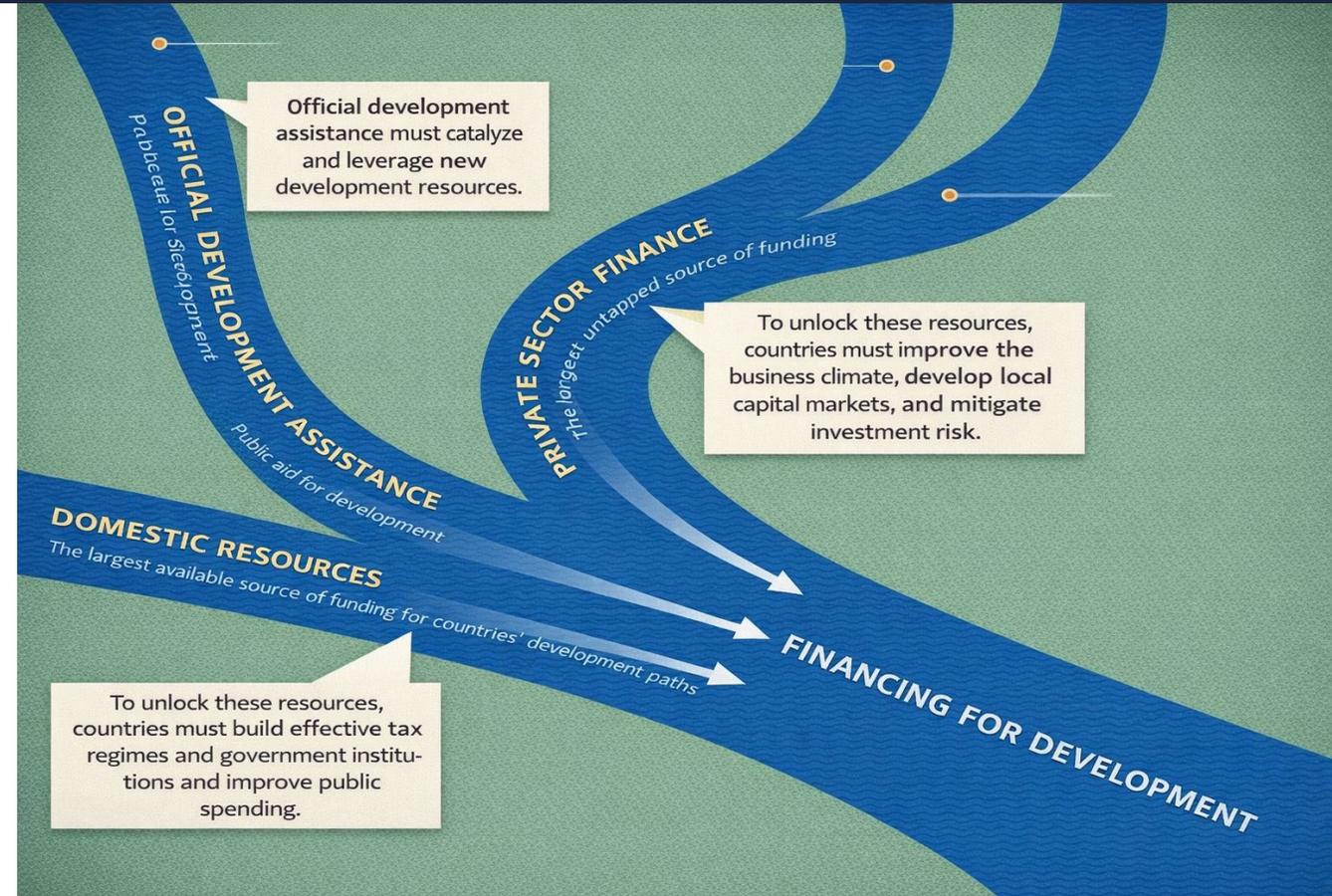
A Throwback to 2015

Finance for Development:

Domestic Resource Mobilization
Domestic Private Investment
External Private Finance & Investment
ODA
Trade
Debt management
Science Technology Innovation
Data

MDBs' role to generate the needed flows:

- 1. Financial leverage:**
Small paid-in capital + callable capital → large-scale finance.
- 2. Private finance & investment**
MDBs mobilize private capital as co-investors & intermediaries + Promote profitable investments & improve investment climates.
- 3. Policy guidance & TA**



Source: Mohieldin 2018; Presentation to the Conference on Financing Sustainable Development, Beirut 2018



The Evolving Global Landscape

Estimated annual SDG investment gap in developing countries is now 60% higher than the original 2014 estimate

USD 2.5 trillion



Widening SDG investment gap



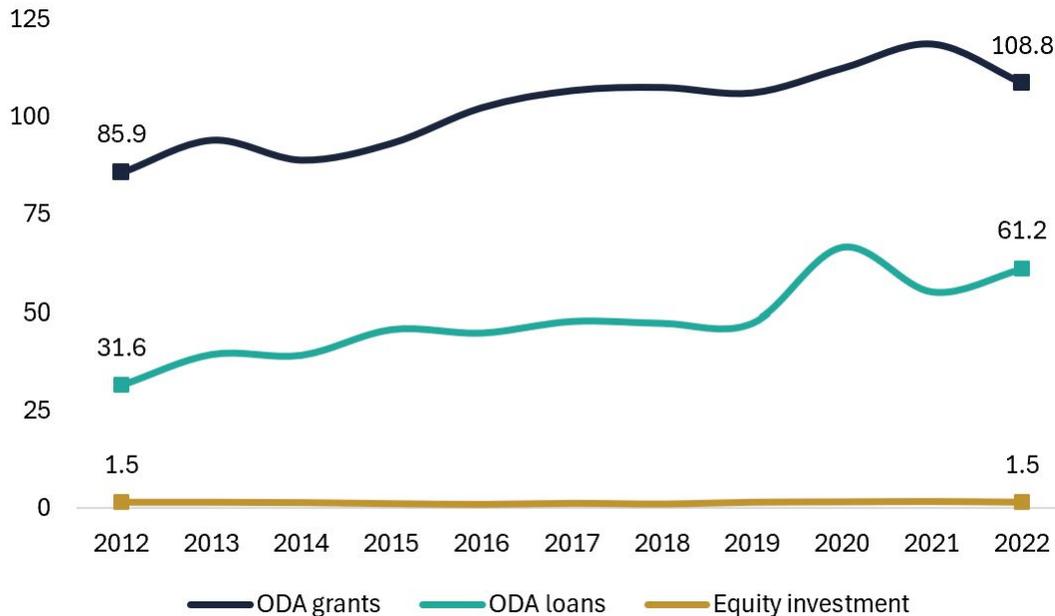
USD 4 trillion

Source: UNCTAD 2023

Aid shifts from grants to loans, increasing developing country debt burdens

Aid loans are outpacing aid grants in all developing regions

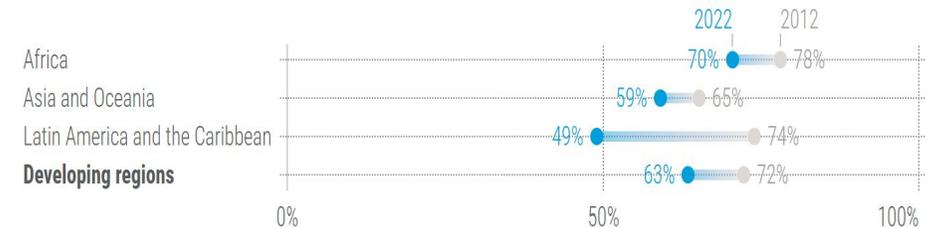
ODA disbursements by instrument, billions constant 2021US\$



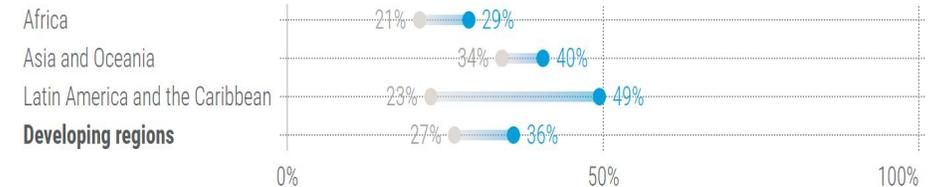
Source: UNCTAD 2024

Share of official development assistance (ODA) by instrument and developing regions, 2012 and 2022

ODA Grants



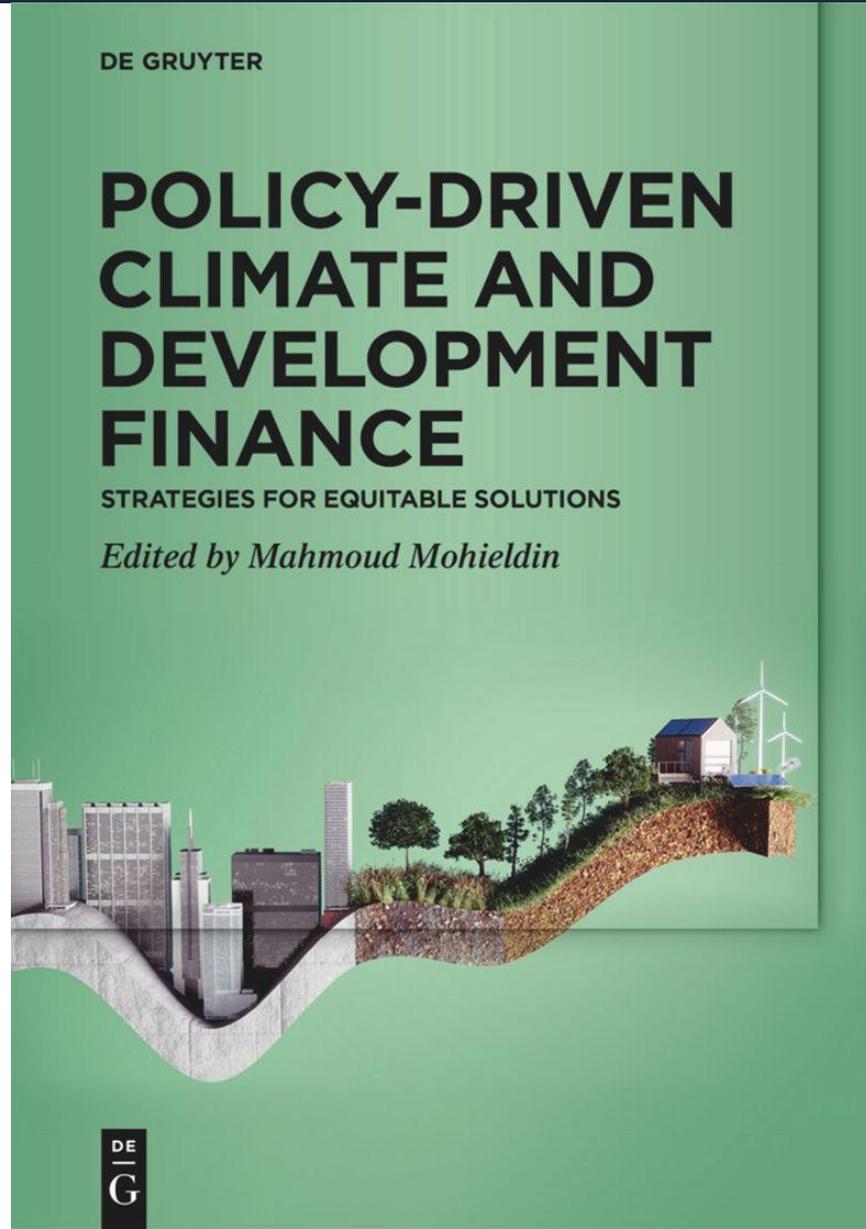
ODA Loans





Policy-Driven Climate and Development Finance

Strategies for Equitable Solutions





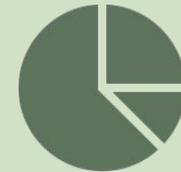
Global Capital is Sufficient; Access, Cost, and Governance Are Not

**The world
has sufficient
capital.**

Mobilization



Allocation



Cost

%

Governance





Why do we need policy-driven climate and development finance strategies?

Insufficient

Investment/spending requirements for climate and sustainable development in EMDEs exc. China (USD billion per year by 2035)
*increment from current in parentheses



Nationally Determined Contributions (NDCs) of developing countries are estimated at USD 5.1–6.8 trillion through 2030

Source: UNFCCC 2024

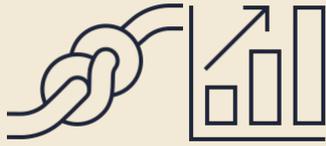
Adaptation finance needs in developing countries are 10–18 times greater than current international public finance flows

Source: UNEP 2023



Why do we need policy-driven climate and development finance strategies?

Inefficient



Access remains complex and costly:

Multiple funding sources coexist with high capital costs, co-financing requirements, and burdensome application processes.



Climate finance is too slow to meet urgent needs:

It often takes years from approval to disbursement.



Systemic bottlenecks persist:

Administrative delays, limited country capacity, weak coordination, and high debt burdens reduce predictability, affordability, and speed.



Why do we need policy-driven climate and development finance strategies?

Unfair



Finance is geographically concentrated:

The U.S., Canada, East Asia & Pacific, and Western Europe account for 79% of mobilized climate finance.



High-potential regions are bypassed:

85% of clean energy investment flows to advanced economies and China, while EMDEs receive only 15%—and the Middle East and Africa less than 3%—despite vast population shares and resource potential.

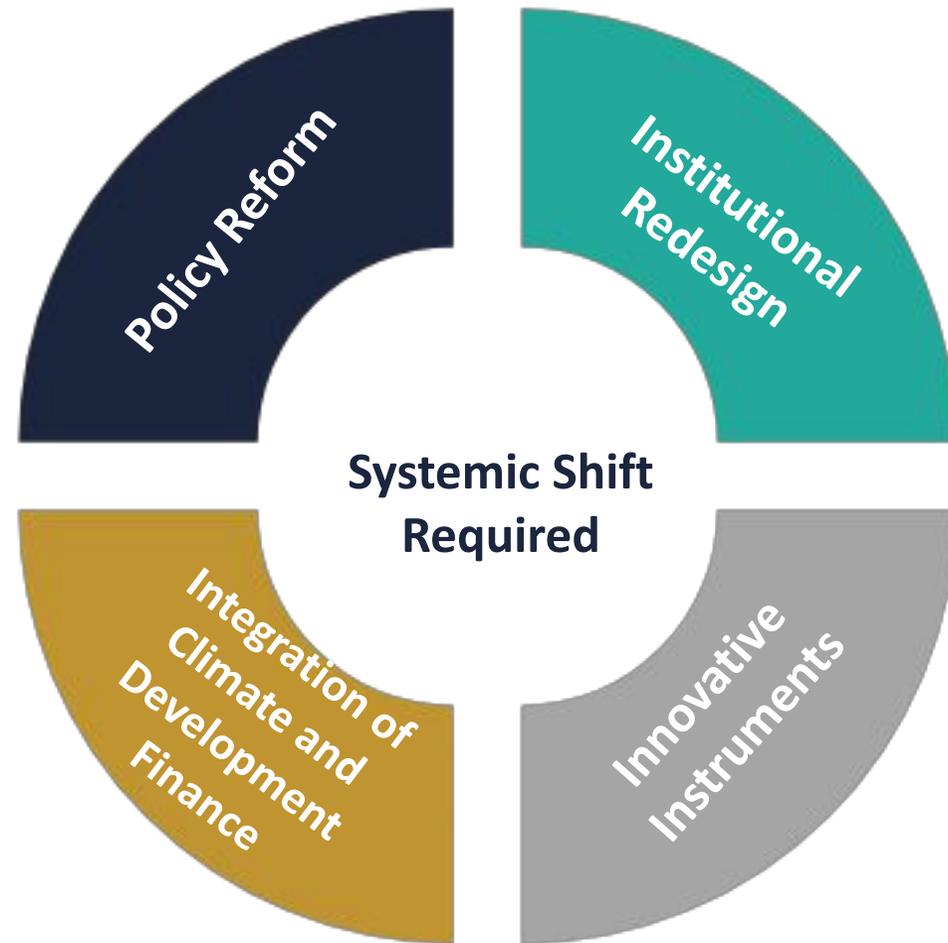


Adaptation, loss & damage, and nature are systematically underfunded:

Finance is skewed toward mitigation in the G20; >70% of nature investment needs are in EMDEs but only ~20% of flows reach them.



The Required Shift: From Fragmentation to an Integrated Framework





Climate and Development Finance Must be Integrated



Climate action and development must advance concurrently



Country context and differentiated pathways matter



The climate–development-finance discourse creates a false dichotomy



Mitigation and adaptation accelerate development outcomes



Climate and Development Finance Must be Integrated

1 NO POVERTY



Up to 130 million people could be pushed into poverty due to climate change (World Bank, 2020).

2 ZERO HUNGER



~ 670 million people may still face hunger in 2030, in part due to more frequent and intense extreme weather events (FAO, 2023).

3 GOOD HEALTH AND WELL-BEING



250,000 additional deaths per year between 2030-2050 from malnutrition, malaria, diarrhea and heat stress alone (WHO, 2023).

6 CLEAN WATER AND SANITATION



~ Half the world's population experienced severe water scarcity for part of the year in 2022, with climate change intensifying stress on water systems (UNSD 2024).

7 AFFORDABLE AND CLEAN ENERGY



Without accelerated clean-energy investment and action, 645 million people will lack electricity and 1.8 billion will lack clean cooking access by 2030 (UNSD, 2025).

8 DECENT WORK AND ECONOMIC GROWTH



At least 4% of Global GDP is at risk of being lost by 2050 due to climate change (Swiss Re, 2021).

11 SUSTAINABLE CITIES AND COMMUNITIES

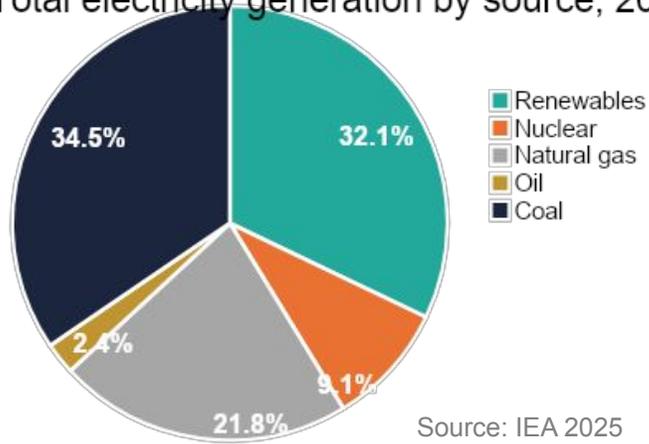


Cities produce ~70% of global emissions and house over half the world's population, yet face rising climate risks from heat, flooding, sea-level rise, and water scarcity (UN Habitat & WMO, 2023).

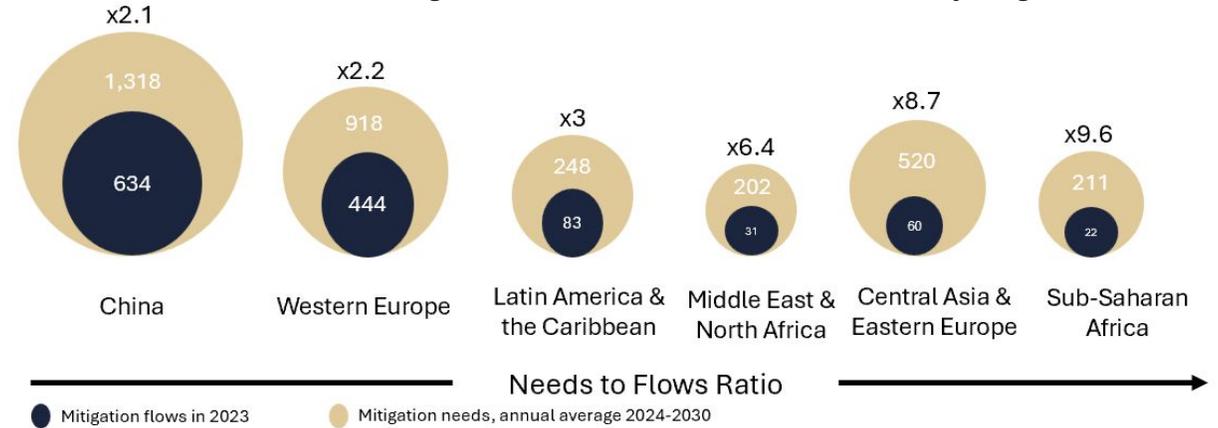


Climate Action – Mitigation

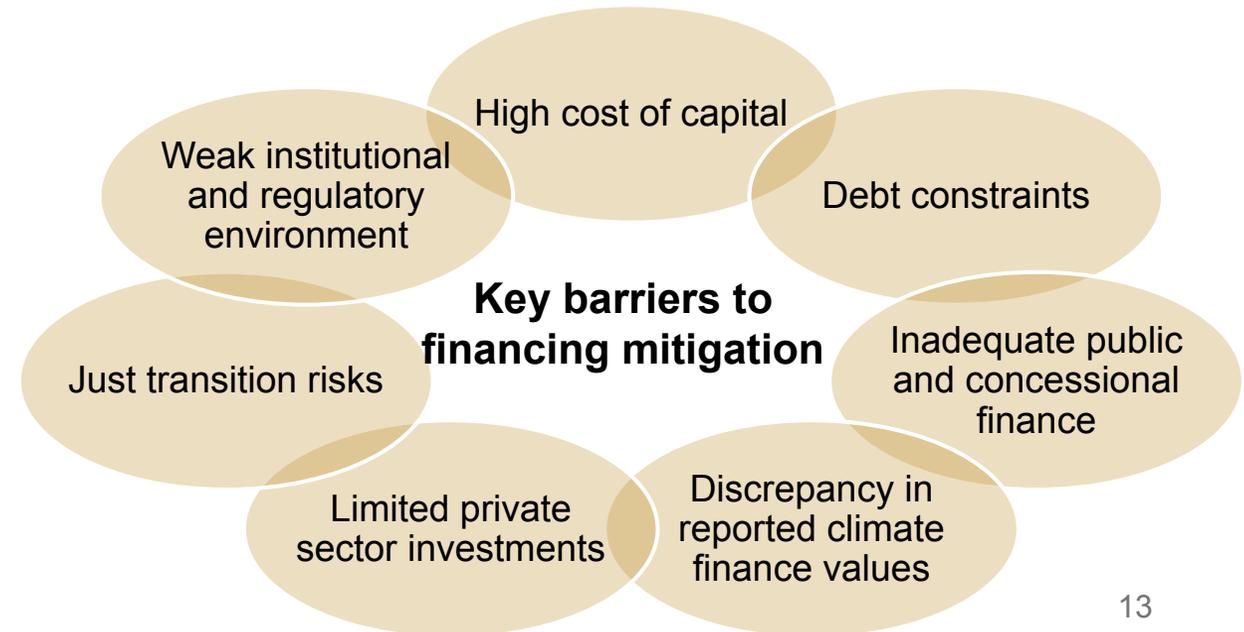
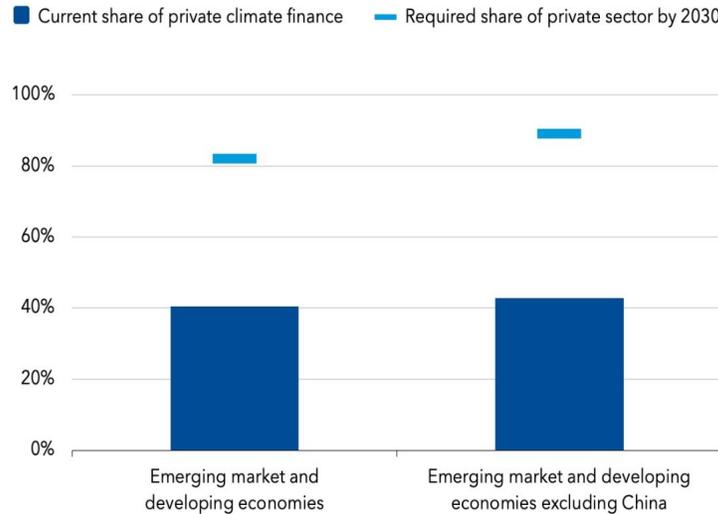
Total electricity generation by source, 2024



Climate mitigation finance flows vs. needs by region



Current and estimated share of private climate finance in total climate investments needed to reach net zero emissions by 2050

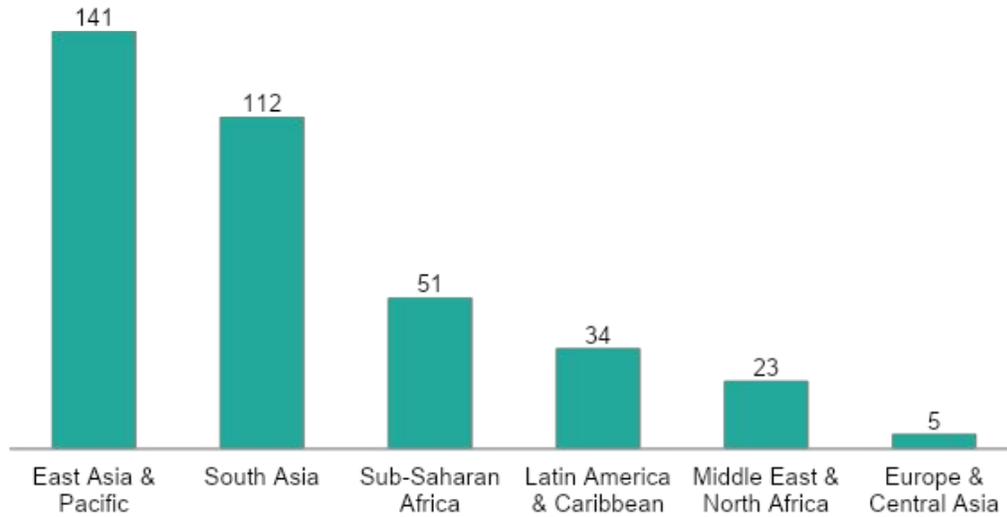


Sources: Climate Policy Initiative, International Energy Agency, and IMF staff calculations. Note: The point estimate is based on a public climate financing share in total public investment that increases by a factor of 1.5 until 2030.

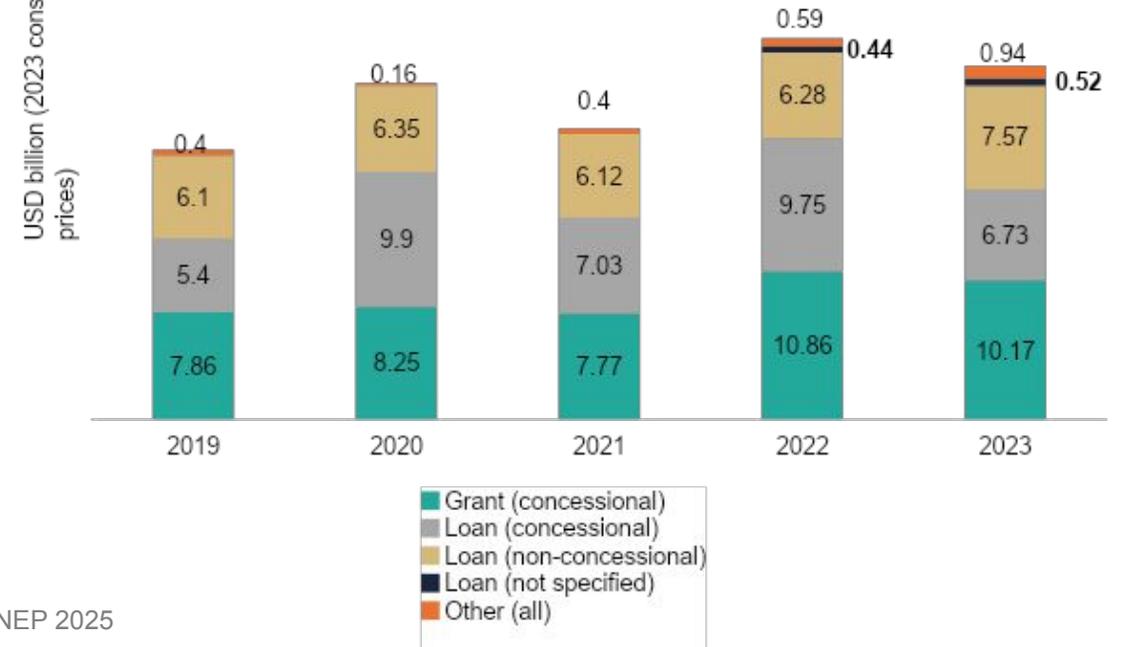


Climate Action – Adaptation and Resilience

Adaptation finance needs in developing countries by region
USD Billion; 2023 prices



International public adaptation finance from developed to developing countries by instrument, 2019-2023
USD billion (2023 constant prices)



Source: UNEP 2025

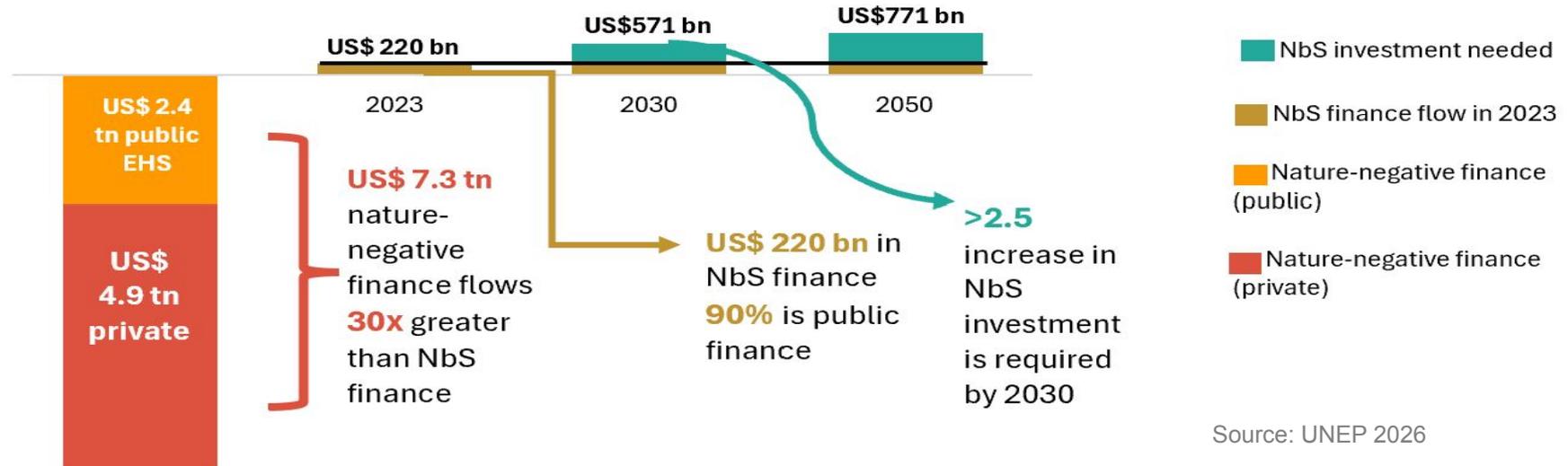
Key barriers to financing adaptation

High cost of capital in EMDEs (limited de-risking)	No clear definitions, standards, or taxonomies	Mispricing of physical climate risk	Adaptation is framed as loss prevention, not value creation	Fragmented private flows (untracked, unlabeled)
--	--	-------------------------------------	---	---



Climate Action – Nature

Nature-negative finance and Nature-based solutions (NbS) finance flows in 2023 and future NbS investment needs



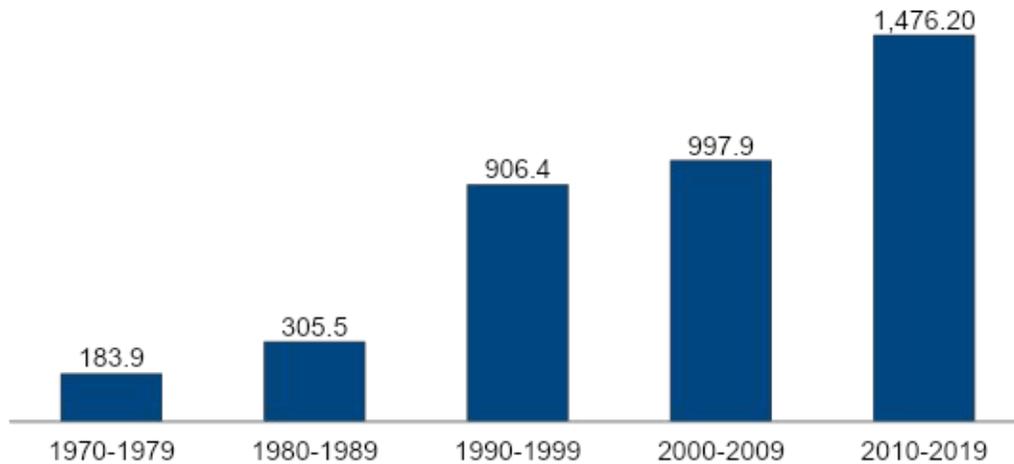
Finance system has not been fit for nature

Nature Is Systematically Undervalued	Finance Actively Drives Nature Loss	Finance allocation is largely unequal	Financial Governance Is Too Narrow	Nature's Stewards Are Excluded
--------------------------------------	-------------------------------------	---------------------------------------	------------------------------------	--------------------------------



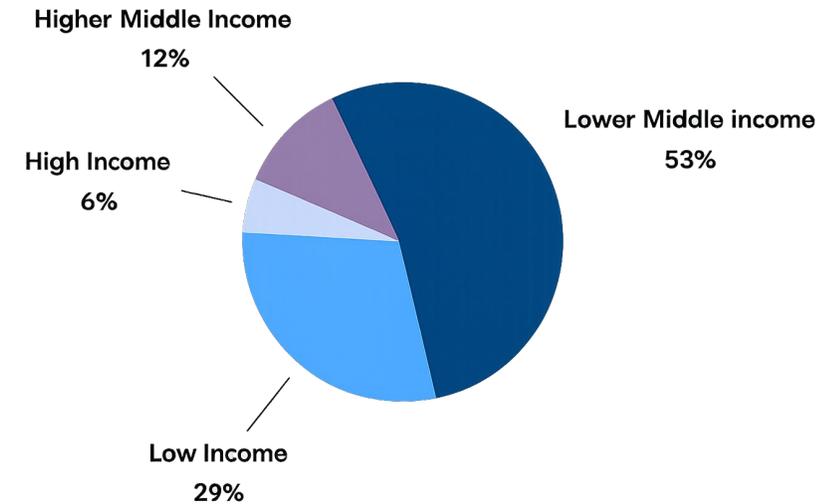
Climate Action – Loss and Damage

Economic losses from climate-related events
1970-2019 (USD Billion)



Source: WMO 2023

Proportion of climate related deaths by country
income group



Finance system has not been fit for Loss & Damage

Responses to climate-induced loss and damage are fragmented, ad hoc, and largely post-disaster	Loss and damage has been treated as residual adaptation	Finance arrives too late, at insufficient scale, and primarily as debt	The system lacks coherence and accountability, with no agreed definition, tagging, or systematic tracking of loss and damage finance
--	---	--	--

M. Mohieldin (Ed.), *Policy-driven climate and development finance: Strategies for equitable solutions* (pp. 117–132). De Gruyter.

<https://doi.org/10.1515/9783111590486>



Financing Climate Action – Domestic Resource Mobilization

60 percent

of the estimated investment financing required for climate action should come from DRM.

2.7 percentage points

of GDP in additional domestic resource mobilization are associated with closing the spending gap in EMDEs by 2030.

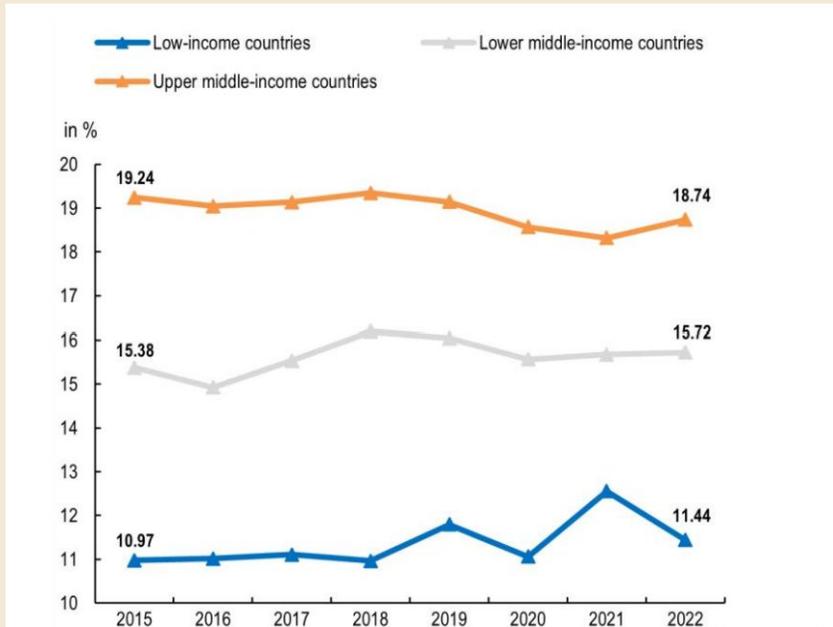
9 percent

of GDP is the estimated average tax gap in developing countries.

1–1.5%

of GDP could be raised in low- and lower-middle-income countries with a \$25 carbon price

Tax-to-GDP Ratio by income group, 2015-2022



Source: OECD 2025

Size of Fossil Fuel Subsidies 2015-2022



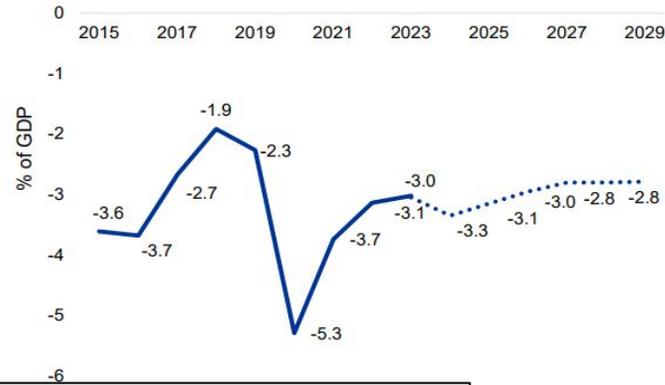
17
Source: IMF n.d.
Accessed Feb 2026



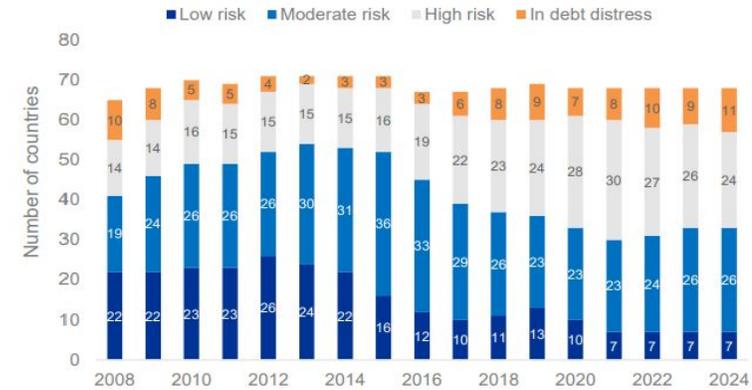
Financing Climate Action – Debt

Expenditures to fight global crises exhausted public budgets in developing countries, plunging some into a debt crisis

Panel A: Fiscal deficits of developing countries remain below pre-pandemic levels



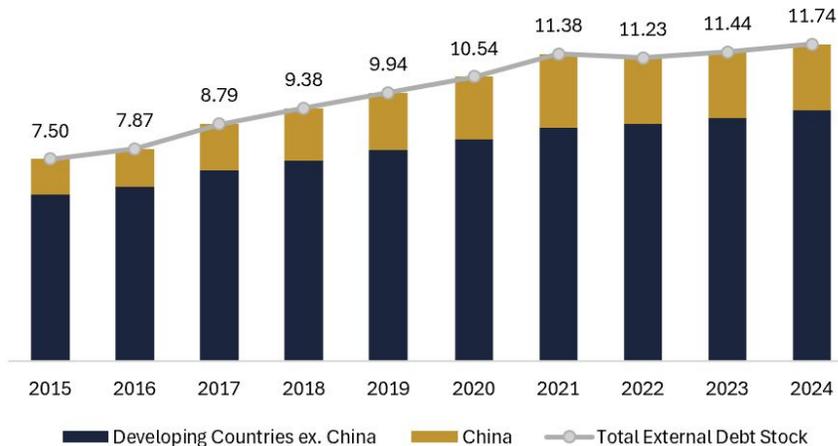
Panel B: Countries' risk of debt distress, 2008-24



Source: OECD 2025

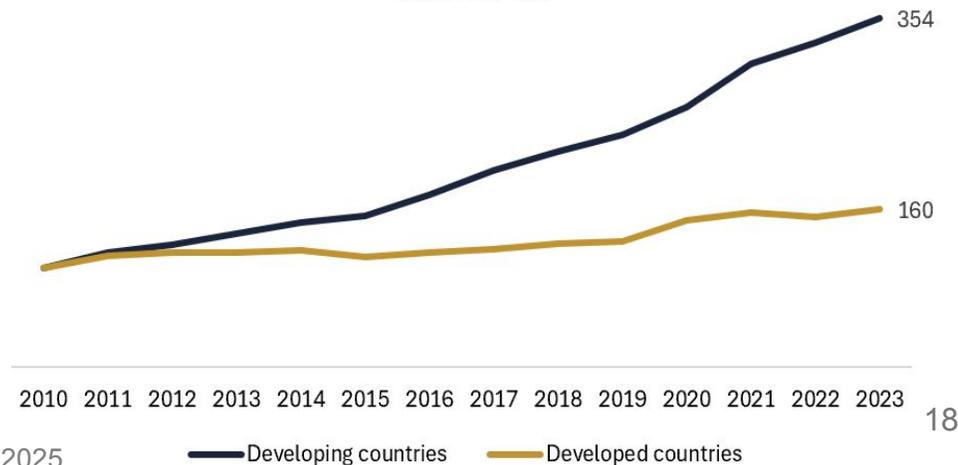
Since 2014, external debt stocks in developing countries have increased by **33%**

Total external debt stocks in developing countries 2015-2024
USD Trillions



Public debt grows twice as fast in developing countries

Outstanding public debt, 2010-2023
Index 2010=100



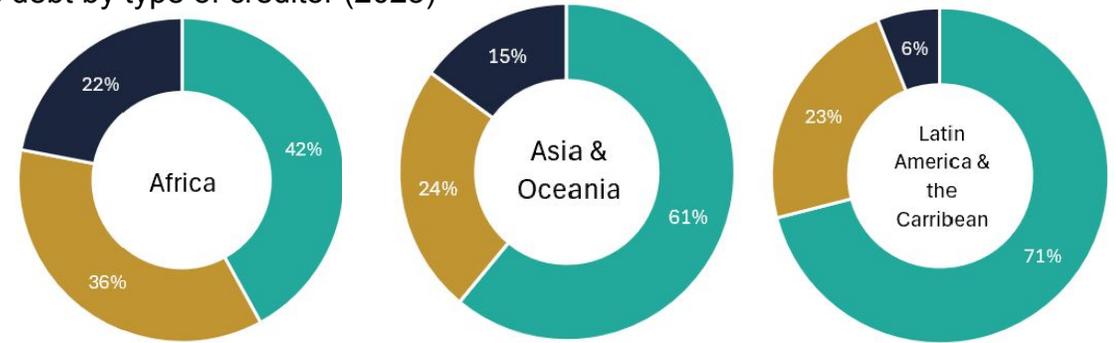
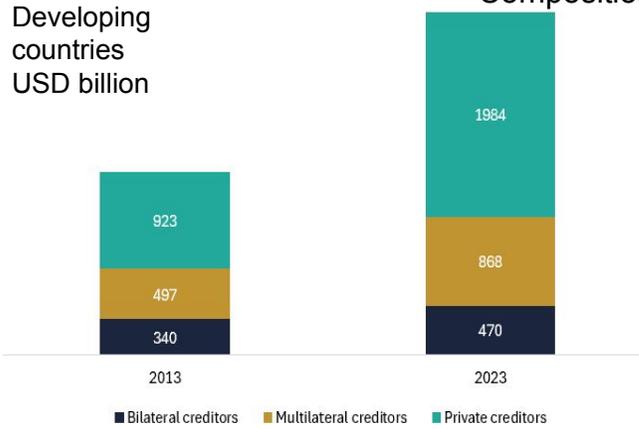
Source: UNCTAD 2025



Financing Climate Action – Debt

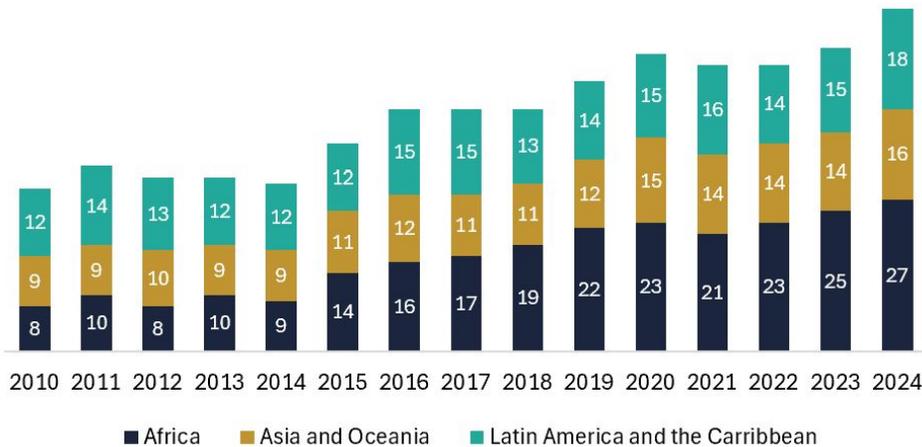
Shifts in the creditor base drive up debt costs and complicate restructuring

Composition of external public debt by type of creditor (2023)



In 61 countries, interest payments exceeded 10% of government revenues.

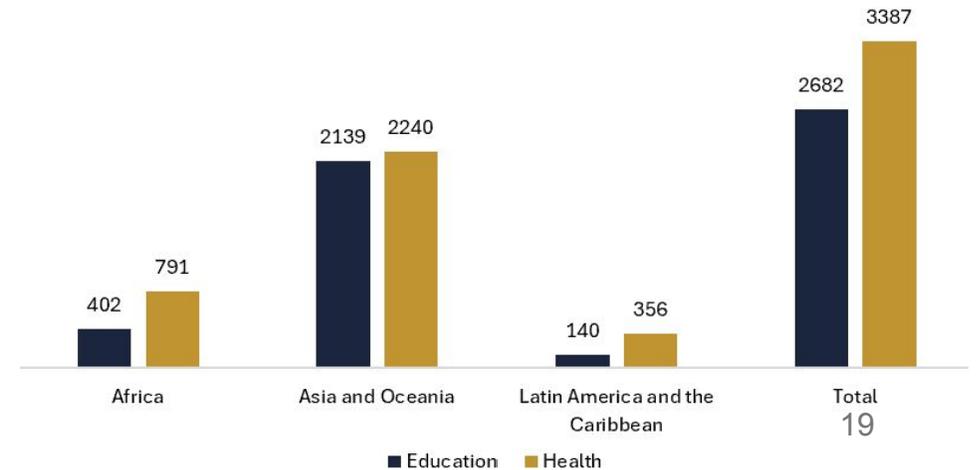
Number of developing countries with net interest payments exceeding 10% of revenues 2010 - 2024



Source: UNCTAD 2025

3.4 billion people live in countries that spend more on interest than on health or education

Population of developing countries where public spending on interests exceeds funding for education or health 2021–2023
Millions of people



Source: UNCTAD 2025



Financing Climate Action – Innovation

Debt-for-development / debt-for-nature swaps

Reduce debt service or reprofile debt while redirecting savings to SDGs, climate resilience, or nature

Sustainability-linked bonds (SLBs)

Sovereign bonds with financial terms linked to performance against climate/SDG KPIs; flexible use of proceeds; require robust data and reporting systems

Sustainability-linked loans (SLLs)

Loan-based equivalents of SLBs, often from MDBs/DFIs

Use-of-proceeds bonds

Earmarked financing for green or social spending; simpler structures

Credit enhancement (cross-cutting)

Guarantees, insurance, collateralization that lower risk, improve pricing, and crowd in private capital; supply remains constrained

Disaggregating FX risk to cut the cost of capital

- Inflation risk is managed locally through inflation-indexed tariffs and cost-recovery regulation.
- Extreme, counter-cyclical FX shocks are absorbed by AAA-rated MDBs via pre-committed FX liquidity facilities.
- Residual, short-term FX risk is left to markets, dramatically lowering hedging costs

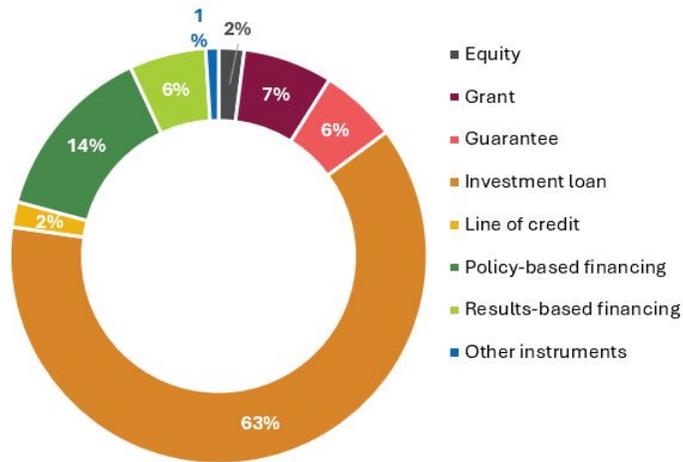
Scaling in EMDEs requires:

- **Availability of Credit enhancement**
- **Standardization**
- **Capacity building**
- **Enabling policies and regulation**
- **Political buy-in**

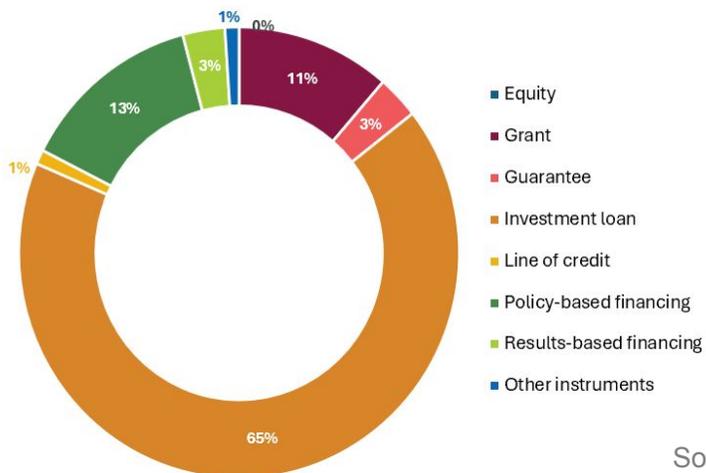


Financing Climate Action – MDBs' Largely Untapped Role

MDB climate finance by type of instrument in low- and middle-income economies, 2023

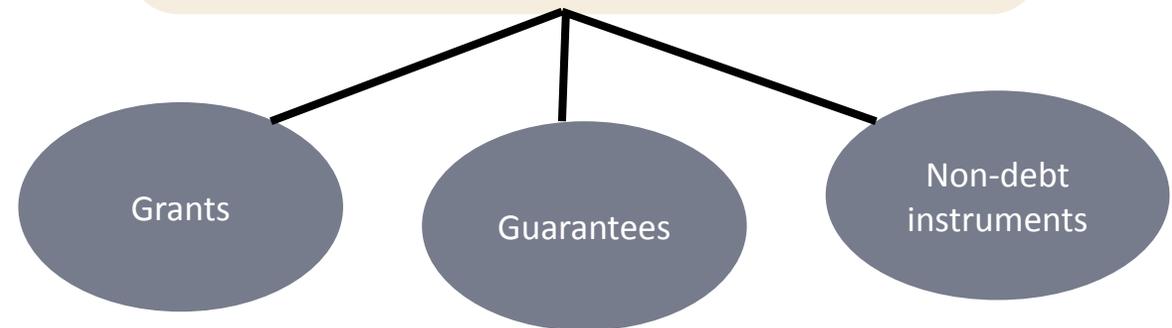


MDB adaptation finance by type of instrument in low- and middle-income economies, 2023



MDBs encouraged to define a new vision with channels and instruments fit for the climate emergency

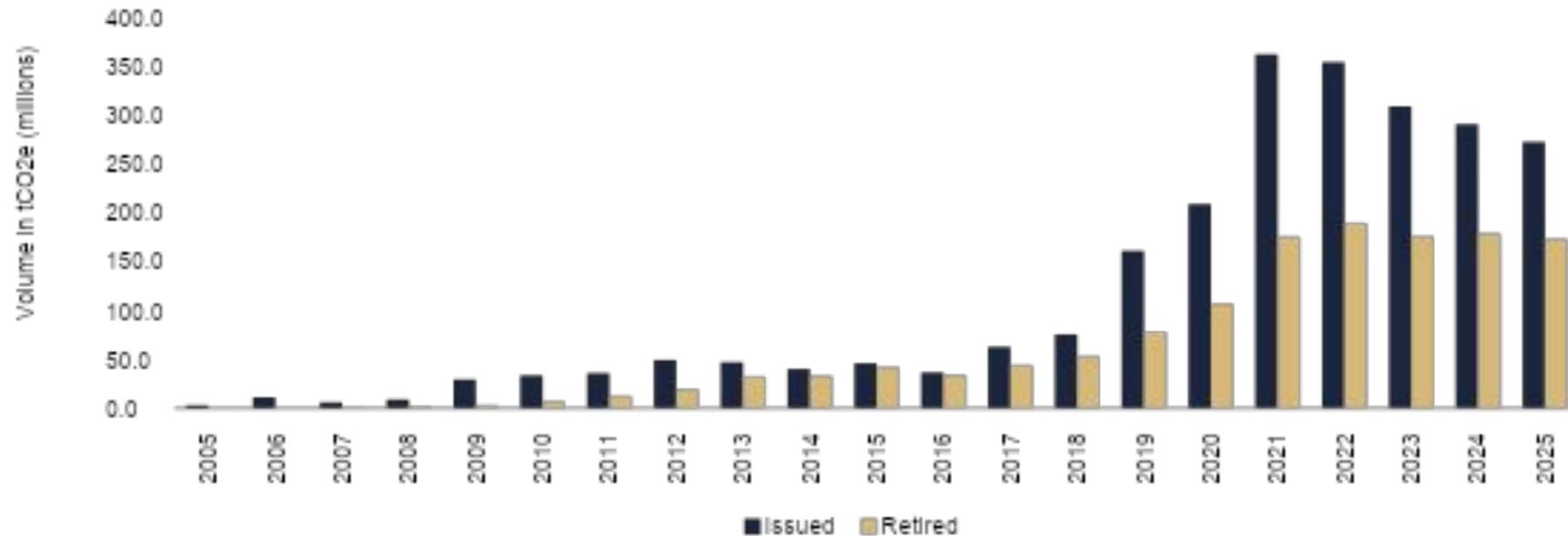
Deploy a full suite of instruments taking into account debt burdens and risk appetites with a view to increasing finance through:





Financing Climate Action – Leveraging carbon markets

Growth in Voluntary Carbon Markets (2005–2025)



Source: Voluntary Carbon Market (VCM) Dashboard of Climate Focus

VCM Integrity, Transparency, and Credibility Constraints

Lack of standardized credit classifications

Inconsistent regulatory treatment across jurisdictions

Misalignment between financial integrity and environmental integrity

Risks of greenwashing and overstated mitigation impacts

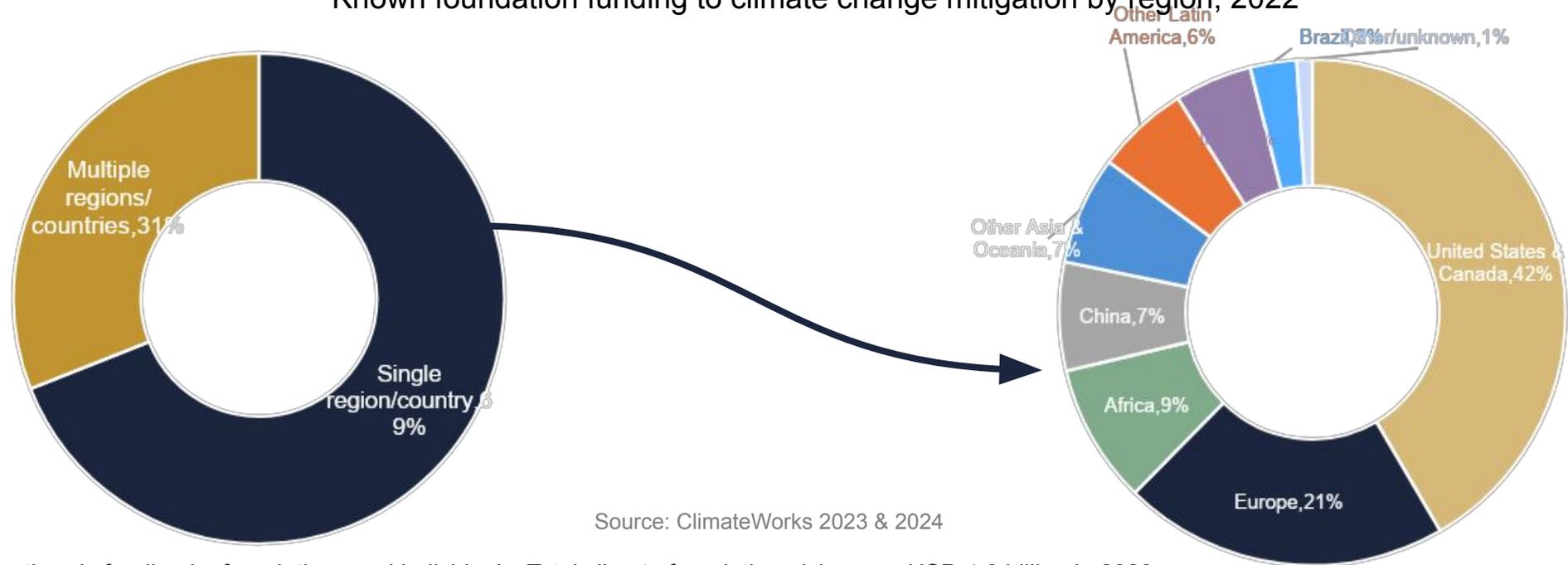
Effectiveness depends on ensuring credits represent real, additional, measurable, and verified emissions reductions or removals.



Financing Climate Action – Leveraging philanthropic capital



Known foundation funding to climate change mitigation by region, 2022



Source: ClimateWorks 2023 & 2024

* Includes philanthropic funding by foundations and individuals. Total climate foundation giving was USD 4.8 billion in 2023.



Climate Finance from Regional and Local Perspectives



REGIONAL Scale & Cooperation

- Regional cooperation strengthens climate finance effectiveness
- Regional platforms help translate global finance into investable projects
- Regional Platforms for Climate Projects (RPCPs) and GFANZ Regional Networks



NATIONAL Alignment & Anchoring

Strong national institutions anchor regional and local finance, through long-term climate and development strategies, Integrated National Financing Frameworks (INFFs), and country platforms.

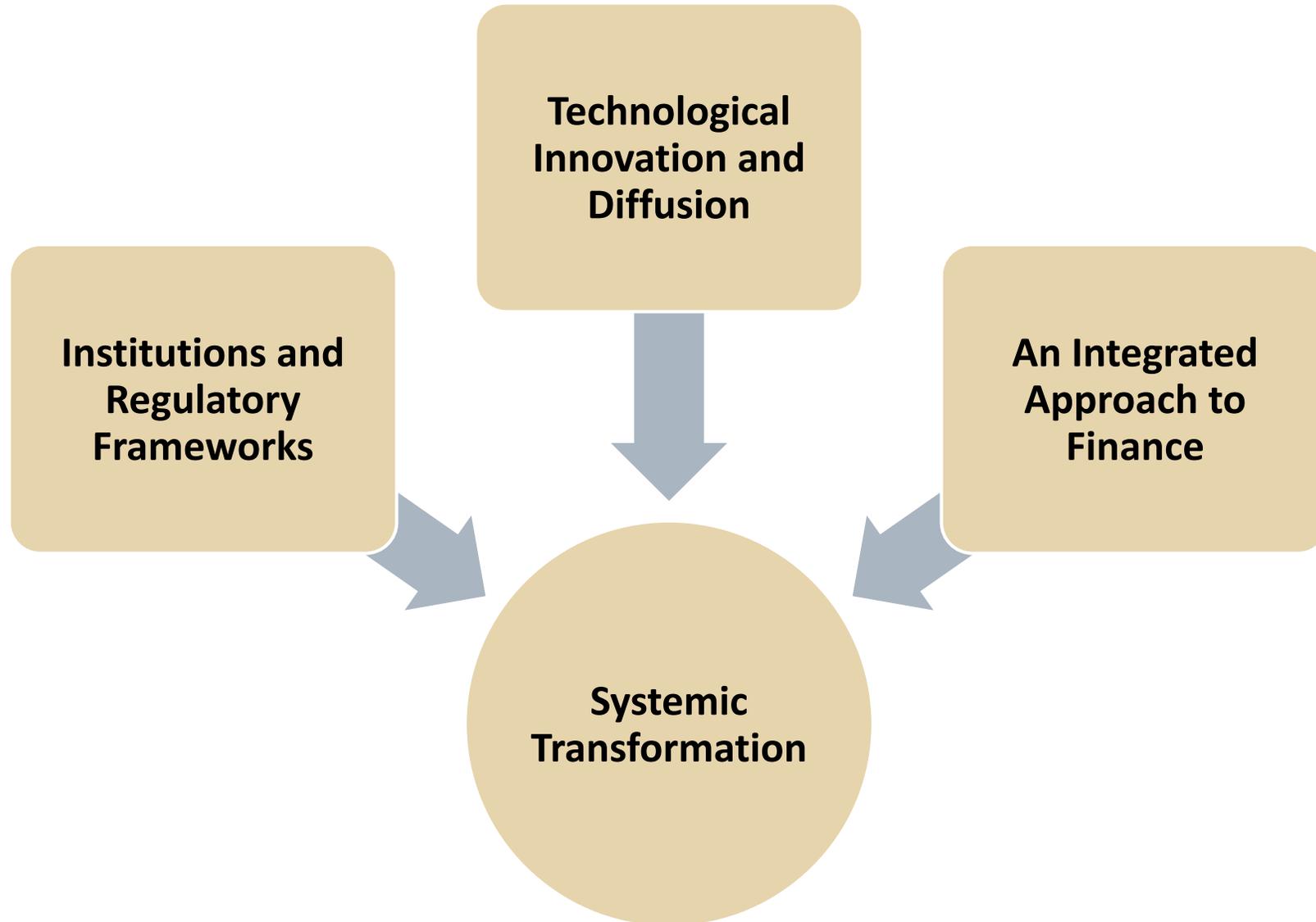


LOCAL Impact & Delivery

- Climate action is local by nature.
- Localization improves climate finance effectiveness
- Local platforms can turn ideas into investable projects, as shown by Egypt's NISGP

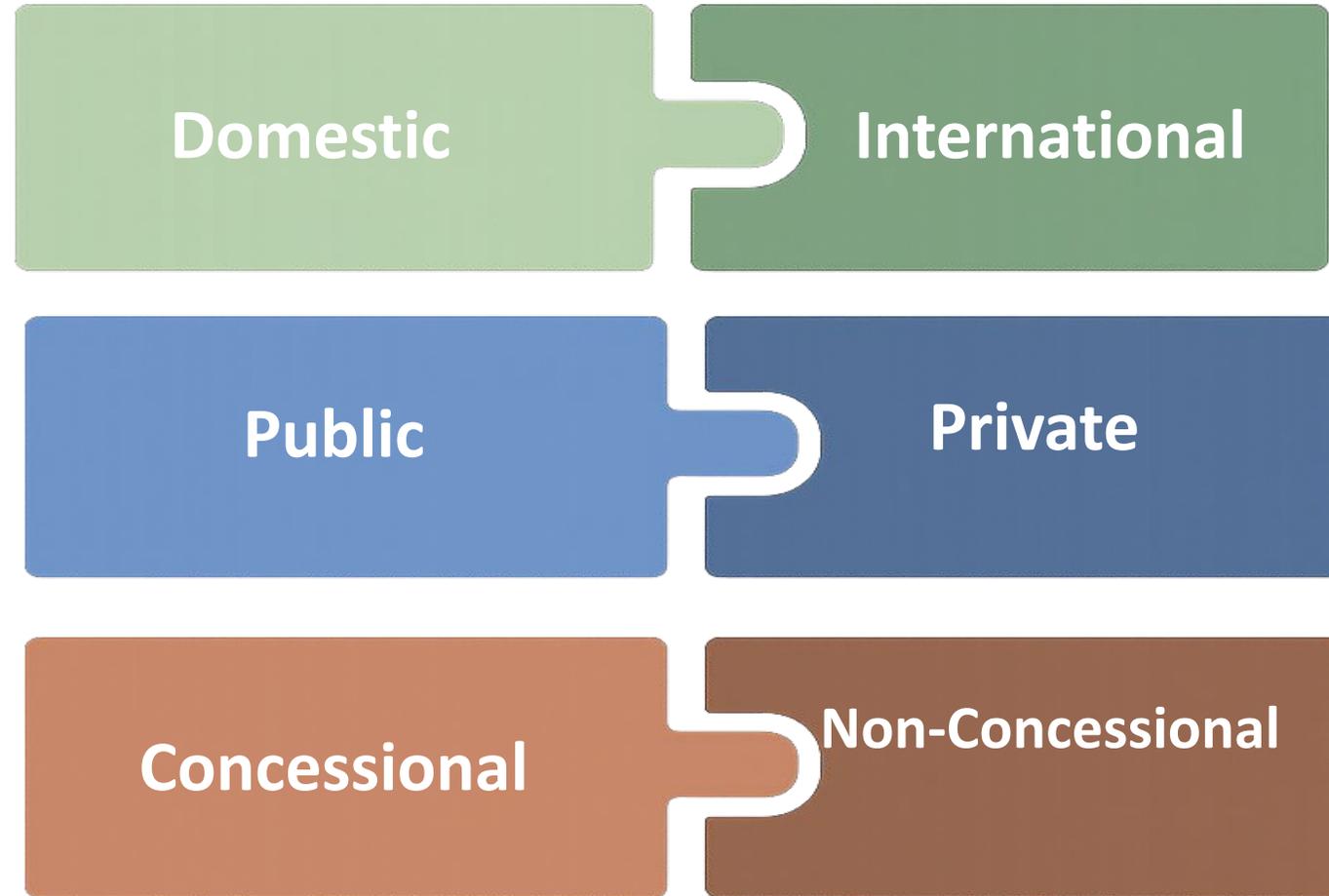


Towards Sufficient, Efficient, and Fair Climate and Development Finance





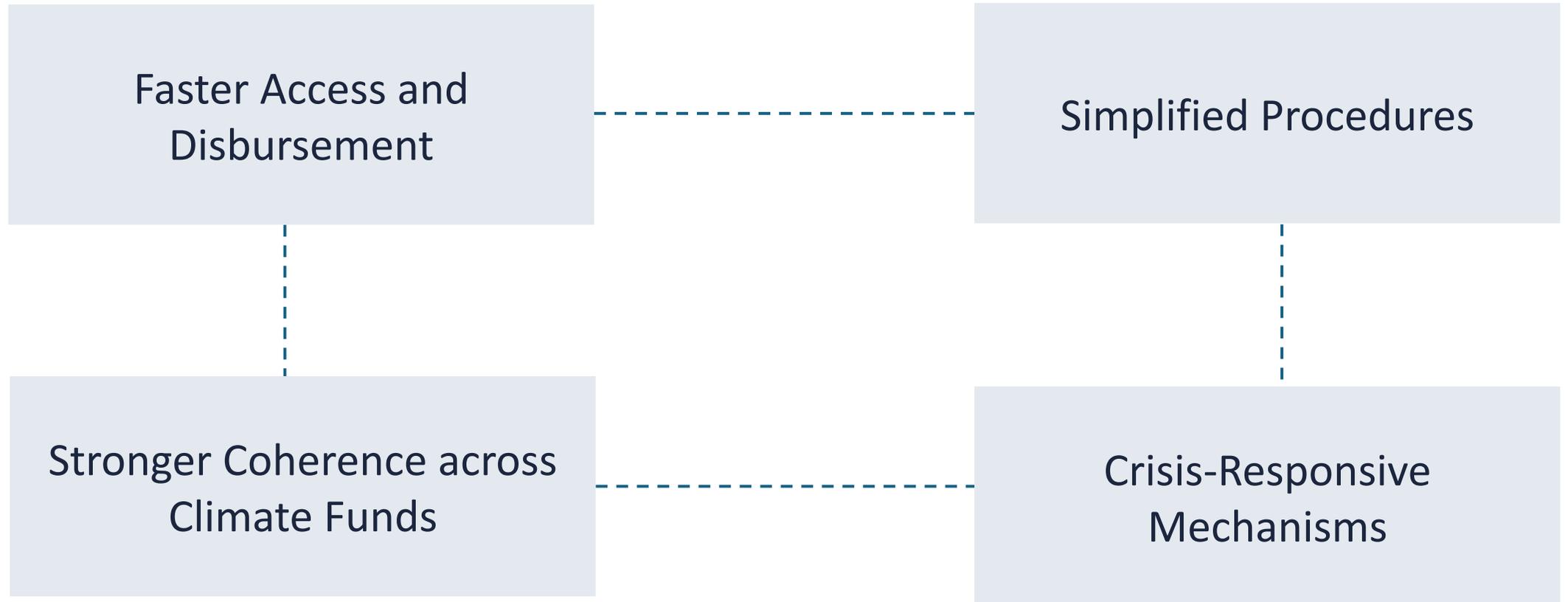
Towards Sufficiency: Mobilize All Sources of Finance



Leveraging complementarities across sources



Towards Efficiency: Fix the Delivery System





Towards Fairness: Finance Must Match Responsibility and Vulnerability

Responsibility	Vulnerability
Countries in the Global South contributed the least to the climate crisis.	Yet, they face the most severe climate consequences, and many developing countries are grappling with unsustainable debt burdens, which have narrowed their fiscal space and crowded out climate and development spending.
Equity must guide allocation across:	
<ul style="list-style-type: none">• Mitigation• Adaptation• Nature• Loss & Damage	



The Enabling Environment: National-Level Priorities

Preconditions for EMDEs to Attract Capital

- ✓ Credible transition pathways
- ✓ Clear standards and definitions
- ✓ Robust regulatory frameworks
- ✓ Deeper domestic financial markets
- ✓ Pipeline of bankable projects



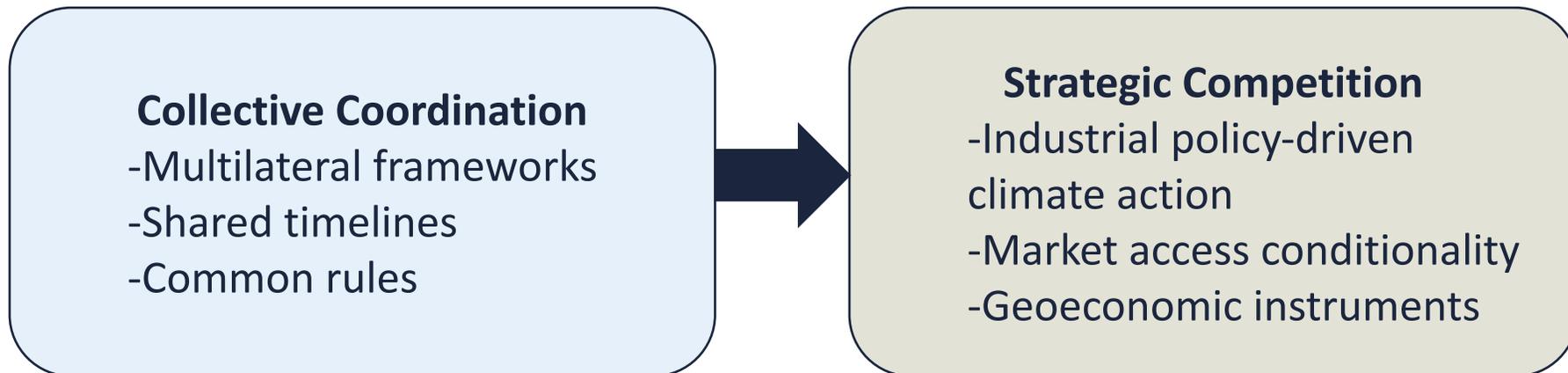
The International Reform Agenda

National Reforms Must be Matched By:

- ✓ Multilateral Development Banks and Development Finance Institutions reform
- ✓ Integrity and transparency systems
- ✓ Accountability mechanisms
- ✓ Debt-climate-nature vicious cycle breaking



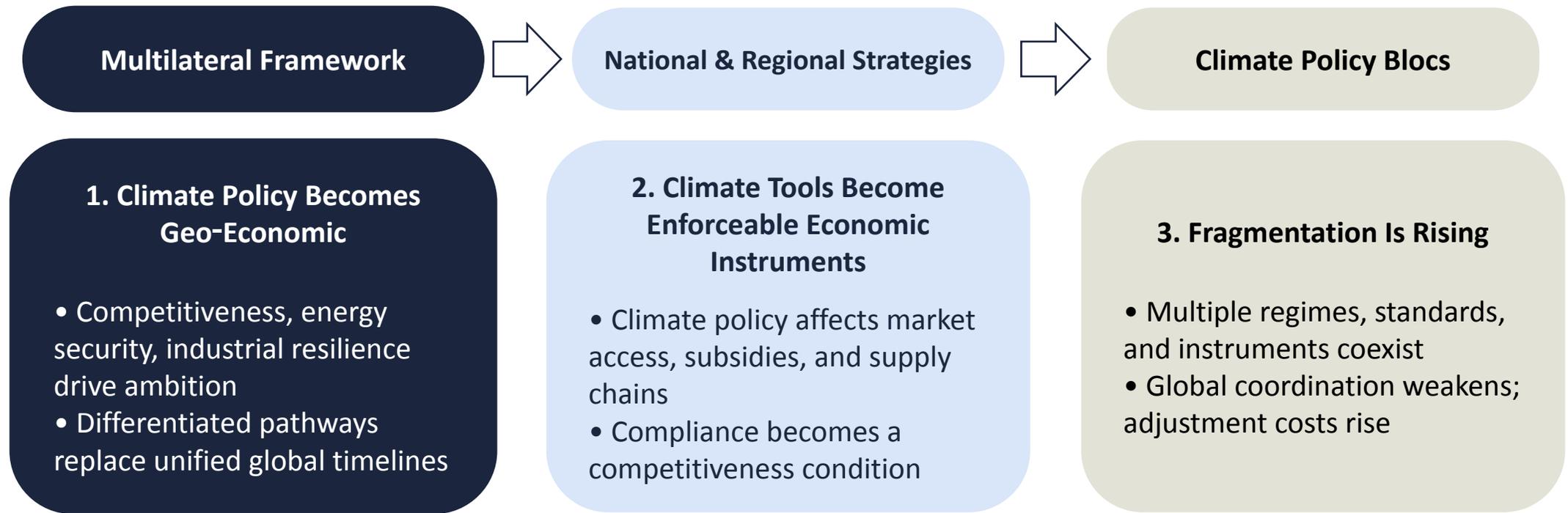
We Are Witnessing a Defining Moment in Global Climate Governance



This shift is restructuring the architecture of climate governance.



The 3 shifts in the New Climate–Economy Architecture



**Climate action is accelerating
but through fragmented pathways that create uneven burdens for developing economies**



Climate Policy Blocs: A Triangle of Instruments and Dilemmas

Fragmentation is producing regulatory complexity and asymmetric adjustment costs

Carbon Markets

- Uneven expansion
- Divergent designs & price signals
- Limited linkages + Article 6 fragmentation
- MRV and institutional gaps

*Regulatory
complexity
& asymmetric
adjustment costs*

Carbon Border Measures (CBAMs)

- Unilateral instruments shaping trade
- De facto non-tariff barriers
- Conditional market access
- Governance gap: no agreed multilateral rules

Green Industrial Policy

- Subsidies + preferential finance accelerate transition
- Local content rules reshape value chains
- Competing regimes create uncertainty
- Trade tensions and retaliatory risks



Core Dilemmas of Fragmented Climate Governance

Dilemma	Economic Tension
Fragmentation vs. Coordination	The tension between national strategic interests and the imperative for global collective action.
Efficiency vs. Strategic Autonomy	Balancing the economic benefits of coordinated policies against the desire for national control and resilience.
Climate Ambition vs. Development Space	Reconciling stringent climate targets with the developmental needs and economic capacities of emerging economies.
Compliance Costs vs. Competitiveness	The challenge of implementing costly climate measures without undermining the economic competitiveness of industries.
Equity and CBDR vs. Market Rules	The struggle to uphold principles of equity and common but differentiated responsibilities (CBDR) in the face of enforceable market-based climate rules.



Country Platforms Action Plan

Scaling climate finance in EMDEs ultimately depends on developing a predictable and investable project pipeline.



Strong institutions, governance and reliable macroeconomic management.



Policy stability, commitment to low-carbon solutions and contract enforceability.



Increased market access, a viable commercial partner and ability to scale.



Depth in local financial markets.



Currency stability.



Accurate performance data and benchmarks.

Source: Carney, M. (2021, November 3). *Country platforms action plan*. Glasgow Financial Alliance for Net Zero (GFANZ).



Regional Platforms for Climate Projects

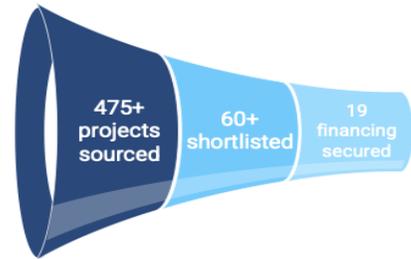
Regional Platforms for Climate Projects

The initiative, launched by the UN Special Envoy on Financing the 2030 Agenda for Sustainable Development Dr. Mahmoud Mohieldin¹, aims to accelerate climate action by catalyzing capital flow and showcasing investable climate opportunities



1. COP27 High-Level Champion

What we built for COP28



\$1.9bn total funds secured

Support provided through 3 main avenues

- Circulation of shortlists and investor matchmaking
- Project showcases at events
- Light-touch project investor readiness support

For COP29, a complementary pipeline sourced in LAC

In 2024, +130 projects sourced with 16 shortlisted projects with a financing need for over \$300 M



Number of shortlisted ventures based or conducting business in the country



Food Systems
56%



Nature
25%



Energy
19%

For COP30...

We will expand our venture pipeline in LAC & Africa...

...create a pipeline of investment vehicles across these regions...

...and keep hosting high-impact events to foster climate finance

•Source: Regional Platforms for Climate Projects (RPCP) – Climate Champions Team (2024)



Regional Platforms for Climate Projects : 2025 Venture Pipeline

Focus Areas by Region and Investment Size

RPCP Africa & LAC 2025 pipelines feature +30 investable climate opportunities



33 ventures

- **Nature** – 10 ventures¹
- **Agri & Food** – 12 ventures
- **Energy** – 10 ventures
- **Other** – 5 ventures



25 countries

- **LAC Region** – 22 ventures
- **Africa Region** – 10 ventures



+USD 1B
in capital needed

- Ticket sizes from
US\$ 3M to US\$ 150M

Note: 1. The thematic distribution includes overlaps, as 4 of the 33 ventures span more than one focus area



Egypt's National Initiative for Smart Green Projects

12,000+ Projects across the following categories:

Large Scale Projects

Medium Scale Projects

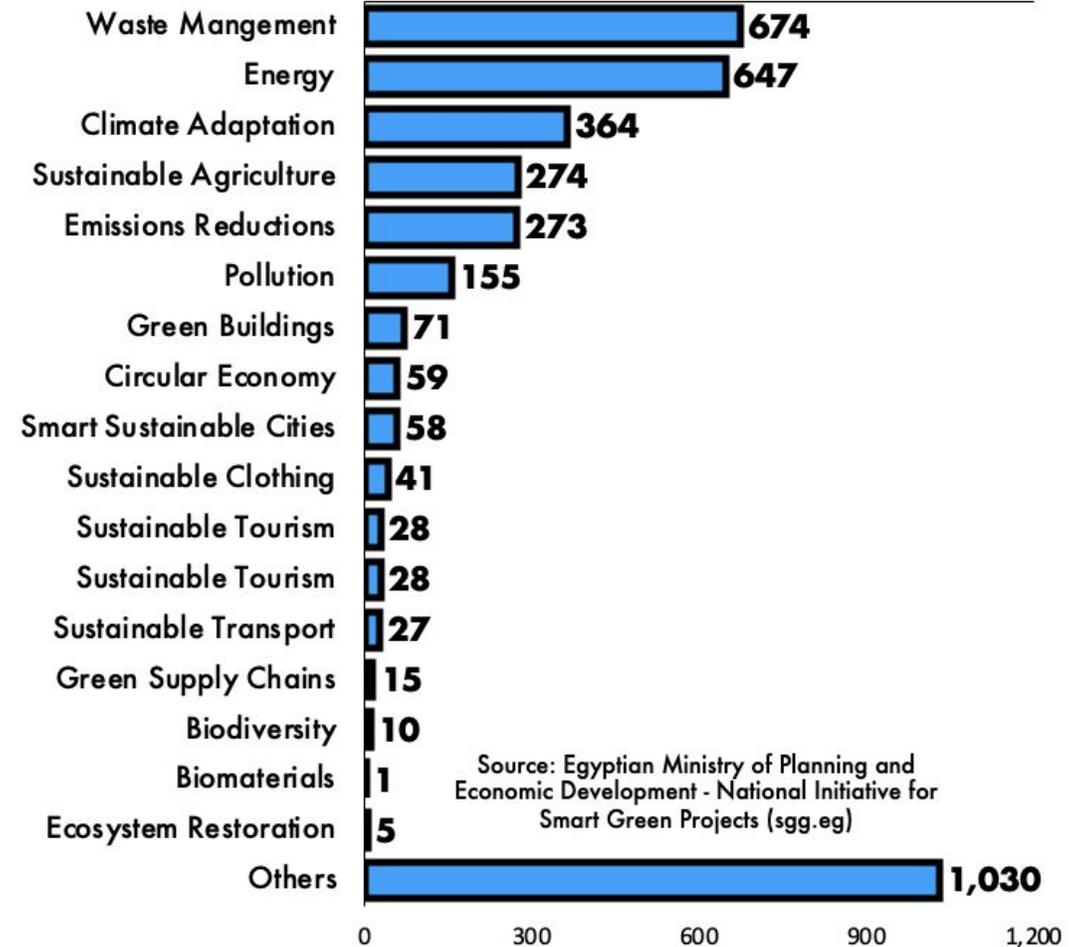
Small Scale Projects

Start Ups

Non-Profits

Women Led Projects

Breakdown of qualified projects - National Initiative for Smart Green Projects 2022 & 2023 - by impact system



Source: Egyptian Ministry of Planning and Economic Development - National Initiative for Smart Green Projects (sgg.eg)



The Path Forward: Navigating Complexity

1

Enhanced Dialogue: Promoting inclusive discussions to develop mutually beneficial climate and development policies as well as trade rules.

2

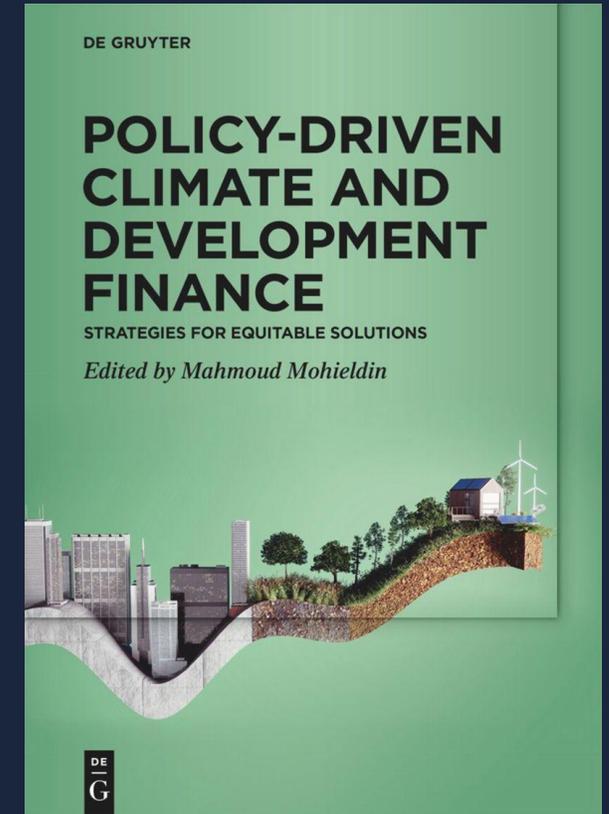
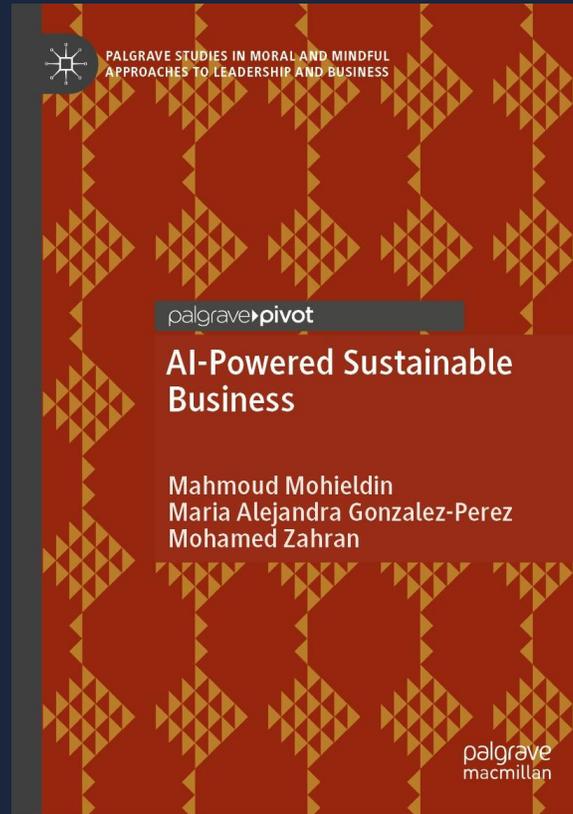
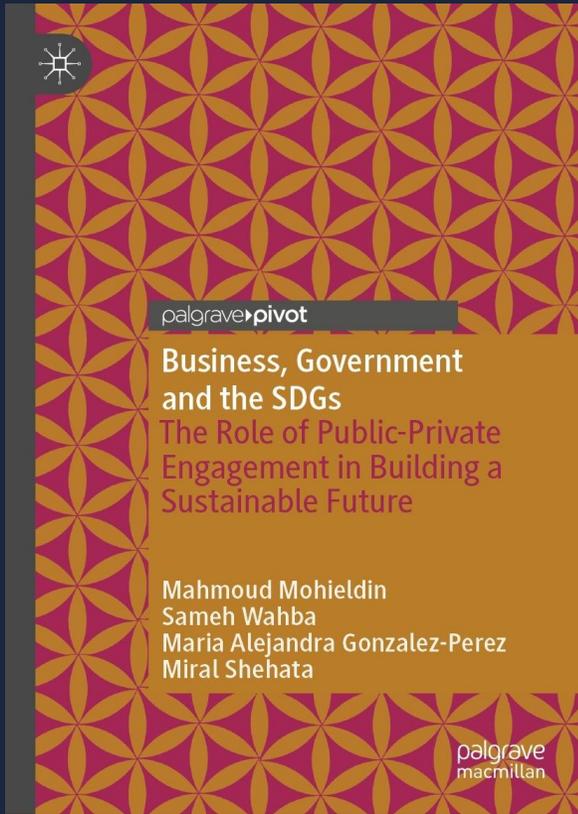
Scaled-Up Climate and Development Finance: Mobilizing significant financial support and technology transfer for developing economies to manage transition costs.

3

Harmonized Standards: Working towards greater convergence in carbon pricing and green industrial policies to reduce fragmentation.

4

Prioritizing Equity: Ensuring that climate action supports sustainable development and does not exacerbate global inequalities.



MAHMOUD
MOHIELDIN

Thank you



[/mmohieldin](https://www.linkedin.com/in/mmohieldin)



mohieldin.net/