

WORKING PAPER #180.10

KEYS TO CLIMATE ACTION

CHAPTER 10: TACKLING CLIMATE CHANGE FROM AN INVESTMENT-LED DEVELOPMENT PERSPECTIVE IN LATIN AMERICA AND THE CARIBBEAN

DANIEL TITLEMAN
MICHAEL HANNI
NOEL PÉREZ BENÍTEZ
JEAN-BAPTISTE CARPENTIER

AUTHORS

Daniel Titelman, Director, Economic Development Division, United Nations Economic Commission for Latin America and the Caribbean

Michael Hanni, Development Economist, Fiscal Affairs Unit, Economic Development Division, United Nations Economic Commission for Latin America and the Caribbean

Noel Pérez Benítez, Coordinator, Fiscal Affairs Unit, Economic Development Division, United Nations Economic Commission for Latin America and the Caribbean

Jean-Baptiste Carpentier, Tax Policy Analyst, Organization for Economic Co-operation and Development

ACKNOWLEDGEMENTS

The Brookings Institution is a nonprofit organization devoted to independent research and policy solutions. Its mission is to conduct high-quality, independent research and, based on that research, to provide innovative, practical recommendations for policymakers and the public. The conclusions and recommendations of any Brookings publication are solely those of its author(s), and do not reflect the views of the Institution, its management, its other scholars, or its funders.

Brookings gratefully acknowledges project support provided by The Rockefeller Foundation. Brookings recognizes that the value it provides is in its commitment to quality, independence, and impact. Activities supported by its donors reflect this commitment.

This publication is part of an edited volume, "Keys to Climate Action: How developing countries could drive global success and local prosperity," edited by Amar Bhattacharya, Homi Kharas, and John W McArthur. As described in the acknowledgments of the overview chapter, available in a companion publication, the editors thank the remarkable network of collaborators who contributed to the research, production, and support of the full volume and this chapter.

Introduction

Latin America and the Caribbean is highly vulnerable to the effects of climate change, with long-lasting economic and social consequences. The region already faces the accelerating impact of a changing climate, with more frequent—and severe—natural disasters, prolonged droughts, and heatwaves (WMO, 2022). Across the region’s varied geographies, the future macroeconomic, fiscal, and social impacts will unfold at different speeds and intensities. Fiscal accounts will come under growing pressure, as public outlays for reconstruction and social support rise sharply. This may create negative feedback loops, where responding to extreme climatic events results in large increases in public debt, which in turn limits the capacity of countries to invest in building resilience, making them more vulnerable to climate change.

The region’s policy challenge is stark because responding to climate change and creating a sustainable development path is predicated on investment. Adaptation investment to build resilience will be critical to protecting, and expanding, the capital stock, limiting economic losses and a deterioration in living standards (as proxied by gross domestic product [GDP] per capita). Mitigation investments will also play a key role in driving sustainable economic development, incentivizing the adoption of low-carbon technologies that will support the creation of dynamic, competitive, and environmentally responsible economies. Transforming the region’s carbon-intensive energy sector and upgrading of public infrastructure, such as transportation and urban services, will pay a double dividend:] reater resilience to climate shocks and lower long-term energy prices.

The magnitude of climate change and development investment needs is exceptionally large and represents an outsized challenge for the region, which already struggles with low overall and public investment rates. While comprehensive estimates are lacking, available studies suggest incremental investment needs ranging from around 2 percent of GDP for adaptation to upward of 10 percent of GDP per year for mitigation. Overall investment needs are likely to be much more. Existing estimates are largely focused on investment needs for key infrastructure. However, climate change and development will require large-scale investments in “soft” infrastructure, such as social protection systems capable of achieving an orderly and just transition to a low-carbon economy.

Creating the financing framework to make these investments viable represents a major challenge for the region. Alleviating fiscal constraints to public investment will require a significant ramping up of domestic resource mobilization, particularly by increasing the region’s relatively low tax take. Mobilizing private finance will be key, calling for fiscal policies and regulatory measures to channel investment to projects with large climate and development returns. Derisking climate investments and reducing the cost of capital for private investors is

especially important. Multilateral and national developments can play a catalytic role in this regard, providing low-cost project finance.

This chapter is structured as follows. Section 2 explores the region's macroeconomic, fiscal, and social vulnerabilities to climate change. Section 3 underlines the crucial role of investment in tackling climate change and creating a sustainable development path for the region and estimated investment gaps. Section 4 highlights that the region faces these investment challenges from a weak starting point, with exceptionally low economic growth, limited levels of investment and productivity and reduced fiscal space. Section 5 outlines a financing framework for a climate and development investment push, reviewing policy options and potential sources of finance.

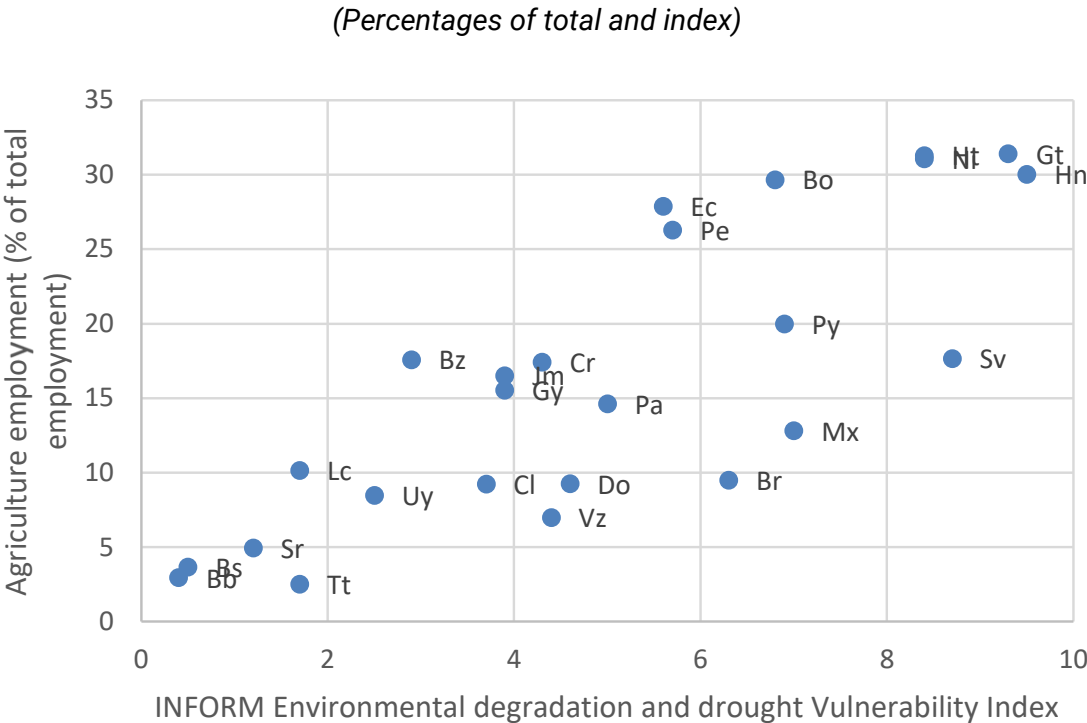
Latin America and the Caribbean is highly vulnerable to the economic and social impacts of climate change

Climate change represents a permanent shock to the region's economies, with long-lasting implications for its economic and social development. A changing climate manifests itself in both long-term and cumulative processes as well as the onset of extreme periodic events. Higher temperatures will progressively change climatic conditions—higher incidence of drought and heatwaves, greater variability in precipitation, among others—in the long run, which undermine the determinants of long-run potential economic growth through various channels, including higher rates of depreciation of public and private capital, reduced economic output of existing industries—reduced crop yields, lower hydroelectric generation—and a reduction in work output (labor productivity). The stepwise change in climatic conditions is also likely to drive severe one-off meteorological and hydrological events that result in large-scale losses in capital stock and, in turn, potential economic growth. Despite these risks, the long-term impact of climate change remains difficult to estimate because of potential tipping points and cascading effects that are hard to forecast (Kemp et al., 2022).

The region's economic vulnerability to the progressive change in climatic conditions cannot be understated. Agriculture, hunting, and fishing activities are particularly exposed. The increased frequency and severity of drought, volatile precipitation, and prolonged heatwaves are projected to reduce crop yields and livestock production in the region (Morris et al., 2020). As seen in figure 10.1, countries in the region where agricultural activities play a prominent role are also the most vulnerable to environmental degradation and drought. Agriculture represents more than 20 percent of total employment in 7 countries, and above 30 percent in four of these countries (Guatemala, Haiti, Honduras, Nicaragua). It makes up more than 5 percent of total GDP in 20 countries and reaches 10 percent of GDP or more in 8 of these countries (Bolivia, Dominica, Guyana, Haiti, Honduras, Nicaragua, Paraguay, Suriname). Exports of foods and beverages are also an important generator of foreign exchange, accounting for more than 20 percent of the value of total exports of goods and services in 11 countries and surpassing 35 percent in Ecuador, Guatemala, and Nicaragua.¹

¹ Based on figures from CEPALstat, available online: <https://statistics.cepal.org/>.

Figure 10.1: Latin America and the Caribbean: Exposure of agricultural employment to environmental degradation and drought, 2015–2019 average



Source: Authors’ elaboration based on data from CEPALSTAT, ILOstat, and Index for Risk Management (INFORM)

The region’s extractive sector will also be increasingly impacted by climatic hazards. Drought, heavy precipitation, and heatwaves create significant physical challenges for the operation of mining and hydrocarbon activities. Mining, with a high dependence on water availability, will be affected by changes in hydrological conditions (Odell et al., 2018). Much of global mine production takes place in areas that already face significant water stress (McKinsey, 2020). For example, Chile—the world’s largest producer of copper—is among the most water stressed countries in the world (WRI, 2019). Rising demand for low-carbon technologies that incorporate metals such as copper and lithium—ranging from electric cars to energy efficiency solutions—will heighten stress on water systems in producing countries, especially in Latin America. These activities may be significantly curtailed as climate change increases risks to the region’s overall water security (IPCC, 2022).

Catastrophic weather events are on the rise in the region, as are the economic and human costs associated with them. The frequency of natural disasters in the region has increased significantly since the beginning of the 20th century. Between the years 1900 and 1960, 157 natural disasters were recorded, with average annual economic damages below \$ 1 billion at

cover reconstruction costs. Left unchecked, this dynamic can create a negative feedback loop in which a disaster intensifies poverty and inequality, reducing the coping capacity of vulnerable populations and leaving them more exposed to climate change.

Recent studies confirm the high level of social vulnerability in the region. Pessimistic scenarios suggest that climate change may create 5.8 million additional extreme poor in 2030, which corresponds to an increase of 305 percent compared to the baseline scenario without climate change (Arga Jafino et al., 2020). Estimates from 70 peer-reviewed climate studies suggest that a temperature increase of 1.5 degrees Celsius above pre-industrial levels could result in an 18 million more people exposed to water scarcity, rising to 24 million people under a scenario where the increase in temperature approaches 2.0 degrees Celsius. Increasing water scarcity, lower crop productivity, sea level rise and storm surges, as well as heat waves, extreme events, and land loss will combine to be powerful drivers of migration from rural and coastal areas to urban areas. Estimates for Latin America suggest that internal climate migration could reach 10.7 million and up to 17.1 million people by 2050 (Rigaud et al., 2018).

Urban areas in Latin America and the Caribbean will come under increasing pressure as internal climate migration aggravates existing high levels of social vulnerability to climate change. The region is among the most urbanized in the world, with 81 percent of the population residing in urban areas in 2018, exceeded only by Northern America (82 percent) (UNDESA, 2019). Latin America and the Caribbean is also the region with the highest share of inhabitants living in megacities (10 million inhabitants or more), at 17.6 percent of total urban population, compared to 14.8 percent in Asia and 10.5 percent in Northern America. Cities in the region are characterized by large informal settlements, often in areas of elevated risk for floods and landslides (Vera and Sordi, 2020). Cities in the region are not well placed to tackle the impact of climate change, constrained by existing low levels of public services and insufficient—and vulnerable—infrastructure.

The region faces this investment challenge from a weak starting point

Economic activity in the region has stagnated in the past decade, exhibiting exceptionally low growth rates, after a period of rapid expansion coinciding with a global commodity “supercycle.” Annual GDP growth averaged just 0.6 percent between 2014 and 2019, a period marked by falling commodities prices—particularly a collapse in international oil prices—and growing macroeconomic imbalances. Economic recovery has proved elusive, despite a strong rebound in 2021, and is projected to return to the meagre rates observed prior to the crisis. The region suffers from multiple structural deficiencies that undermine long-run economic growth. Both private and public investment in the region are exceptionally low, resulting in a capital stock that is insufficient to spur the creation of more dynamic economies. Productivity is likewise low, reflecting the interaction of limited investment flows, a small stock of physical capital and low levels of human capital.

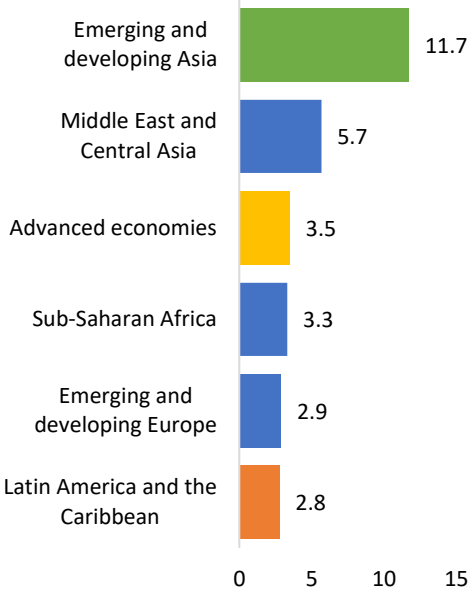
If left unaddressed, climate change will intensify these structural gaps, directly impacting the underlying determinants of potential economic growth. Current investment levels, if maintained, would be insufficient to promote the needed accumulation of capital to bolster resilience to climate change. The increasing frequency and intensity of extreme climatic events—natural disasters as well as droughts and floods—will likely result in accelerating rates of depreciation and outright destruction of the existing, largely climate-vulnerable, public capital stock. The region’s energy matrix—highly carbonized—which underpins its productive structure, will become increasingly costly to maintain as energy markets undergo significant changes in the coming decades. Labor productivity levels are also projected to decline as higher temperatures impact work performance and agricultural productivity.

Total investment in the region has lagged that of other emerging markets and developing economies for the last three decades. Investment rates in Latin America and the Caribbean, for example, have hovered around 20 percent of GDP since the 1990s. Comparable rates in emerging and developing Asia have been in the range of 40 percent of GDP for more than a decade, playing a major supportive role in economic growth and development. Notably, investment in Latin America and the Caribbean is also below the levels seen in advanced economies, despite the potential for rapid investment growth to close gaps in capital stock between the two groups of countries. Capital formation dynamics have also deteriorated in the last decades, and have become more volatile since 1990, with more frequent cyclical downturns of greater magnitude and duration (ECLAC, 2022a).

Public investment is also exceptionally low in Latin America and the Caribbean. As shown in figure 10.2, the region’s capital formation at the general government level, which includes central and subnational governments, is the lowest among developing regions and below the level registered for advanced economies too. In 2019, the region dedicated just 2.8 percent of GDP to public investment, compared to 11.7 percent of GDP for the economies of emerging and developing Asia. This low level of investment translates to a small public capital stock, which provides limited and generally lower-quality economic services necessary to generate economic growth and development. Various metrics suggest that the quality of the region’s infrastructure, largely the product of public sector investment, is lacking with consequences for competitiveness and growth (WEF, 2018).

Figure 10.2: Selected regions: General government gross fixed capital formation, 2019

(Percentages of GDP on the basis of constant prices, weighted average)



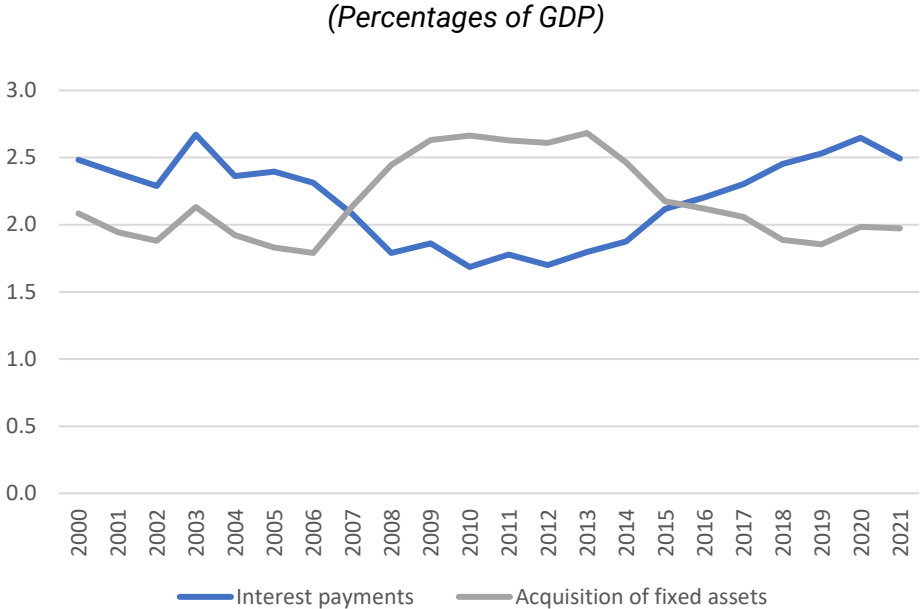
Note: Weighted averages, based on GDP purchasing power parity international dollars at current prices

Source: Authors’ elaboration based on IMF World Economic Outlook database, “Investment and Capital Stock Dataset” [online] <https://data.imf.org/?sk=1CE8A55F-CFA7-4BC0-BCE2-256EE65AC0E4>, and ECLAC (2022a).

There is limited fiscal space in the region to undertake active public policies to bolster growth, investment, and productivity. Stagnant public revenues were unable to meet the demands of public spending, resulting in persistent and elevated fiscal deficits in the decade leading up to the COVID-19 pandemic. In Latin America, these deficits and weakening macroeconomic

fundamentals, resulted in unfavorable debt dynamics, pushing central government gross public debt from a low of 29.4 percent of GDP in 2008 to 45.4 percent of GDP in 2019 (ECLAC, 2022a). Faced with rising debt, rising sovereign risk, and credit rating downgrades, Latin American countries increasingly pursued fiscal consolidation measures, including tax reforms and spending constraint, to reduce primary deficits. Public investment was particularly hard hit, becoming the primary variable of fiscal adjustment to accommodate rising interest payments (figure 10.3). Likewise, many countries in the Caribbean exercised strict fiscal restraint, foregoing needed social spending and public investment, in a bid to generate primary surpluses to reduce debt levels.

Figure 10.3: Latin America (16 countries): Central government interest payments and investment in fixed assets, 2000–2021^a

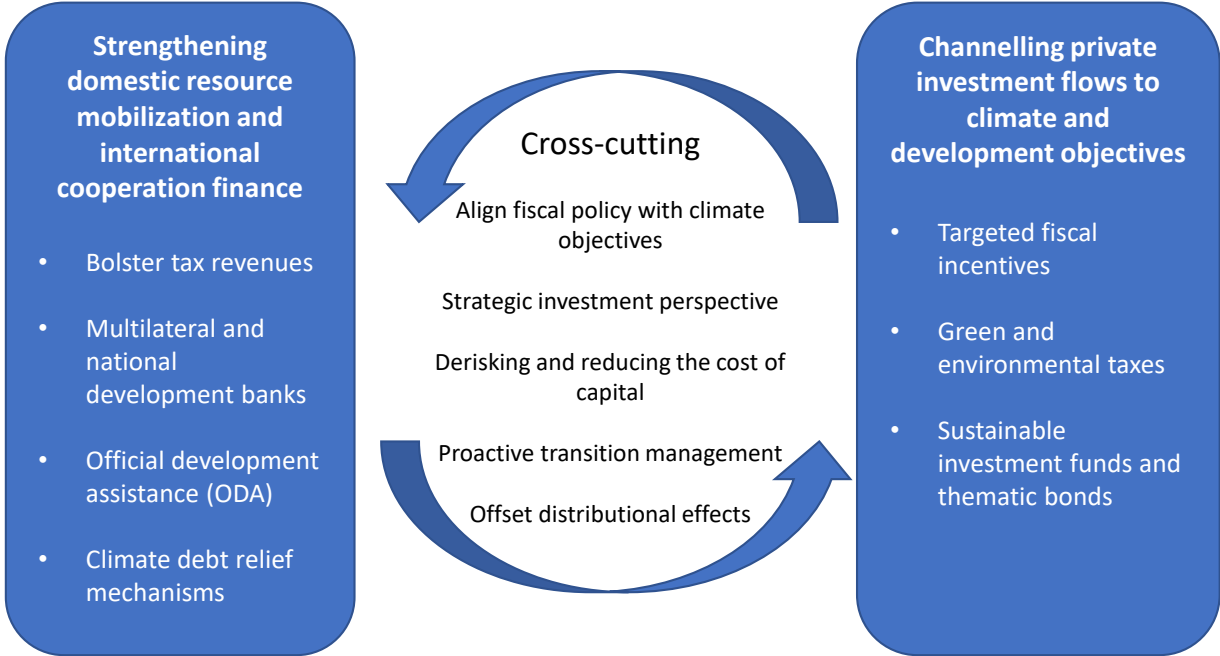


Source: Authors’ elaboration based on *Economic Survey of Latin America and the Caribbean 2022*, ECLAC (2022a). Argentina, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, and Uruguay

The COVID-19 pandemic upended the region’s fiscal position in 2020, with potentially long-lasting consequences. Despite limited fiscal space, countries adopted unprecedented large-scale support packages, averaging 4.6 percent of GDP in Latin America alone (ECLAC, 2021a). However, the sharp rise in expenditure, combined with falling tax revenues, led to the creation of large deficits. The average overall balance for Latin America in 2020 reached a deficit of 6.9 percent of GDP, with the Caribbean registering a similar level (–6,8 percent of GDP). In the case of Latin America, deficits in 2020 surpassed those seen during the debt crisis of the 1980s.

These dynamics led to a sharp rise in public debt levels in both subregions. In Latin America, public debt reached levels last seen in the early 2000s during the midst of the economic crises that battered Argentina and Brazil in the years running up to 2002. In the Caribbean, public debt reached 89.3 percent of GDP, an increase of 21.1 percentage points over the level of 2019 (68.2 percent of GDP). By the end of 2021, six countries had debt levels above 90 percent of GDP: Bahamas, Barbados, Belize, Dominica, Jamaica, and Suriname (ECLAC, 2022a). Barbados and Suriname are particularly exposed, with debt levels above 130 percent of GDP. Despite a recent debt restructuring in Barbados—for domestic debt in 2018 and external debt in 2019—debt service remains high. Suriname entered an arrangement with the IMF under the Extended Fund Facility in late 2021 to support the domestic economy and tackle debt issues. Protracted negotiations between the country and its private and bilateral creditors are ongoing.

Figure 10.4 Financing framework for a climate and development investment push



Source: Authors' elaboration

Figure 10.4 also highlights some cross-cutting principles which should guide policy design. First, public policy should be guided by a strategic perspective, that prioritizes investments with high environmental, economic, and social returns. Specific attention should be given to projects with high positive externalities but are not financially viable in their own right. Second, given the region's high level of economic and social vulnerability to climate change, a robust policy response calls for proactive transition management, that aligns public policies, regulatory frameworks, and social policies toward the achievement of climate and development objectives. Third, the impact of climate change and climate policies is not shared equally across society. Internalizing the distributional effects to ensure that public policies address the vulnerabilities of low-income and other exposed populations will be crucial for maintaining social support for climate action.

Strengthening domestic resource mobilization and international cooperation finance

Domestic resource mobilization

In Latin America and the Caribbean, public revenues have been insufficient to meet the demands of public spending, particularly investment, leading to entrenched deficits and upward pressure on debt levels. Thus, there is substantial room to strengthen domestic resource mobilization to increase the fiscal capacity of countries in the region to undertake climate

\$50 billion in financing for climate action by 2025—up from around \$33.3 billion in climate-related finance from 2015 to 2019 in the region (OECD et al., 2022).⁷

Financing provided by MDBs and NDBs in the region is rather modest. As seen in figure 10.5, between 2019 and 2020, national development banks and multilateral institutions provided an average of \$11.5 billion (0.2 percent of 2019 GDP) per year in climate finance in the region. A significant amount of the financing provided was in the form of low-cost project debt or project-level market rate debt. Data from national development banks in Brazil, Chile, and Mexico suggest much of their mitigation financing targets renewable energy, other forms of low-carbon energy production, and energy efficiency (Abramskiehn et al., 2017).

Beyond the provision of finance, MDBs could increase their impact in the region by providing support to countries as they seek to strengthen or build investment governance frameworks. National public investment systems are common in the region, but they require further strengthening to manage the magnitude of investments necessary to tackle climate change and promote sustainable development. Due diligence carried out by MDBs provide important benchmarks to identify quality projects with high economic, social, and climatic impacts. This is especially crucial when public investment projects include private sector partners, particularly participation by foreign companies or non-governmental organizations.

⁷ Inter-American Development Bank, “IDB Group Reaffirms Climate Leadership, Signs \$50 Billion Accord with Other Institutions”, press release, 9 June 2022 [online] <https://www.iadb.org/en/news/idb-group-reaffirms-climate-leadership-signs-50-billion-accord-other-institutions>

percent of the total), reflecting the size and liquidity of that region's financial markets, supportive financial regulation, and the widespread reporting of ESG indicators by publicly listed corporations.

Sustainable funds play a very minor role in climate finance in developing countries and emerging markets. Existing sustainable funds outside developed economies are small in number, and principally located in developing Asia (UNCTAD, 2022). There are relatively few sustainable funds in Latin America and the Caribbean—mainly in Brazil—and the assets they manage are modest in scale. Significant barriers exist to the development of domestic sustainable funds in the region, reflecting the limited size and perceived high risk of financial markets, and the lack of required regulatory frameworks necessary. The region is also a minor recipient of investment by sustainable funds located in developed economies. A major limiting factor is the relative paucity of ESG reporting by firms in the region. Regulators in Brazil, Chile, Colombia, and Mexico have taken steps to mandate the inclusion of ESG indicators in annual financial reporting and establish how domestic institutional investors—particularly pension funds—should include ESG considerations in their investment decisions and risk analysis.

A growing area of climate and development finance is the use of thematic debt instruments. The global green bond market alone is expected to double in value in 2022, reaching \$1 trillion by the end of 2022, and may reach \$5 trillion by 2025 (CBI, 2021). Social and sustainability-linked bonds (e.g., SDG bonds) have also grown rapidly at the global level. Issuances of thematic bonds at the regional level rose from \$7.2 billion in 2019 to \$13 billion in 2020 and \$32.2 billion in 2021 (roughly 3.4 percent of global thematic bond issuance) (ECLAC, 2022b). The doubling of the thematic bond market in the region between 2020 and 2021 is principally attributable to the strong rise in social bonds offered by sovereign issuers aimed at financing social assistance programs to counteract the impact of the COVID-19 pandemic.

Private companies in the region have taken advantage of the thematic bond market to finance projects that reduce their carbon footprint. Two thirds of thematic bonds issued by private firms during the period were green bonds, with the energy sector leading with cumulative issuances of almost \$4.2 billion (IDB, 2022). Indicative examples include the green bonds issued by AES Gener SA for \$450 million in 2019 and Colbun SA for \$600 million in 2021 to finance energy efficiency and renewable energy investments. Beyond the energy sector, the financial sector issued \$1.4 billion in sustainable bonds between 2019 and 2021 with the aim of offering credit lines to customers for the financing of sustainable projects (IDB, 2022).

UNCTAD (United Nations Conference on Trade and Development). (2022). *World Investment Report 2022: International tax reforms and sustainable development*, Geneva.

UNDESA (United Nations Department of Economic and Social Affairs) (2019). *World Urbanization Prospects: The 2018 Revision (ST/ESA/SER.A/420)*. New York: United Nations.

Vera F. and Sordi, J. (2020). *Ecological Design: Strategies for the Vulnerable City: Adapting Precarious Areas in Latin America and the Caribbean to Climate Change*. Inter-American Development Bank.

WEF (World Economic Forum). (2018). *The Global Competitiveness Report 2017-2018*, Geneva.

WMO (World Meteorological Organization) (2022). *State of the Climate in Latin America and the Caribbean 2021*, (WMO-No. 1295), Geneva, Switzerland.

World Resources Institute (WRI). (2019). "Aqueduct 3.0 Country Rankings." Retrieved from <https://www.wri.org/data/aqueduct-30-country-rankings>.

BROOKINGS

1775 Massachusetts Ave NW,
Washington, DC 20036
(202) 797-6000
www.brookings.edu