

# **Investing in Climate** and Development

### THE EVOLVING ROLE OF THE **INTERNATIONAL FINANCIAL AND TAX** ARCHITECTURES

DANIEL TITELMAN, MARILOU UY AND AMAR BHATTACHARYA

100 -2



1 PA

INTERGOVERNMENTAL GROUP OF TWENTY FOUR







African Center for Economic Transformation







BU Global Development Policy Center



Cusco, Peru. Photo by Joe Green via Unsplash



mmmmm

P,

Cover: São Paulo. Photo by Regys Lima via Unsplash

# About the Task Force on Climate, Development and the International Monetary Fund

The Task Force on Climate, Development and the International Monetary Fund is a consortium of experts from around the world utilizing rigorous, empirical research to advance a development-centered approach to climate change at the IMF. The Task Force believes it is imperative that the global community support climate resilience and transitions to a low-carbon economy in a just manner. As the only multilateral, rules-based institution charged with promoting the stability of the international financial and monetary system, the IMF has a vital role to play in supporting a globally coordinated response.

### MEMBER ORGANIZATIONS

- Intergovernmental Group of Twenty-Four (G24)
- Vulnerable Group of Twenty (V20) Ministers of Finance
- African Center for Economic Transformation
- African Economic Research Consortium
- Boston University Global Development Policy Center
- Centre for Policy Dialogue
- Centre for Social and Economic Progress
- Financial Futures Center
- Macro & Green Finance Lab, National School of Development, Peking University
- United Nations Economic Commission for Latin America and the Caribbean

### **EXECUTIVE SUMMARY**

Addressing the intertwined challenges of climate change and growth in emerging and developing economies requires an urgent and unprecedented increase in climate-aligned investment. Increasing investment is essential to addressing the negative effects of climate shocks on growth and productivity. This comes at a time when the world, and developing countries in particular, are experiencing slowing growth prospects, declining productivity and subdued levels of investment.

Boosting investments to address climate change presents a significant opportunity to boost growth, globally and in developing countries. However, closing the investment gap estimated at \$3 trillion annually by 2030 for developing countries—particularly to finance development and transitions in energy, adaptation, and social equity—will pose significant macroeconomic challenges.

Developing countries face multiple constraints: limited fiscal space, rising debt burdens, low investment rates and underdeveloped domestic financial systems. Private climate finance remains insufficient, expensive and concentrated in a few countries, while current international financing and tax architectures are not equipped to deliver resources at the necessary scale or speed. Without a systemic response, countries will be forced to trade off fiscal sustainability and undertaking the required public and private investments to ensure long-term climate and development resilience.

Fiscal space, debt sustainability dynamics and investment are all highly determined by the cost of financing. Therefore, reducing the cost of financing for climate-aligned investment is central to addressing climate change.

That said, developing countries will need stepped up financing from public and private financing from domestic and external sources to support investments at this scale. In this context, developing countries require country-led frameworks to scale up and implement investments for transformative change. These frameworks should set the strategic directions for financing as well as the policy and institutional underpinnings in key areas of the energy transition, resilience building and restoring natural capital.

Against this background, this policy brief lays out the macro-critical dimensions of mobilizing financing to achieve climate and development goals urgently in developing countries. It emphasizes the importance of a scaled-up long-term domestic and external financing framework that aligns climate goals with inclusive development.

To complement domestic resource mobilization efforts, it proposes a 5-pillar strategy that includes reforms of the international financial and global tax architectures:

 First, countries must improve domestic resource mobilization, promote progressive tax reforms—including personal income and wealth taxes—and enhance the effectiveness of public spending. Public spending, and the management of debt sustainability, should account for the long-term growth-enhancing impacts of climate investments.



Daniel Titelman is a Non-resident Senior Fellow for the Global Economic Governance Initiative at the Boston University Global Development Policy Center. He is the former Director of the Economic Development Division at the United Nations Economic Commission for Latin America and the Caribbean.



Marilou Uy is a Non-resident Senior Fellow for the Global Economic Governance Initiative at the Boston University Global Development Policy Center. She was formerly the Director of the Intergovernmental Group of Twenty-Four on International Monetary Affairs and Development.



Amar Bhattacharya is a Senior Fellow in the Center for Sustainable Development at the Brookings Institution and a Visiting Professor in Practice at the Grantham Research Institute at the London School of Economics.

- Second, at the international level, reforming the global tax architecture is vital for equity and resource mobilization. This includes global minimum taxation, carbon levies, digital taxes, measures to reduce base erosion and profit shifting by corporations and the introduction of international mechanisms to tax extreme wealth of individuals.
- Third, access to external financing must be broadened and made more affordable. This
  requires recapitalizing multilateral development banks (MDBs), scaling concessional
  financing, deploying innovative instruments (e.g., thematic bonds, climate-linked debt)
  and leveraging private capital through de-risking strategies.
- Fourth, the global financial safety net must be reinforced and expanded. The International Monetary Fund (IMF)'s evolving climate agenda, including the Resilience and Sustainability Facility (RSF), should be complemented by deeper cooperation with regional reserve arrangements and expanded Special Drawing Right rechanneling. IMF surveillance and policy advice should take into account the impact of climate risks and the benefits of investments in climate actions.
- Fifth, equity and institutional reform must be at the core of international financial and tax architecture. A just transition requires substantial investment in social protection, education, and labor markets, particularly for vulnerable communities. Equally, stronger voice and representation for developing countries in the governance of international financial institutions and global tax governance is critical to ensuring their legitimacy and realigning international rules with sustainable development goals.

In sum, transforming the global financial and tax architecture to support climate and development outcomes is not only economically necessary but ethically imperative. A multidimensional, cooperative and inclusive approach—anchored in both national reforms and global action—is essential to ensure that no country is left behind in the pursuit of a just and resilient future.

### CONTEXT AND OBJECTIVE

The world is facing declining growth prospects, and productivity growth is slower than experienced in the past three decades (Kose and Ohnsorge 2024). Climate change has negative effects on growth and productivity dynamics (Stern and Stiglitz 2023). Addressing these impacts requires unprecedented efforts to scale up climate-aligned investment, at a time when investment is experiencing historically low growth rates.

Progress toward achieving the joint objectives of climate and development is seriously lagging and need accelerated action. This requires profound structural transformation, with major implications on fiscal sustainability and macroeconomic stability. Developing countries, however, face multiple challenges to mobilize substantial amounts of financing—public and private—to invest at levels needed for climate transformation and to meet the United Nations 2030 Sustainable Development Goals (SDGs) while ensuring debt sustainability and financial stability.

Given the magnitude of the financing needs and the inadequacy of available financing, countries—individually and collectively—will need to explore pathways to finance their future. They will need to reshape and build domestic public finances, improve the effectiveness of public spending, strengthen domestic financial markets, manage debt sustainability, ensure financial stability and provide a policy framework for economic transformation. To raise the required levels of investment financing, access to stable and affordable external public and private financing must be vastly expanded to complement domestic resources.

Yet mechanisms within the international financial and tax architectures to support developing countries boost financing to invest in climate and development have been lacking. The UN Financing for Development Report (2024) emphasizes the role of additional financing to accelerate achieving the SDGs. The UN Global Stocktake (2024) highlights the need for multilateral resolve to raise the ambition of climate actions. Investments in clean energy need to triple and go beyond the progress made so far in developed countries and China (see IEA 2024). Significantly more investments in adaptation, addressing loss and damage, and restoring natural capital will reduce the negative impact of climate shocks on growth and productivity, thus enhancing growth prospects. Greater access to technology and adequate levels of external affordable financing will be key to ramping up climate investments in developing countries.

Strong multilateral cooperation will be needed to put in place a fit-for- purpose international financial architecture (IFA) and global tax architecture (GTA). These will be critical for developing countries to find financing pathways to invest at the scale needed to address climate change and advance development goals. Domestic resource mobilization should be backed by a fair global tax architecture. International financial institutions (IFIs) are critical sources of external financing, including concessional financing and liquidity support, and instruments for effective public-private partnerships and risk sharing. An effective global financial safety net (GFSN) should provide liquidity support, when needed, especially with highly procyclical global financial flows. National efforts and global mechanisms need to complement each other to enhance fiscal space, increase access to financing at affordable terms, smooth out public and private financing flows over time, and ensure the allocation of resources that is compatible with low-carbon and climate-resilient economies.

The case for concerted and urgent multilateral action to support the mobilization of resources has never been stronger. The prevailing geopolitical headwinds are reconfiguring established trade and financial patterns and further straining the traditional development finance land-scape. These factors will require developing countries to navigate the shifting terrain with agility, and they must do so in the wider macroeconomic context of high capital costs, flagging economic growth rates, escalated sovereign debt levels and tight fiscal constraints.

This policy brief lays out the macro-critical dimensions of mobilizing financing to achieve climate and development goals urgently in developing countries. It emphasizes the importance of a scaled-up long-term domestic and external financing framework that aligns climate goals with inclusive development. It proposes a 5-pillar strategy, in which domestic resource mobilization is complemented by reforms of the GTA and IFA centered on effective tax cooperation, enhanced affordable financing by international financial institutions, concessional financing, an adequate Global Financial Safety Net and institutional reforms.

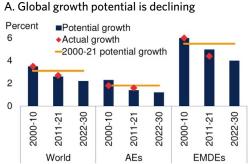
The macro-critical dimensions of resource mobilization necessitate renewed multilateral cooperation and demand greater ambition from the Fourth International Conference on Financing for Development (FFD 4), the 30<sup>th</sup> UN Climate Conference (COP30) and the Bretton Woods reform agenda writ large. Beyond these forums, harnessing the opportunity offered by the clean energy transition and the imperative to build climate resilient economies will require significant creativity in forging partnerships and coalitions of common interest.

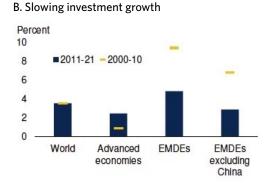
# DECLINING GLOBAL GROWTH POTENTIAL AND CLIMATE CHANGE

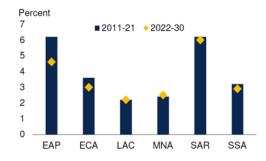
Growth prospects have been declining globally. Kose and Ohnsorge (2024) show that potential growth—measured as the maximum growth achievable without triggering inflation—has been weakening since 2020 across countries and regions (Figure 1A). Underlying growth drivers have also been weakening across regions, partly due to demographic changes but also to slowing investment and productivity growth (Figures 1B and 1C). Shocks over this period have had lasting negative effects on growth potential over the medium-term.

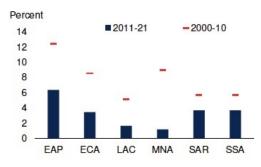
East Asia and the Pacific and the Middle East and North Africa (MNA) regions experienced the steepest decline in potential growth, while Latin America (LAC) and Sub-Saharan Africa (SSA) remain with lower growth potential. Low total factor productivity (TFP) growth is particularly a challenge in LAC, SSA and MNA. The slow investment growth trends are expected to persist through the rest of this decade, suggesting the risk of perpetuating the cycle of low investment and poor growth in many countries and globally.

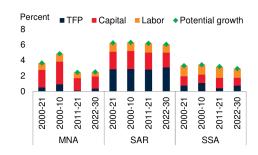
### FIGURE 1 A Global Decline in Growth Prospects



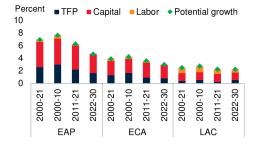








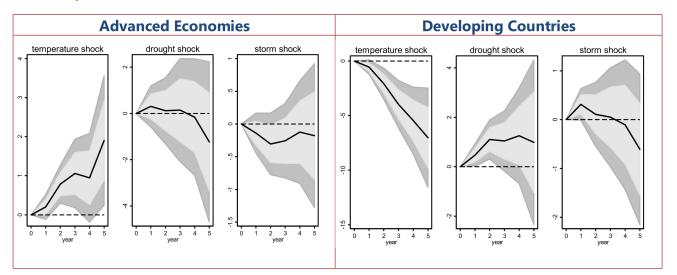
### C. Contributions to regional growth potential



Source: Kose and Ohnsorge (2024).

Climate shocks, if not addressed properly, will have additional negative effects on growth and productivity (Stern and Stiglitz 2023). Global projections illustrate these impacts (see Nordhaus 2006; Kotz et al. 2024). Projections by Cevik and Tovar-Jalles (2023) show that climate shocks negatively affect growth but more so in developing countries (Figure 2). Kose and Onsorghe (2024) estimated that over the medium term—depending on the strength of the disaster response—damage from climate events ranges from minimal to 10 percent of growth and an even higher average of 5 percent per year for small states. Network for Greening the Financial System (NGFS) (2025) illustrates that extreme events can have severe gross domestic product (GDP) losses at the regional level, which in turn can affect the global economy.

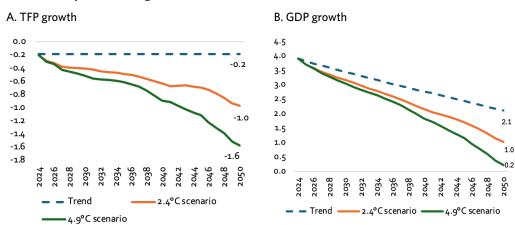
The adverse impact on growth is larger for climate-vulnerable countries. For selected countries in LAC, for example, Titelman et al. (2024) project a severe drop in GDP and total TFP growth rates. Figure 3 shows that climate shocks, as measured by increases in temperature, would lead to, *ceteris paribus*, significant declines in GDP and TFP growth rates. By 2050, the



#### FIGURE 2 Impact of Climate Risks on Growth

Source: Cevik, Serhan and João Tovar Jalles (2023).

FIGURE 3 Projected Average TFP and GDP Growth Rates under Future Climate Scenarios:



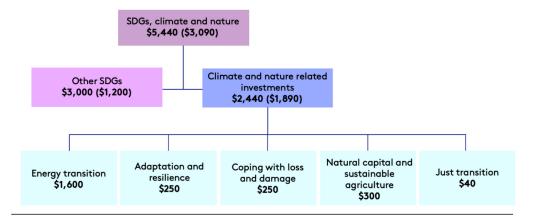
**Note:** Selected countries include Dominican Republic, Guatemala, Honduras, Jamaica, Paraguay and Peru. **Source:** Titelman et al. (2025).

TFP growth rate declines to as low as -1.6 percent, compared to the current trend rate of 0.2 percent in the absence of shocks. Similarly, GDP growth falls to 0.2 percent in 2050, compared to the current trend of 2.1 percent.

### THE INVESTMENT IMPERATIVE FOR CLIMATE AND GROWTH

Meeting development goals and mitigating the negative impacts of climate risks on growth and productivity will require a major scaling up of investments in developing countries. The estimated investment needed to achieve the SDGs by 2030 amounts to \$3 trillion. Additionally, the Independent High-Level Expert Group (IHLEG) (2024) estimates that \$2.4 trillion will be needed to meet the goals of the Paris Agreement (Figure 4). Of the latter amount, \$1.6 trillion will be spent in accelerating the energy transition in developing countries (other than China) in all regions in the world, \$250 billion will be needed for adaptation and resilience, \$250 billion for loss and damage, \$300 billion to restore natural capital/sustainable agriculture and \$40 billion to support a just energy transition. Moreover, intensifying climate risks and growing nature loss are expected to further increase the investment requirements (UNEP 2023; 2024). When set against available financing, a large financing gap remains: An incremental \$3 trillion – \$1.2 trillion to achieve the SDGs and \$1.8 billion to address climate change – will still need to be mobilized.

That said, investments in the energy transition and climate adaptation are deeply interconnected, forming two essential pillars of a comprehensive response to climate change. While the energy transition focuses on reducing greenhouse gas emissions by shifting from fossil fuels to renewable energy sources, adaptation investments aim to increase resilience to the unavoidable impacts of climate change—such as extreme weather, rising sea levels and water scarcity. Accelerating the energy transition mitigates future climate risks, thereby reducing long-term adaptation costs. At the same time, robust adaptation measures are necessary to safeguard energy infrastructure—particularly renewable systems like solar and wind farms—that are increasingly vulnerable to climate-related disruptions. Furthermore, both areas require coordinated public and private investments and inclusive planning that address



**FIGURE 4** Investment/Spending Requirements for Climate and Sustainable Development, Billion USD per Year by 2030

**Note:** Increment from current in parenthesis. **Source:** Bhattacharya et al. (2024).

the needs of the most vulnerable populations. Integrating adaptation priorities into energy planning ensures the sustainability and equity of the transition, particularly in developing countries where climate vulnerabilities are highest.

Against this background, scaling investments to levels required to meet the SDGs and climate goals presents opportunities to significantly improve growth potential over the medium-term. Raising the financing necessary will unleash much-needed investments to boost capital formation and increase TFP, both of which are key drivers of growth, and to manage climate risks. A key challenge for Finance Ministers and other policymakers will be to find the means to boost public and private investment through domestic efforts and supportive international financial institutions.

# MACROECONOMIC DIMENSIONS OF ADDRESSING CLIMATE AND DEVELOPMENT

The large additional investments needed to address climate and development complicate macroeconomic management in developing countries. They exert pressure on fiscal space, debt and balance of payments sustainability, and financial stability (Table 1). Beyond national efforts to expand fiscal space, access to adequate low-cost capital and affordable financing will be central to supporting a transformative investment push that also ensures debt and fiscal sustainability and macro-economic stability.

Dimension	Objectives	Mechanisms	
Fiscal space	Expand capacity for green investments, adaptation/resilience, and disaster response.	Public investment, taxation, subsidies, global tax architecture	
Access to financing—public and private	Ensure stable, affordable long-term financing	Multilateral development bank and concessional financing, public/private risk-sharing, capital market develop- ment	
Financial stability	Ensure macroeconomic and financial stability	International Monetary Fund liquidity support, capital account management, climate risk instruments, managing climate risks in financial systems	
Debt sustainability and climate vulnerability linkage	Reduce debt vulnerability from climate shocks	Concessional financing, debt service pauses/swaps, climate risk insurance	
Structural transformation	Provide the enabling framework for the climate transition	Carbon pricing/regulation, industrial and trade policy	
Distributional equity	Ensure a just transition and protect the vulnerable	Social investment, transfers	

TABLE 1 Macro-critical Dimensions of Addressing Climate Change

Source: Compiled by authors.

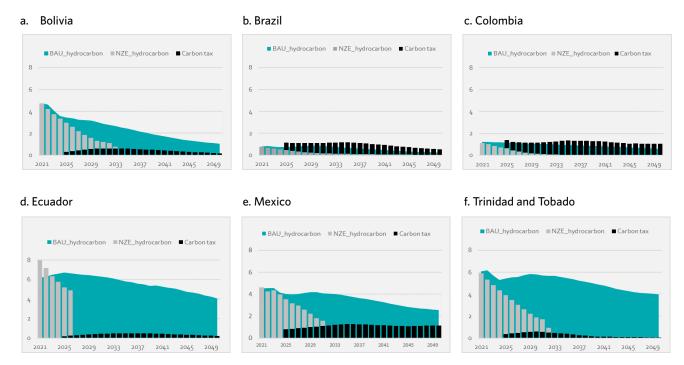
Projections reported in the 2023 International Monetary Fund (IMF) Fiscal Monitor show that increasing spending to meet mitigation needs will raise debt sustainability risks in a select group of emerging economies (IMF 2023). These risks increase if countries rely mostly on

fiscal spending measures and less on carbon pricing/taxation and incentives to promote clean energy. According to the IMF, the cost of transition will be manageable by mobilizing domestic revenues through carbon pricing that provides incentives toward a low-carbon transition while raising revenues to finance the transition. If this is undertaken, only moderate amounts of external transfers to developing countries will be needed for a fair transition. This scenario may not be likely, however, especially because countries—developed and developing—have found carbon pricing difficult to implement politically so take up has been limited. Moreover, country-level projections in Figure 5 show that revenues from carbon pricing will not necessarily offset hydrocarbon revenue losses during the transition and will cover only a small part of the financing required for the investment push, thereby requiring governments to identify alternative sources of financing.

Beyond mitigation, climate vulnerable countries have very limited fiscal space to invest in adaptation and build resilience. Titelman et al. (2023) projects that scaling up adaptation investments in climate vulnerable countries in Central America and the Caribbean will increase debt burdens significantly and their cost of capital (Figure 6). Africa's adaptation needs are also substantial, and Asafu-Adjaye et al. (2022) show that not investing in adaptation in Africa will lower GDP growth so that deficits and debt burdens will only worsen over time.

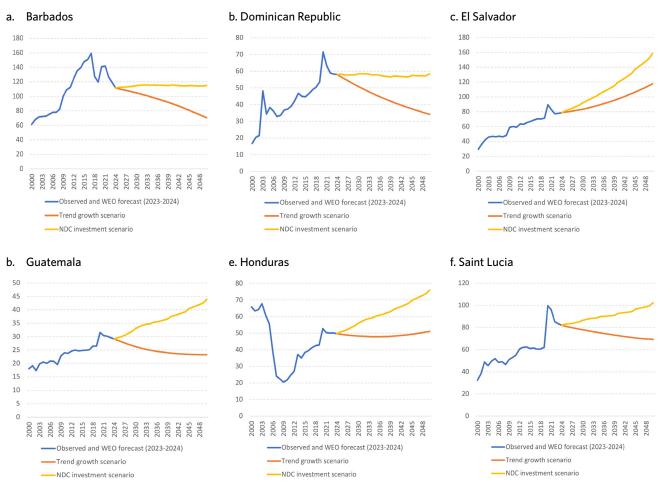
With limited fiscal resources, climate vulnerable countries face a difficult dilemma: retrench fiscally to preserve debt sustainability or increase investments but worsen debt sustainability risks. Nevertheless, there is evidence that greater investments, made possible by affordable financing, would improve growth and creditworthiness and yield savings over the longer-term

### **FIGURE 5** LAC Hydrocarbon Producers: Fiscal Deterioration from Transition Spillover is not Compensated by Carbon Tax Revenues



Source: Titelman et al. (2022).

### **FIGURE 6** Central Government Gross Public Debt in Selected LAC countries, by Scenario, Percentages of GDP, 2000-2050



Source: Titelman et al. (2023).

(Kharas and Rivard 2022). A recent study by Abalo et al. (2025) presents evidence of significant net gross domestic gains from sector-level investments in adaptation opportunities identified by the World Bank's Country Climate and Development Reports (CCDRs). These highlight the importance of increased access to concessional and non-debt creating financing to enable investing to build resilience and address loss and damage.

The transition towards low-carbon and climate resilient economies will require a strong mobilization of financial resources in ways that ensure a just transition, both within countries and between them. Stepping up investments for structural transformation should be accompanied by policies to address the social and employment costs associated with the structural shift towards low-carbon economies. Given that developing countries often have labor markets characterized by high informality and weak welfare states, financing a just and inclusive transition—such as through universal pension systems and healthcare coverage—will require a significant increase in social spending. This, combined with the investment challenges, places further demand on the fiscal space of these countries.

### Debt Sustainability, Investing at Scale and the Cost of Capital

To manage debt sustainability, developing countries will need to borrow at a cost of capital that does not exceed their ability to service their debt. World Bank (2024) shows that the cost of borrowing among lower income countries in particular has exceeded their growth rates, which means that over time, countries will develop a debt overhang that will tighten their fiscal space and ability to invest. Gallagher (2025) shows that interest rates facing emerging and developing countries were breaking away from growth rates in the past decade.

Multilateral development banks (MDBs) can potentially offer more affordable lending as well as counter-cyclical financing, as some have in recent years, but their ability to expand lending significantly over the medium-term will be constrained by their existing capital base. Mobilizing private capital will help, but external private financing is characterized by high-risk premia that elevate the cost of capital. MDBs can play greater catalytic roles through effective public-private risk sharing instruments that could crowd in affordable private financing for transformative investments. Mobilizing domestic private financing, on the other hand, will need to address underdeveloped capital markets and the weaknesses of national financial markets that also lack financial instruments for resource allocation to climate and development investments.

At the global level, access to low-cost and countercyclical investment financing—including significant concessional financing, transfers and even subsidies—will help countries finance a just transition and contain risks to fiscal sustainability and financial stability. IHLEG (2024) highlights the importance of concessional financing in adaptation, addressing loss and damage, nature restoration and the just transition, activities that do not yield financial returns over the medium-term to justify market borrowing. Furthermore, external financing also needs to be coordinated and designed to support country-owned plans and strategies. The Just Energy Transition Partnerships (JETPs), which are collaborative financing packages to support developing countries accelerate their energy transition, recognize the critical role of mobilizing adequate concessional financing in supporting key climate actions. For example, South Africa and Indonesia have highlighted the importance of using concessional financing to support critical just transition activities, particularly since the transition out of coal has major impact on assets, incomes and employment in some areas, and to catalyze MDB financing as well as private financing (Seiler 2023).

Additionally, developing countries will need to manage the disruptive impact of volatile financial flows that lead to liquidity constraints and currency depreciations that make external debt servicing even more expensive and difficult. In this context, the Task Force on Climate, Development and the IMF (2024) stressed the need to augment the IMF's lending capacity and align its lending toolkit to provide adequate liquidity support in face financial volatility and worsening climate risks. It also emphasized the need for IMF surveillance to capture the impact of climate risks and the benefits of climate action, and that investing in the climate transition will have significant implications on public finance, sovereign debt and economic growth. Debt sustainability analyses (DSAs)—a key surveillance instrument—must evolve to account for the long-term growth-enhancing impacts of climate investments.

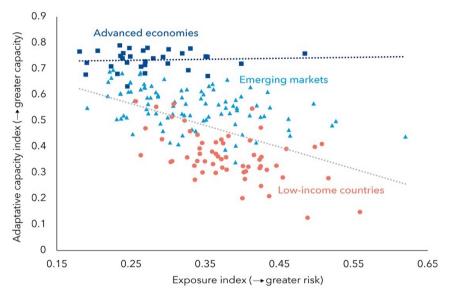
All these suggest that the macro-criticality of climate change requires countries to find financing pathways to accelerate climate actions while maintaining debt sustainability, financial stability and distributional equity. Developing countries need to enhance investment-driven approaches, which will require deploying national policies to mobilize resources but also supportive international cooperation to scale up affordable, predictable and quality financing for climate change and development, manage the structural transformation, and deliver a just transition.

### Tackling Debt and Climate Vulnerability

The vicious cycle of climate and debt vulnerability presents another macro-critical challenge for Global South countries. The impact of climate vulnerability has also fallen disproportionately on developing countries, and most severely on low-income countries (Figure 7), which have very limited sovereign borrowing space. Chamon et al. (2022) compared existing levels of debt as a share of GDP of 64 low-income countries with the threshold levels that would put countries at high risk of distress to show that nearly half of them do not have the space to borrow more, and only a few have sufficient fiscal space to meet the adaptation needs in the context of their Nationally Determined Contributions (NDCs) (Figure 8).

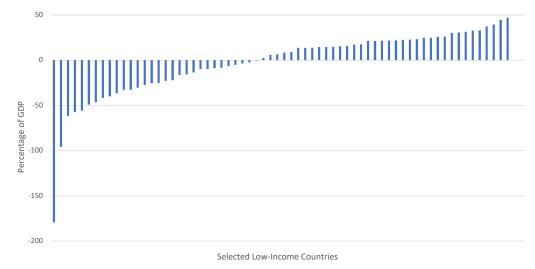
Climate risks present daunting costs, however. A report by the Vulnerable 20 Group of Ministers of Finance (V20) shows that they have lost approximately \$525 billion of output between 2000-2019 from climate-related disasters. The IMF (2022) estimates that the annual adaptation needs exceed 1 percent of GDP in about 50 low-income and developing countries in the next 10 years, and the costs can be even larger for small, island countries exposed to tropical weather risks. For six LAC countries alone, Titelman et al. (2024) estimates their climate investment needs to amount to between 5 percent to 9 percent of GDP.

Since external support for adaptation and loss and damage has been minimal despite the enormous social and economic damage, many countries have borrowed, often with high interest rates, to meet liquidity needs following a climate disaster to address loss and damage and invest in adaptation. The extent of climate vulnerability is, not surprisingly, closely associated with the incidence of debt distress. High debt burdens, however, eventually constrain investments to build resilience, which perpetuates climate vulnerability.



#### FIGURE 7 Unequal Costs of Climate Change

**Note:** Dotted lines show estimated linear relationships for advanced economies and for emerging market and low-income countries combined, respectively. **Source:** Georgieva et al. (2022).



**FIGURE 8** Sovereign Borrowing Space Measure for 64 Low-Income Countries, Percent of 2021 GDP

**Note:** On the vertical axis, the bar indicates the difference between the present value of debt as a ratio of GDP at end-2021 and the country-specific present value debt ratio that would put the country at high risk of debt distress, according to the IMF-World Bank LIC-DSF. Sovereign borrowing space may be limited by other LIC-DSF sustainability thresholds such as external debt (service) to export and revenues ratios. Countries are ranked and indicated in the

Source: Authors' calculations based on the IMF-World Bank Debt Sustainability Framework for Low-Income Countries (LIC-DSF).

horizontal axis.

The investment challenges of climate change adaptation and mitigation will jointly pose significant challenges to debt sustainability. As countries resort to borrowing to finance these investments, debt levels and their sustainability will be impacted. These investments will also positively affect growth, so DSAs will need to capture near- and long-term climate risks but also incorporate investment needs, their financial costs and their growth impacts, which existing DSAs fail to do. A key recommendation is for DSAs to consider the long-term returns from climate investments and, in that context, the importance of access to non-debt creating financing to support investments while reducing risks of debt distress (Task Force 2024). If debt burdens are unsustainable, DSAs should consider the potential impacts of climate risks in estimating the amount of debt relief necessary for a sustainable growth recovery.

# PATHWAYS TO RESOURCE MOBILIZATION AND DEBT SUSTAINABILITY

Developing countries will need to find financing pathways that will strike a balance between ramping up public investments, including for climate actions, and maintaining debt sustainability. They will need to tap various sources of affordable financing—domestic and external—to unlock the necessary public and private investments to support their climate and development objectives. Two-thirds of the \$3 trillion of annual incremental cost to achieve the SDGs and address climate change is expected to come from domestic public and private resource mobilization and the rest from official development financing and external private sources (Table 2). Countries will need to navigate pathways to increase financing significantly through domestic resource mobilization, complemented by international cooperation that fosters greater access to affordable external financing.

That said, countries will need to take the lead in providing the strategic framework to guide financing and the policy and institutional underpinnings to scale up investments and their implementation in key areas of the climate transition. These country-led investment platforms will need to be capable of identifying public and private portfolios that support the energy transition and foster investment in climate mitigation, adaptation and restoring natural capital. This framework will need to be rooted in each country's national development strategy and NDCs.

Financing need/source	Climate & Development	Climate*
Incremental financing needed by 2030	\$ 3,000	\$1,800
Domestic resource mobilization (public and private)	\$ 2,000	\$950
External financing	\$ 1,000	\$850
MDBs/concessional	\$500	\$110-\$160
Private	\$500	\$170-\$220

### TABLE 2 Financing Pathways, in billions

**Note:** \*Financing gap out of \$2,400 billion of estimated financing needs. **Source:** IHLEG (2024); G20 Expert Group (2023).

### The Role of Domestic Resource Mobilization

Effective domestic resource mobilization will require a mix of policies that has the difficult task of generating fiscal revenues in ways that improve equity, provide incentives for the climate transition and ensure political feasibility. Tax revenue to GDP ratios in developing countries have stagnated since 2010, and there is a large untapped tax potential of as much as 5 percent of GDP for middle-income countries and 9 percent for low-income countries (Benitez et al. 2023). Increasing revenues has mostly relied upon indirect taxes that tend to be regressive and limit revenue mobilization. Shifting toward more progressive tax frameworks by strengthening personal income taxation, closing tax loopholes, and expanding taxes on wealth and high value property can significantly broaden tax bases and increase revenues while promoting social equity. Wealth taxes have recently gained renewed attention not only for addressing rising inequality but also for raising revenues to finance global public goods (Zucman 2024).

Furthermore, evidence shows that improving tax administration and capacity, including deploying digital technology and artificial intelligence, can significantly increase compliance, thus boosting revenues without increasing tax rates. There is also space for more carbon taxation, rationalizing fossil fuel and other environmentally harmful subsidies, and significantly improving public spending and procurement practices. Beyond financing, national regulations can also accelerate decarbonization and promote climate-resilient infrastructure and practices.

The international tax architecture plays a key role in increasing the room to maneuver by national tax authorities to tax cross-border activities. Current global tax rules, designed largely for a different economic era, have proven insufficient to address the challenges of a globalized, digitalized economy in which profits and wealth can be shifted to lower-tax jurisdictions. In addition, as financial markets have become more globalized and sophisticated, individuals and corporations have gained increased access to offshore accounts, complex financial products

and tax havens, enabling them to shift profits and assets across borders to minimize and avoid tax liabilities. This dynamic undermines domestic tax bases, erodes fiscal space and exacerbates inequality, especially in developing countries with weaker regulatory frameworks. Moreover, the lack of transparency and coordination between tax authorities and financial institutions allows tax evasion schemes to persist, highlighting the need for stronger international cooperation and financial regulation. Reforms to the international tax architecture are critical and must also be accompanied by reforms to the international financial systems and architecture.

The agreement at the Organization for Economic Co-operation and Development (OECD) Inclusive Framework on digital taxation to reduce tax base erosion and a global minimum tax to reduce harmful tax competition demonstrates the possibility of international tax cooperation. More could be done to enhance the revenue impacts of international tax reforms on developing countries (Uy 2024). Enabling developing countries to participate more effectively in the automatic exchange of information initiative and access to information on beneficial ownership are steps in this direction (EU Tax Conservatory 2023). The UN Tax Convention holds promise in improving the rules of profit allocation across jurisdictions and increasing the fairness of taxing rights that have long been biased against developing countries. More recently, the Group of 20 (G20) has catalyzed discussions on a proposal for a coordinated minimum tax for the super-rich global billionaires to pay 2 percent annually of their wealth in taxes (Zucman 2024).

There also are proposals to introduce tax mechanisms that can better support the global effort to address climate change, and coalitions of willing countries could explore global solidarity levies primarily to tax fossil fuels and high carbon emitting activities. The International Maritime Organization's recent decision to set mandatory emission standards for ships and introduce a global emissions pricing mechanism that shares part of its revenues to support climate vulnerable countries is a step in this direction (IMO 2025). More levies can be explored—such as being done by the Global Solidarity Levies Task Force—to help internalize the environmental costs of carbon-intensive activities that have largely escaped domestic taxation but also raise stable and predictable revenues that can be shared with developing countries to support their climate actions.

### Strengthening Multilateral Development Banks

MDBs are essential actors in expanding access to affordable financing for developing and climate-vulnerable countries. Their ability to provide long-term and stable financing that is often at concessional terms helps address barriers to investment in key areas, such as infrastructure, energy transition, health systems and climate adaptation. They can play catalytic roles by crowding in private capital through blended financial instruments, such as guarantees, subordinated debt and co-investment facilities that help de-risk investments that would otherwise not materialize. In times of crisis, MDBs serve a counter-cyclical function by maintaining net financial flows when markets tighten, providing governments with resources to sustain public investment. Their involvement often improves sovereign credit profiles, enhances investor confidence and signals institutional backing for long-term development strategies.

The G20 Expert Group (2023) recommends tripling MDBs' lending capacity by 2030 to respond to climate investment needs. MDB climate-related lending in 2023 to low- and middle-income countries reached \$74.7 billion, but lending must increase faster to meet the

Panel's recommendation. MDBs' efforts to leverage their capital more, such as by reducing their equity to loan ratios and issuing hybrid capital, are expected to increase lending by \$300 billion over the next decade, are notable steps but will not be sufficient to triple lending. Special Drawing Right (SDR) rechanneling to MDBs in the form of hybrid capital still faces obstacles, primarily from domestic legal restrictions in holders of unused SDRs. Shareholders of MDBs will eventually need to inject new capital to scale up MDB lending to support transformative country strategies. MDBs will also need to strengthen their instruments to leverage private financing through better risk-sharing among public and private financiers. There is strong advocacy for MDBs to work collectively and operate as a system and to strengthen their partnerships with national development banks and sovereign wealth funds.

### **Expanding Avenues for Concessional Financing**

Concessional financing is essential for investing in adaptation, addressing loss and damage, reversing nature loss and fostering a just energy transition. More broadly, it is critical to support a global, just transition. Concessional climate financing has increased in the past few years but remains highly inadequate compared to investment needs: It remains the scarcest source of climate financing, according to the IHLEG. Official development assistance (ODA), the key source of concessional financing, has been channeled through multilateral and bilateral development financial institutions, mostly in the form of low-cost debt, and governments in the form of grants (CPI 2024). ODA is increasingly channeled through MDBs, such as the International Development Association (IDA) which has lent four times the amount of donor contributions. The future of ODA is highly uncertain, however, with major donors decreasing their commitments: ODA is expected to decline by 7.1 percent in 2024 and by 17 percent in 2025. Given significant and competing needs, allocating scarce ODA to maximize development impact is imperative as well as broadening the landscape of financing sources (IHLEG 2024).

Additional sources of concessional financing beyond ODA need to be explored. One potential avenue is to tap the potential of SDRs, such as increasing rechanneling by countries that are capable of to do so to expand lending to those in need, and by new issuance(s) to expand global liquidity. Some developing countries, such as the V20, see the potential of functioning carbon markets as a source of climate financing. As mentioned earlier, mechanisms for collective taxation -- notably the use of global solidarity levies—such as levies on international shipping, aviation and fossil fuel producers—can be means to raise revenues that can be shared to accelerate climate actions in developing countries.

### Promoting Innovative Financial Instruments to Enhance Fiscal Space

Debt swaps, for example, have been used to raise concessional financing or reduce debt burdens in exchange for climate action, and the challenge now is how to scale them up. More sustainability linked bonds are being issued to attract institutional investors interested in environmental and social sustainability to raise financing at lower cost premia than traditional bond issues. Payouts from insurance instruments, such as the catastrophe bonds and the Caribbean Catastrophe Risk Insurance Facility, have provided support in times of climate shocks and could be used more systematically, when appropriate. Relying on markets to promote these innovative financial instruments may not be feasible, so MDBs, development financial institutions and bilateral donor organizations can be important catalysts of innovative financing, and their efforts should continue to evolve these instruments to make them more effective and scalable.

### **Boosting Private Sector Climate Investments**

The private sector needs to be an important source of climate financing, but it has played a very small role so far in financing climate and development in developing countries. Emerging market and developing economies have invested less than 1 percent of domestic private capital in climate actions (IHLEG 2024) and have mobilized less than 5 percent of the financing needed for climate action from external private sources in 2021-22 (CPI 2023) at very high capital cost. Increased public investments could attract more foreign investments, including by using instruments that can de-risk private investments and enable the public and private sector to share risks fairly. MDBs could be catalysts in this regard, especially by expanding guarantees and other risk-sharing instruments to mobilize private financing, which the G20 Independent Expert Group to review MDBs proposed.

Domestic financial systems can also improve channeling domestic savings to support climate investments. This will require developing domestic financial and capital markets. The Finance in Common (FIC) initiative is focusing on harnessing national development banks to improve project preparation capacity, support co-financing, and fostering partnership with MDBs and private financial institutions. National and global financial regulators can review the impact of, and better integrate climate risks in, prudential regulations and supervision so that these do not unnecessarily constrain private climate investments in emerging market and developing economies. All these point to the need for both domestic actions and international support to catalyze more private financing.

### The Importance of an Adequate Global Financial Safety Net

The GFSN, with IMF at its center, needs to be adequately resourced to ensure that countries will have access to liquidity support, when it is needed. Continued reform of the IMF's lending interest rate policy and surcharges is needed to address the high cost of IMF lending. The creation of the Resilience and Sustainability Facility (RSF) has been a notable step to address medium-term balance of payment vulnerabilities brought about by climate change. Regional Financial Arrangements (RFAs), such as the Latin American Reserve Fund (FLAR), Chiang Mai Initiative Multilateralization (CMIM), and Arab Monetary Fund, possess unique regional knowledge and operational flexibility, and can play a complementary role alongside the IMF in providing counter-cyclical support and buffering against external shocks. Climate-vulnerable countries will also benefit from access to risk insurance and other climate-contingent debt instruments.

The IMF's 2021 Comprehensive Surveillance Review recognizes the macro-criticality of climate change, and the Fund's 2021 Climate Change Strategy articulates how climate change should be integrated into the IMF's functions, especially its surveillance activities (IMF 2021). This ambition needs to be supported by a cutting-edge toolkit. The Fund's analytical models need to be upgraded to better capture the impact of climate risks and the benefits of climate action. By recognizing the significant implications of the climate transition on public finance, debt and growth, the IMF could reorient its policy advice, which has typically favored fiscal consolidation to manage debt sustainability, to consider investment-led approaches that are fiscally sound and financially stable (Gallagher et al. 2023, Task Force 2024). The IMF is a leader in catalyzing global cooperation to underscore the urgency and the investment financing requirements for climate mitigation and adaptation, the need for equitable burden sharing, and shine a spotlight on the needs of climate-vulnerable countries (Uy et al. 2024). It should also consider increasing the rechanneling of SDRs and even new SDR issuances to boost global liquidity.

Central Banks and financial regulators have also increasingly recognized the implications of climate change on financial stability (Grippa et al. 2019). Physical risks arise from damage to property and infrastructure due to climate shocks that could lead to default risks in financial institutions. Transition risks materialize when the climate transition leads to reduction in asset values and stranded assets in firms to which financial institutions are exposed to. Their potential systemic impacts highlight the need to consider climate risks in prudential supervision, the oversight of the financial sector and monetary policy.

## Harnessing Multilateral Cooperation to Achieve Climate and Development Goals

The existing IFA and GTA are highly inadequate to mobilize the necessary levels of affordable climate and development finance. They need to comprehensively address the multiple dimensions of the macro-critical challenge that emerging market and developing economies face to address climate change and development. Their reforms will need to complement and enhance national efforts to unlock climate and development financing in ways that help countries manage risks to debt sustainability, expand state capacity for green and adaptation investments in a socially just transition, and improve financial resilience to respond to climate risks and volatile capital flows.

Moving toward a fit-for-purpose IFA and GTA that supports the achievement of the SDGs and climate goals will entail institutional and governance reforms to bring about systemic change. Relevant forums governing the global tax system, such as the G20, OECD and the UN, will need to bring about reforms to enhance domestic taxation efforts to achieve climate and development objectives. Global taxation, or at least taxation by a coalition of countries, should be explored to promote a just climate transition and raise revenues to boost climate financing in developing countries. As key players in the IFA, the IMF, the World Bank and other MDBs will need to better integrate climate and development in pursuing their respective mandates. Governance reforms should reflect the global landscape and increase the voice and representation of developing countries, which has been a longstanding proposal by developing countries, such as the Intergovernmental Group of 24 (G-24) and the V20 and recently the UN Pact for the Future (2024). Key institutions of the IFA can work together, in the spirit of international cooperation, to track climate and development financing to increase accountability.

Additionally, greater fragmentation in climate actions among countries continue to complicate collective efforts to achieve global climate goals. The intention by the US, which accounts for nearly a quarter of historical carbon emissions and about 13.4 percent of annual carbon emissions in the world, to abandon its climate commitments will have demand and supply spillovers that will impose a greater burden on the rest of the world and moderate investments toward reaching global climate goals. While the impact of this backtracking is still unclear, it highlights even more the importance of greater cooperation among the rest of the world to address the urgency of the climate crisis. That said, numerous policymakers have called for international cooperation to make the IFA and GTA "fit for purpose" to respond to the investment imperative to achieve global goals. This is the main message of coalitions of countries in the Bridgetown Initiative, the V20 Accra-Marrakech Agenda, the Paris Pact for People and Planet, and the UN Summit of the Future. There also have been numerous calls to immediately tackle debt and development distress by boosting liquidity and low-cost financing to help countries manage high debt burdens and to improve the sovereign debt resolution system.

### A PROPOSED ACTION AGENDA

This policy brief proposes the following 5-pillar action agenda to strengthen the IFA and GTA to help developing countries manage the macro-economic challenges of addressing climate change. Country-led frameworks, in turn, will provide the necessary guidance on strategic directions and the policy and institutional framework that will facilitate scaling up investments in climate and development. Many of these proposals draw from the work of the Task Force on Climate, Development and the IMF, the IHLEG and calls for reform in relevant forums.

### PILLAR 1: SUPPORT NATIONAL SYSTEMIC MEASURES TO MOBILIZE DOMESTIC RESOURCES TO STRENGTHEN FISCAL AND DEBT SUSTAINABILITY.

- Step up efforts to mobilize domestic fiscal resources to boost public investments for climate and development.
  - Enhance tax policy and boost administration capacity to improve the revenue intake but also implement more progressive tax measures—than undertaken in the past—to raise revenues in ways that reduce inequality.
  - Increase the coverage and levels of carbon taxation and reduce fossil fuel and other environmentally harmful subsidies while actively addressing the distributional impacts of subsidy reforms.
  - Improve public expenditure and procurement practices to encourage domestic investment and growth.
  - In this regard, the IMF, World Bank, the OECD and the UN should scale up their financial and capacity building support for domestic revenue mobilization.
- Tackle the intertwined issues of debt, climate vulnerability and development distress.
  - DSAs should reflect climate risks and the growth and resilience benefits of climate investments.
  - IFIs can catalyze scaling up innovative instruments to manage climate risks, such as debt pauses, debt for climate/nature swaps and insurance instruments to address climate related disasters.
  - Financing should address the needs of low- and middle-income climate vulnerable countries.
  - Sovereign debt resolution, when needed, should provide expeditious and adequate debt relief to increase fiscal space for development and climate investment.

PILLAR 2: PROMOTE A GLOBAL TAX ARCHITECTURE (GTA) THAT IS GROUNDED IN PRINCIPLES OF EQUITY, FAIRNESS, AND ENVIRONMENTAL INTEGRITY TO STRENGTHEN FISCAL FOUNDATIONS TO MEET DEVELOPMENT AND CLIMATE GOALS.

- Reforms should promote a fair and inclusive international corporate tax system. These
  include fair taxing rights and rules to allocate profits of cross border activities, deeper
  measures to contain base erosion and profit shifting that enhance revenues for developing
  countries, digital taxation measures and implementation of an effective global minimum
  corporate tax.
- Global tax cooperation should strengthen progressive tax systems, encompassing corporate taxation as well as personal income and wealth taxation, including on high-value property, to increase revenues and promote social equity. Exploring taxation of the super-wealthy, as proposed in the G20, should continue and consider using its revenues to fund global public goods.
- Measures to improve the transparency of cross-border transactions should continue, such as by strengthening information and disclosure of beneficial ownership, country-by-country reporting, automatic exchange of information, to curb illicit financial flows and harmful tax avoidance.
- Collective tax reforms should include new mechanisms to support global public goods, including internalizing the environmental costs of carbon-intensive activities. These could include solidarity levies on high emitting sectors such as international maritime and aviation and fossil fuels — with part of the revenues allocated to support climate actions in developing countries.

### PILLAR 3: STRENGTHEN THE IFA TO ENHANCE ACCESS TO STABLE AND AFFORDABLE LONG-TERM FINANCING TO ACHIEVE CLIMATE AND DEVELOPMENT GOALS.

- Enhance the lending capacity of MDBs through a multifaceted reform agenda to expand and optimize the use of their capital base, improve operational efficiency and increase financial innovation.
  - Increase leveraging of MDBs' balance sheets while preserving credit ratings, by better leveraging callable capital, issuing hybrid capital and revising prudential frameworks for more effective risk-taking.
  - Concurrent to balance sheet measures, recapitalize MDBs to increase their lending capacities to the scale needed to meet climate and development goals.
  - MDBs should increase their use of concessional and counter-cyclical instruments to support climate resilience, enhance natural capital, and ensure a just transition.
  - Scale up risk-sharing instruments to crowd-in private sector investments.
  - Simplify access and operational procedures.
  - MDBs should work as a system and collaborate with national/regional development banks and the effectiveness of the development finance institutions system should be regularly assessed.
  - Align MDB governance structures with 21<sup>st</sup> century development challenges—by ensuring greater voice and representation of borrowing countries to reinforce legitimacy of MDBs as key pillars of the global development financing architecture.

- Expand concessional and non-debt creating financing critical for climate investments adaptation, resilience building and ensuring a just transition—most of which do not yield financial returns over the medium-term. Given scarce ODA, non-traditional sources of financing should be explored to bridge financing gaps, notably:
  - More rechanneling of SDRs, including through MDBs, and new SDR issuance.
  - Enhancing high-quality carbon markets.
  - Instituting global solidarity levies, such as on fossil fuels and high-emitting activities, along with revenue-sharing to boost global climate finance in developing countries.
- Build pathways to scale up financing by the private sector.
  - Countries should deepen domestic capital markets and explore financial instruments to attract investments for climate and development.
  - MDBs should develop effective instruments in which public and private risks are better shared and blended financing solutions.
  - Global and domestic financial regulators should ensure that prudential regulations do not unnecessarily impede climate financing.
  - Reforms should also align trade and investment agreements with strengthening climate actions.

### PILLAR 4: BUILD AN ADEQUATE GFSN THAT ALIGNS WITH INVESTMENT-LED GROWTH

- The IMF should adequately assess the macro-critical impacts of climate risks in macroeconomic projections, surveillance and debt sustainability assessments.
- The IMF's lending capacity and toolkit should respond to climate-related liquidity needs, including expanding the RSF, Poverty Reduction and Growth Trust (PRGT) and Catastrophe Containment and Relief Trust (CCRT), and reforming its lending rates, including surcharges.
- Policy prescriptions to manage debt sustainability should go beyond fiscal consolidation to consider investment-led approaches to achieve macroeconomic stability and economic transformation. Mitigation measures should go beyond carbon pricing and should address other market failures such as the under-provisioning of infrastructure services which are key to support the energy transition.
- Coordination between the IMF and RFAs should be strengthened to ensure timely, adequate and context-sensitive liquidity support to developing countries.
- The IMF, in its global coordinating role, should stress the urgency and benefits of climate actions and the need for multilateral cooperation to scale up financing for climate mitigation and adaptation and ensure fair burden-sharing. It should explore expanding SDR rechanneling and consider new SDR issuances to boost liquidity when needed in an increasingly volatile world.

### PILLAR 5: PROMOTING EQUITY AND REFORMING INSTITUTIONS

- Advance a just and inclusive transition, that include measures to protect workers, smallholders and vulnerable communities, invest in social protection, public health and education linked to increasing climate resilience and foster dialogue across stakeholders (local governments, civil society and the private sector).
- Coordinate global governance for systemic change by:
  - Empowering the G20 and the UN to align financial/tax reforms with climate objectives.
  - Integrating development and climate agendas at the IMF, World Bank and MDBs.
  - Increasing voice and representation of developing countries in IFIs.
  - Promoting international cooperation on climate and concessional finance tracking and accountability.

The agenda above calls for stronger collective actions to deliver on climate and development financing, especially in this uncertain time. The upcoming Fourth International Conference on Financing for Development (FFD4) in Seville will be an important forum to seek reforms in the international financial and tax architectures to deliver on the intertwined goals of climate and development. Additionally, COP30 in Belèm presents an opportunity to shape the global climate agenda of the future. It can build on the commitments set out in the New Collective Quantified Goal (NCQG) and foster consensus on an implementation plan for the IFA to deliver the \$1.3 trillion external financing target by 2035 that is more in line with estimated climate financing needs. COP30 can also be a forum to mobilize developing and developed countries to confront the climate crises, especially with the US playing a reduced role, and address systemic barriers nationally and globally to deliver on climate and development goals. These pillars also provide the organizing framework for potential coalitions of the willing and South-South efforts to advance their strategies for a more resilient and prosperous future.

### REFERENCES

Abalo, Kodzovi, Brent Boehlert, Thanh Bui, Andrew Burns, Diego Castillo, Unnada Chewpreccha, Alexander Haider, Stephane Hallegate, Charl Jooste, Florent McIsaac, Heather Ruberl, Kim Smet and Ken Strzepek. 2025. The Macroeconomic Implications of Climate Change Impacts and Adaptation Options: A Modeling Approach. World Bank Policy Research Working Paper 11133. May 2025. Washington DC.

Asafu-Adjaye, John, Njuguna Ndung'u, and Abebe Shimeless. 2022. "Macroeconomic Consequences of Climate Change in Africa and Policy Implications." Task Force on Climate, Development and the IMF. https://www.bu.edu/gdp/2022/04/11/macroeconomic-consequences-of-climate-change-in-africa-policy-implications/

Benitez, Juan Carlos, Mansour, Mario, and others (2023). *Building Tax Capacity in Developing Countries.* Staff Discussion Note SDN/2023/006. International Monetary Fund, Washington, DC.

Bhattacharya A, Songwe V, Soubeyran E and Stern N (2024) Raising Ambition and Accelerating Delivery of Climate Finance. London: Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science. https://www.lse. ac.uk/granthaminstitute/wp-content/uploads/2024/11/Raising-ambition-and-accelerating-delivery-of-climate-finance\_Third-IHLEG-report.pdf

Cevik, Serhan and João Tovar Jalles. 2023. "Eye of the Storm: The Impact of Climate Shocks on Inflation and Growth." IMF Working Papers 2023/087, International Monetary Fund.

Chamon, Marcos, Erik Klok, Vimal Thakoor, and Jeromin Zettelmeyer. 2022. "Debt-for-Climate Swaps: Analysis, Design, and Implementation." IMF Working Paper 2022/162, International Monetary Fund, Washington, DC. https://www.imf.org/en/Publications/WP/ Issues/2022/08/11/Debt-for-Climate-Swaps-Analysis-Design-and-Implementation-522184

Climate Policy Initiative. 2023. Global Landscape of Climate Finance. https://www.climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2023/

Climate Policy Initiative. 2024. Understanding Global Climate Concessional Finance. https:// www.climatepolicyinitiative.org/publication/understanding-global-concessional-climate-finance-2024/

Expert Panel to Review of Multilateral Development Banks' Capital Adequacy Frameworks. 2022. Boosting MDBs' investing capacity: An Independent Review of Multilateral Development Banks' Capital Adequacy Frameworks.

EU Tax Conservatory. 2023. Global Tax Evasion Report 2024. EU Tax Conservatory. https://www.taxobservatory.eu/publication/global-tax-evasion-report-2024/

Gallagher, Kevin, Rishikesh Ram Bhandary, Rebecca Ray and Luma Ramos. 2023. Reforming Bretton Woods Institutions to achieve climate change and development goals. Open Earth. Volume 6, Issue 10. October 2023. Page 1291-1303.

Gallagher, Kevin. 2025. The international financial architecture and sustainable prosperity. United Nations University, World Institute for Development Economics Research. Helsinki, Finland: UNU-WIDER.

Georgieva, Kristalina, Vitor Gaspar and Ceyla Pazarbasioglu. 2022. Poor and Vulnerable Countries Need Support to Adapt to Climate Change. https://www.imf.org/en/Blogs/Articles/2022/03/23/blog032322-poor-and-vulnerable-countris-need-support-to-adapt-to-climate-change

Grippa, Pierpaolo, Jochen Schmittmann, and Felix Suntheim. 2019. Climate Change and Financial Risk. Finance and Development. Washington D.C.: IMF

G20 Independent Experts Group. 2023. *The Triple Agenda: A Roadmap for Better, Bolder and Big-ger MDBs*.

IMF. 2021. IMF Strategy to Help Members Address Climate Change Related Policy Challenges— Priorities, Modes of Delivery, and Budget Implications." Washington, D.C.: IMF.

IMF. 2023. "Fiscal Policies in a Warming World." In Fiscal Monitor 2023. Washington, D.C.: IMF.

OECD. 2025. Official Development Assistance (ODA). https://www.oecd.org/en/topics/official-development-assistance-oda.html?adestraproject=OECD%20Development%20-%20 Horizontal%20Campaigns&utm\_campaign=development-news-29-april-2025&utm\_content=oda-data-page&utm\_term=dev&utm\_medium=email&utm\_source=Adestra

International Energy Agency (IEA). 2024. World Energy Outlook. https://www.iea.org/ reports/world-energy-outlook-2024.

International Maritime Organization. 2025. IMO Approves Net-Zero Regulations for Global Shipping. https://www.imo.org/en/MediaCentre/PressBriefings/pages/IMO-approves-net zero-regulations.aspx

Kose, M. Ayhan, and Franziska Ohnsorge, eds. 2024. Falling Long-Term Growth Prospects: Trends, Expectations, and Policies. Washington, DC: World Bank. doi:10.1596/978-1-4648-2000-7.

Kotz, M., Levermann, A. & Wenz, L. The economic commitment of climate change. 2024. *Nature* 628, 551–557. https://doi.org/10.1038/s41586-024-07219-0

Network for Greening the Financial Sector. 2025. Short-term climate scenarios for central banks and supervisors. https://www.ngfs.net/en/publications-and-statistics/publications/ ngfs-short-term-climate-scenarios-central-banks-and-supervisors

Nordhaus, W. 2006, "Geography\_and\_Macroeconomics: New Data and New Findings." *Proceedings of the National Academy of Sciences of the United States of America*, 103, 3510–3517.

Seiler, Annika, Hannah Brown, and Samuel Matthews. 2023. *The JETPs of South Africa and Indonesia: A Blueprint for the Move Away from Coal?*. Center for Global Development.

Stern, Nicholas and Joseph E Stiglitz. 2023. Climate change and growth, *Industrial and Corporate Change*, Volume 32, Issue 2, April 2023, Pages 277–303, https://doi.org/10.1093/icc/dtad008

Task Force on Climate, Development and the IMF. 2024. *IMF 2030: A Transformative Action Plan to Achieve Climate and Development Goals*. (R.R. Bhandary and M. Uy, eds).

Titelman, Daniel, Christine Carton, Michael Hanni, and Noel Pérez Benítez (forthcoming). 2025. "Is carbon tax the answer to climate change investment needs in Latin America and the Caribbean?"

Titelman, Daniel, Michael Hanni and Noel Pérez Benítez. 2024. "Macroeconomic and Fiscal Consequences of Climate Change in Latin America and the Caribbean" *Journal of Globalization and Development*, Columbia University vol. 15, no. 2, 2024, pp. 145–169.

Titelman, Daniel, Michael Hanni, Noel Pérez Benítez and Jean-Baptiste Carpentier. 2023. "Tackling climate change from an investment-led development perspective in Latin America and the Caribbean" in *Keys to Climate Action: How Developing Countries Could Drive Global Success and Local Prosperity*, Brookings Institute https://www.brookings.edu/wp-content/ uploads/2023/02/Chapter-10.-Tackling-climate-change-from-an-investment-led-development-perspective-in-Latin-America-and-the-Caribbean.pdf.

Titelman, Daniel, Michael Hanni and Noel Pérez Benítez. 2023. "Economic and Fiscal Implications of Climate Change for Vulnerable Countries in Central America and the Caribbean." Task Force on Climate, Development and the IMF. https://www.bu.edu/gdp/2023/11/27/economic-and-fiscal-implications-of-climate-change-for-vulnerable-countries-in-central-america-and-the-caribbean/.

Titelman, Daniel, Noel Pérez Benítez, Michael Hanni, Carlos Pérez Verdía Canales, Miryam Saad Hazin. 2022. "Fiscal Impact Estimates of a Net-Zero Emissions Transition for Major Hydrocarbon Producers in Latin America and the Caribbean: The Plurinational State of Bolivia, Brazil, Colombia, Ecuador, Mexico and Trinidad and Tobago." Task Force on Climate, Development and the IMF. https://www.bu.edu/gdp/2022/04/05/fiscal-impact-estimates-of-a-net-ze-ro-emissions-transition-for-major-hydrocarbon-producers-in-latin-america-and-the-caribbean/.

United Nations Environment Program (UNEP). 2023. Adaptation Gap Report 2023. https://www.unep.org/resources/adaptation-gap-report-2023.

------ 2024. Adaptation Gap Report 2024. https://www.unep.org/resources/adaptation-gap -report-2024

United Nations. 2024. Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on its fifth session, held in the United Arab Emirates from 30 November to 13 December 2024. https://unfccc.int/documents/637073

United Nations. 2024. Pact for the Future, Global Digital Compact and Declaration on Future Generations. https://www.un.org/sites/un2.un.org/files/sotf-pact\_for\_the\_future\_adopted.pdf

United Nations. 2024. Inter-agency Task Force on Financing for Development, Financing for Sustainable Development Report 2024: Financing for Development at a Crossroads. https://developmentfinance.un.org/fsdr2024.

Uy, Marilou. 2024. Building an inclusive and equitable global taxation system, Chapter 3 in Coulibaly, I. and Abedin, W. (editors), Reforms for a 21<sup>st</sup> century global financial architecture: Independent expert reflectiosn on the United Nationals 'Our Common Agenda'. Brookings Institution, Special Report, April 2024.

Uy, Marilou, Amar Bhattacharya and Daniel Titelman. 2024. "The Evolving Role of the IMF in Addressing Climate Change" in *IMF 2030: A Transformative Action Agenda to Achieve Climate and Development Goals*, Task Force on Climate Development and the IMF, Global Development Policy Center, Boston University.

World Bank. 2024. International Debt Report. Washington, D.C.: The World Bank

Zucman, Gabriel. 2024. A Blueprint for a coordinated minimum effective taxation standard for ultra-high-net-worth individuals. Commissioned by the Brazilian G20 Presidency. https://gabriel-zucman.eu/files/report-g20.pdf