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Local Governments Climate Finance Instruments

Global Experiences and Prospects in Developing Countries

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Abbreviations

AF	Adaptation Fund
BRDE	Regional Development Bank for the Extreme South
DFI	development finance institution
EBRD	European Bank for Reconstruction and Development
ERC	emission reduction certificate/credit
ESG	environmental, social, or governance
GCF	Green Climate Fund
GEF	Global Environment Facility
GHG	greenhouse gas
IBRD	International Bank for Reconstruction and Development
ICMA	International Capital Market Association
IFC	International Finance Corporation
IFI	international financial institution
IMIF-TAF	International Municipal Investment Fund Technical Assistance Facility
LG	local government
LoCAL	Local Climate Adaptive Living Facility
LVC	land value capture
MDB	multilateral development bank
MIGA	Multilateral Investment Guarantee Agency
MRV	measurement, reporting, and verification
NAP	National Adaptation Plan
NDC	Nationally Determined Contribution
NGO	nongovernmental organization
OSR	own-source revenue
PACE	property assessed clean energy
PBG	performance-based grant
PPP	public-private partnership
SDG	Sustainable Development Goal
SLB	sustainability-linked bond
SPV	special project vehicle
UNCDF	United Nations Capital Development Fund
UNFCCC	United Nations Framework Convention on Climate Change

Executive Summary

Cities in developing countries will be at the forefront of confronting and mitigating the impacts of climate change, and they need substantial financing to address this challenge. Local governments (LGs)—especially municipalities responsible for managing cities—will need to make substantial investments in climate adaptation and mitigation, from greening existing and planned infrastructure to promoting the growth of low-carbon and climate-resilient communities. However, they often lack the fiscal resources for such investments, and despite global climate finance commitments, the funding gap remains substantial due to the high investment needs. LGs will need to mobilize resources using a variety of financing mechanisms and instruments. National governments will also need play a critical enabling and facilitating role to support LGs in this objective.

This report aims to contribute to discussions on increasing the access of LGs and cities to climate finance and help LGs understand various financing instruments and sources available to them to meet climate investment needs. It organizes these instruments in a conceptual framework and provides information on each, along with case studies (listed in table ES.1) presenting international experiences with their use. It also assesses constraints faced by LGs in accessing these instruments and provides recommendations for LGs, national governments, and development partners to increase and facilitate this access to help meet climate investment needs.[1]

Table ES.1 Case Studies Presented for Various Climate Finance Instruments and Sources

S/N	Climate Finance Instruments and Sources	Case Study
1	**Climate-focused fiscal transfers/ grants**	UNCDF's LoCAL facility and various World Bank financing projects supporting LGs, operating globally
2	**Pollution and Congestion Charges**	Congestion charges and low emission zones, London (United Kingdom)
3	**Land Value Capture (LVC) instruments for climate action**	Msimbazi river basin project, Dar es Salaam (Tanzania)
4		Eco-efficiency ordinance to promote reduction in GHG emissions, Quito (Ecuador)
5		Sustainable Urban Development Law to support climate-oriented LVC instruments in Peru
6	**Sale of Carbon Credits**	Sale of carbon credits from urban forests as revenue source for cities (United States)

1 A note on terminology of LGs and clarification on geographical jurisdiction: While the report often refers to cities and municipalities, the material presented applies to LGs of most types. As such, the report uses the terms city, municipality, LG, and urban LG interchangeably.

S/N	Climate Finance Instruments and Sources	Case Study
7	**Property-Assessed Clean Energy (PACE) programs**	PACE program to finance energy efficiency improvements in buildings, Milwaukee (United States)
8	**Green Loans**	Financing public transport infrastructure in Lima (Peru) for reduction of GHG emissions
9		London Green Finance Fund for LGs and other public entities in London metropolitan area (United Kingdom)
10	**Green Bonds**	Municipal Green Bond Issuance, Mexico City (Mexico)
11		Municipal Green Bond Issuance, Cape Town (South Africa)
12	**Sustainability-linked Bonds**	Sustainability-Linked Bond issued by Helsingborg municipality (Sweden)
13		Sustainability-Linked Bond issued by Zagreb municipality (Croatia) with IFC and EBRD investment
14	**Public-Private Partnerships (PPPs) for climate-focused projects**	Municipal waste-to-energy PPP project in Monterrey (Mexico)
15	**Credit enhancements and guarantees**	Municipal waste-to-energy project in Belgrade (Serbia) with MIGA guarantees and IFC financing
16		Bita Water Project in Luanda (Angola) with World Bank (IBRD) guarantee
17	**International sources of climate finance**	Climate adaptation project for LGs in Benin financed by Green Climate Fund (GCF) after accreditation support by UNCDF
18	**Domestic sources of climate finance**	Scaling up climate finance to cities through national and regional development banks in Brazil

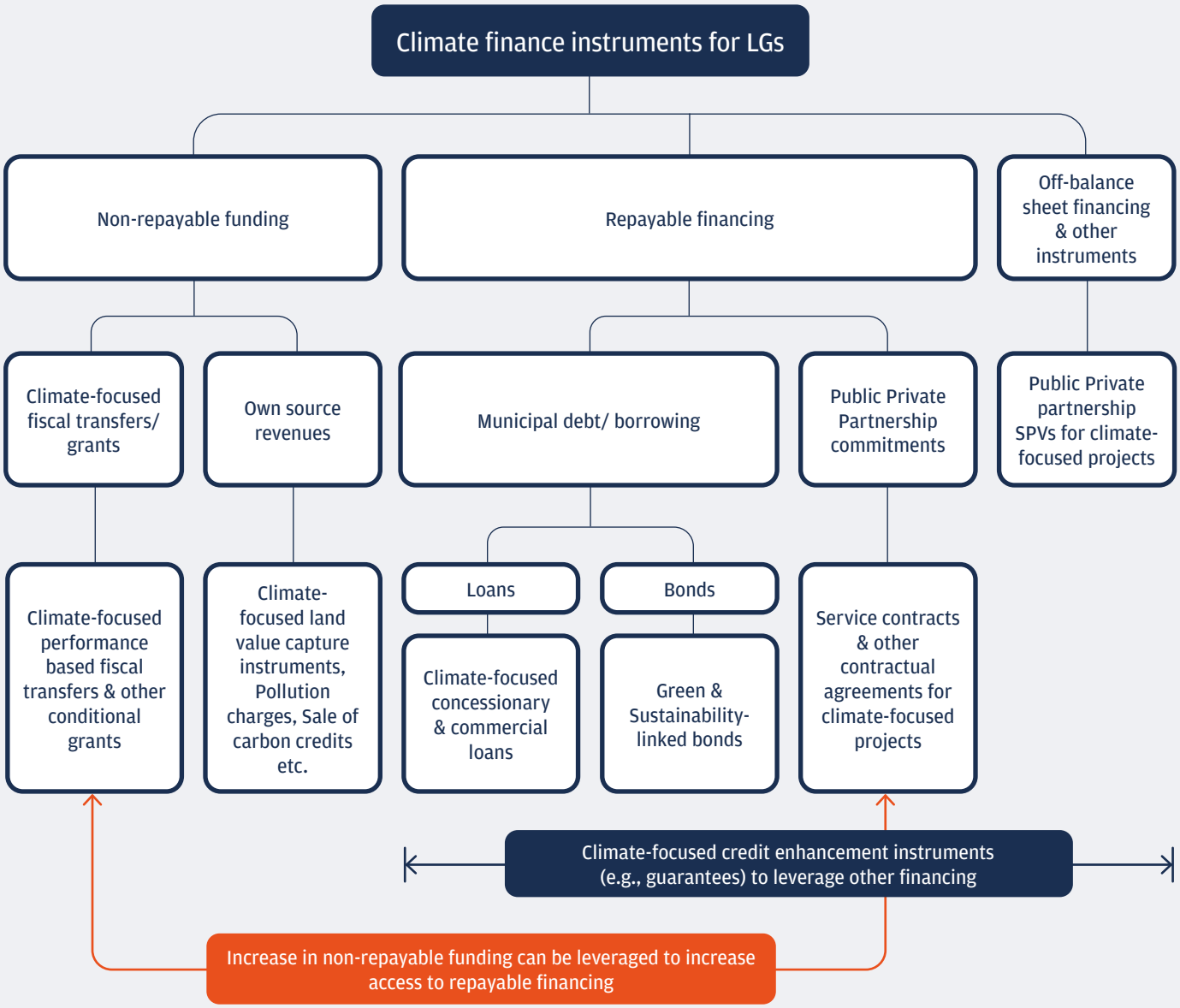
Conceptual framework for categorizing "local government climate finance"

This report considers 'LG climate finance' to be any financing that is provided by public or private sector entities to LGs, or is channeled through LGs, for activities or investments that are targeted at mitigating greenhouse gas (GHG) emissions and/or supporting adaptation and resilience to the expected impacts of climate change.[2]

2 See full report for more details on this scope.

The various types of climate finance instruments available to LGs are categorized in figure ES.1. using the report's conceptual framework, covering both repayable and nonrepayable financing as well as off-balance sheet financing instruments. The report shows that 'climate finance', in many respects, is not fundamentally different from 'traditional' finance, at least to the extent of the experiences reviewed so far. As such, it is seen that several financing instruments routinely used by LGs for capital expenditure – such as fiscal transfers, land value capture (LVC) and project financing instruments, can be tailored to achieve climate objectives, as shown in the report.

Figure ES.1 Categorization of climate finance instruments available to LGs



Nonrepayable funding instruments for local governments

As many LGs are constrained in their access to commercial and private finance, they tend to rely on traditional sources of funds—that is, nonrepayable funding—to pay for key projects and activities. These include intergovernmental fiscal transfers and grants - and their uses for climate action – as well as a variety of own-source revenue (OSR) instruments that can be tailored for climate use, including LVC instruments, environmental levies and charges, and the sale of carbon credits in the financial markets as a potential source of funding.

Grants or intergovernmental fiscal transfers: Fiscal transfers or grants from higher tiers of government are being used in several cases to incentivize LGs to focus on climate action. These include conditional/targeted fiscal transfers as well as performance-based grant mechanisms. Performance-based grant programs are increasingly being utilized in several countries to sharpen the focus on climate change mitigation and adaptation at the local level, either through standalone grants focused specifically on climate-related actions or integrated into existing grant programs as top-up with increased focus on climate. The World Bank has a large financial portfolio supporting several countries to implement PBG programs through their country systems and channel funds to LGs. Another leading example is the Local Climate Adaptive Living Facility (LoCAL) designed and managed by UNCDF which provides performance-based climate resilience grants in several countries.

Own-source revenues: OSR are critical to LGs and their funding of their own climate initiatives as they typically represent the largest pool of funds that falls completely under a LG's control. While most LGs already have a set of instruments for OSR, specific focused instruments can be adopted to mobilize resources for climate projects. Examples include the following:

- **Pollution and congestion charges:** LGs are increasingly experimenting with the use of pollution and congestion charges to improve air quality and generate additional revenues. The instrument combines the elements of a user charge (a fee for the use of a resource) and a product charge (a charge on a product believed to be harmful to the environment). It can be implemented either as emission fees or as taxes applied as a proportion of the volume of pollution generated.
- **Climate-related LVC instruments:** LVC tools can be utilized for climate purposes by directing them toward initiatives that reduce GHG emissions, improve energy efficiency, enhance water management systems, or implement measures to adapt to the impacts of climate change. LVC mechanisms can also incentivize the integration of sustainability and resilience features in investments in buildings by property developers.
- **Sale of carbon credits:** Municipal or city-level activities that reduce GHG emissions, such as improved municipal waste management, energy efficiency, renewable energy use in buildings, or increased green spaces and urban forests, can potentially be monetized by cities, LGs, or private entities responsible for these projects, by converting these emissions reductions into carbon credits which can be sold for revenue. However, a key challenge is the sophisticated and stringent compliance requirements and processes to measure, report and verify the reduction of emissions.

- **Property assessed clean energy (PACE) programs:** This is an innovative financing model that enables LGs to facilitate energy-saving and renewable-energy projects on private properties, with LGs often acting as financial intermediaries and collecting repayments through property tax bills. However, these programs require a well-functioning property tax system.

Repayable and off balance-sheet financing instruments: municipal debt, equity, project financing and credit enhancements

"Repayable" financing instruments available to LGs for climate action include commercial financing instruments, such as municipal debt/borrowing, public-private partnerships (PPPs), and credit enhancement mechanisms such as guarantees. Several of these instruments are already available in developing countries and can be tailored to finance climate-related investments.

Municipal borrowing: LGs in developing countries, especially those governing larger cities or economically important jurisdictions, are increasingly diversifying their sources of capital to include debt financing. Debt financing can be raised on either market-rate or concessional terms. The various debt instruments include:

- **Green loans:** These are debt instruments parties can use to raise funds for projects that contribute to the reduction of GHG emissions, adaptation to climate change, and creating a more livable and sustainable environment. LGs may take out green loans to finance climate projects depending on their capacity and the availability of the loans. In some instances, national or regional governments act as intermediaries to aggregate city projects and borrow on their behalf, often through pooled mechanisms.
- **Municipal, green, and sustainability-linked bonds:** For cities that have demonstrated strong creditworthiness, bonds can be an important source of financing for climate-smart infrastructure projects identified through municipal capital investment plans. While bonds can be issued at the national level, municipal issuance offers the advantage and benefits of localized climate action and a stronger connection to the specific needs and priorities of the community.

PPPs and off-balance sheet instruments: In addition to traditional debt, LGs are also exploring partnerships with private sector investors and service providers for their climate initiatives. PPPs are one such mechanism, involving agreements between public and private parties to deliver a public asset or service. In some instances, off–balance sheet arrangements for project financing, like the creation of a special purpose vehicle (SPV) in collaboration with an LG, is needed to provide more assurance to private investors by ringfencing project revenues. The report discusses examples of municipal PPP projects with climate impacts such as reduction in GHG emissions.

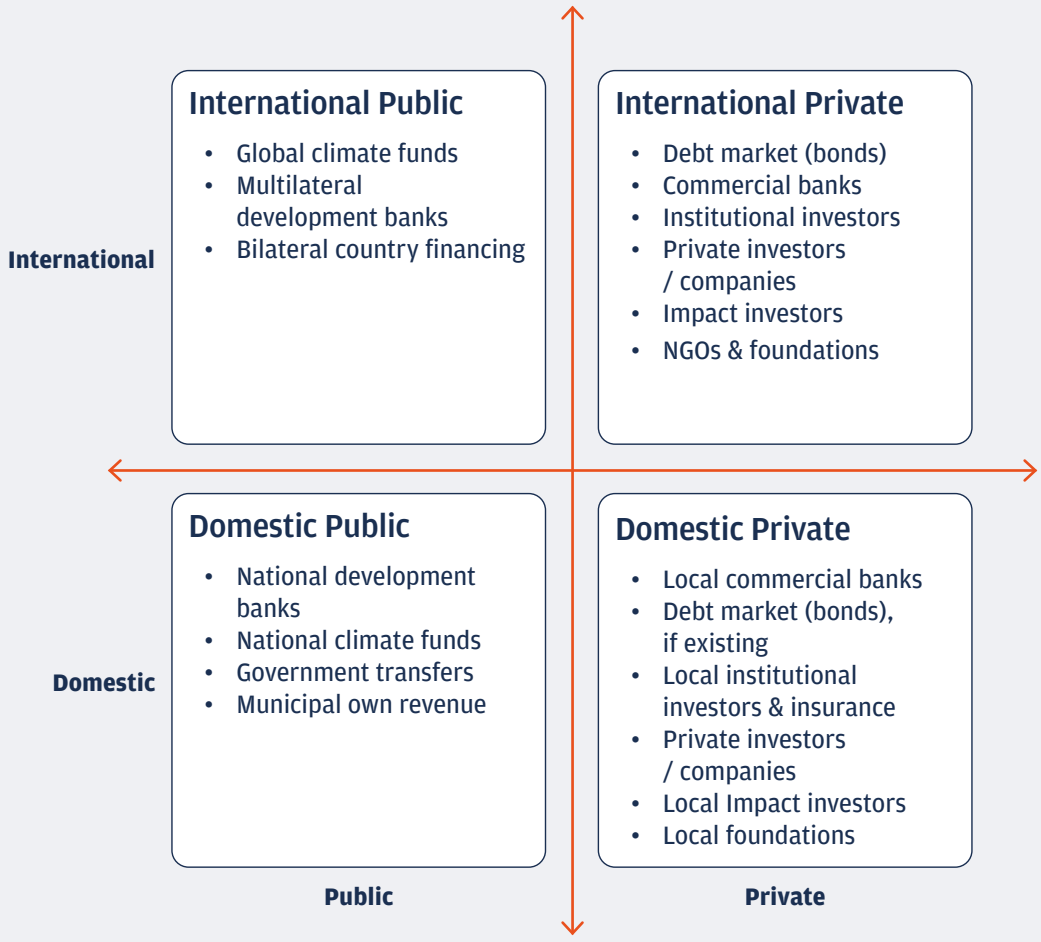
Credit enhancement mechanisms and guarantees: Given the relative inexperience of LGs in developing countries in obtaining access to repayable finance on commercial terms, investors and lenders can rely on credit enhancement mechanisms such as guarantees to substitute for municipal creditworthiness and reduce credit and other types of risk, allowing LGs to obtain more favourable

lending terms and making it easier to mobilize commercial finance. However, it is important to note that guarantees can address some but not all market failures faced by borrowers. Such interventions should be approached cautiously because of the potential for creating moral hazard and generating perverse incentives and fiscal risks.

Sources and providers of local government climate finance

Capital for financing instruments comes from various sources and providers, which can be private or public, and domestic or international. Private climate financing is provided by entities and institutions in exchange for financial returns, including debt markets, commercial banks and financial institutions, philanthropic foundations, and private investors. Public climate finance is allocated from resources by national governments, multilateral, regional, and national development banks, global and national climate funds, bilateral financing through partner countries, and municipal OSR (See figure ES.2. for an indicative list).

Figure ES.2
Indicative list of sources of climate finance categorized by public/private and domestic/ international sources



Source: Authors

Climate finance sources should be chosen by LGs based on project requirements and their capabilities. International financing is crucial but come with challenges like currency differences and, often, the need for national government guarantees. Domestic sources provide relatively easier access to funds, but LGs must have strong systems, accountability, and creditworthiness to access private investment.

Recommendations

The report offers several recommendations for key stakeholders to address constraints faced by LGs in accessing climate finance and support them in developing and financing their climate-smart projects. The recommendations are categorized into two: first, those that address the general prerequisites to lay a foundation for LGs to access all types of finance including but not limited to climate finance; and second, recommendations that can specifically increase climate finance flows to LG through the various instruments discussed in the report. Each of these two sets of recommendations are further split into those that are targeted at LGs, national governments, and international financial institutions and development partners to support efforts of countries and LGs with technical and financial assistance. The recommendations are summarized in table ES.2. and further elaborated in the report.

Table ES.2 Summary of recommendations

Target Institution/ Stakeholder	Recommendation
Enabling LGs' access to all types of financing	
LG level	• Strengthen core institutional and technical capacities on investment planning, financial management, and own-source revenue collection. • Improve project identification/prioritization and develop pipeline of "bankable" projects. • Strengthen engagement with potential financiers/investors. • Advocate and build the case with higher tiers of government.
National governments	• Strengthen fiscal base and expenditure mandates of LGs. • Strengthen LGs' technical and absorptive capacity. • Facilitate an enabling environment for private financing.
IFIs and development partners	• Support national systems of fiscal transfers to LGs in support of local climate change response. • Help LGs improve their technical capacity, creditworthiness, and project structuring.

Target Institution/ Stakeholder	Recommendation
Enabling LGs' access to climate finance	
LG level	• Build the information systems and analytical base for climate-related investments and financing. • Identify and prepare climate-related interventions and projects for financing, backed by climate action plans. • Advocate and build the case with higher tiers of government.
National governments	• Build investor relations for and awareness of commercial and concessional financing for LG projects. • Support LGs in identifying and preparing climate-related interventions and projects for financing, including through an enabling environment • Provide more public and concessional financing.
IFIs and development partners	• Help strengthen engagement with potential financiers/investors and build awareness of commercial and concessional financing. • Support preparation of climate-related interventions and projects for financing. • Provide more public and concessional financing.

Acknowledgments

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1

Introduction

1.1 Why this report is needed

Cities in developing countries will be at the forefront of confronting and mitigating the impacts of climate change, and they need substantial financing to address this challenge. More than half the population in these countries already live in cities, a proportion expected to increase to two-thirds by 2050.[3] Cities also consume over two-thirds of the world's energy and produce 70 percent of global greenhouse gas (GHG) emissions (United Nations 2019). At the same time, cities in developing countries will suffer severe impacts from the effects of climate change, including, among others, sea level rise; increases in extreme rainfall events and tropical cyclones; more exposure to flooding; greater prevalence of extreme heat and heatwaves; water stress; and wildfires. Finally, if the world is to achieve GHG emissions targets and limit global warming, these cities will need to continue their development without following the historic emissions trajectories of those in higher-income countries.[4]

To meet these challenges, local governments—especially municipalities responsible for managing cities—will need to make substantial investments in climate adaptation and mitigation, from "greening" existing and planned infrastructure to promoting the growth of low-carbon and climate-resilient communities. In practice, however, and despite global commitments to climate finance, these investments are difficult to implement in developing countries, partly because of the limited availability of fiscal resources to most local governments (LGs) there. The amount of financing needed for climate action in cities, both to reduce their GHG emissions and to improve their resilience and adaptation to the expected impacts of climate change, is very substantial. While limitations in data harmonization and reporting prevent the comparison of financing flows against future financing needs on a one-to-one basis, the estimates suggest the existence of a significant gap.

Several estimates quantify the urban infrastructure spending needs for climate action in cities and the financing gap over the next decade and more:

- In 2015, the City Climate Finance Leadership Alliance estimated the urban infrastructure investment needs for low-emission, climate-resilient cities globally, including those in high-income countries, at US$4.5 trillion to US$5.4 trillion per year. This assessment assumed that more than 70 percent of the infrastructure built until 2050 would be in urban areas,[5] although it did not give a breakdown for developing countries. The alliance later estimated that, in 2017/18, finance flows for climate measures in cities reached US$384 billion.[6]

- According to the Global Commission on the Economy and Climate, more than US$90 trillion (US$6.2 trillion annually) would be needed for investment in sustainable infrastructure between 2015 and 2030 to deliver on global development and climate goals while coping with rapid urban growth.[7] The global South would account for around two-thirds of this infrastructure investment, or approximately US$4 trillion per year.[8]

3 Source: UN Habitat. 2022.
4 Source: Mukim, Megha; Roberts, Mark (eds). 2023.
5 Cities Climate Finance Leadership Alliance. 2015.
6 Cities Climate Finance Leadership Alliance. 2021.
7 Global Commission on the Economy and Climate. 2014. The commission's definition of infrastructure included traditional infrastructure (such as energy, public transportation, buildings, water supply, and sanitation), and natural infrastructure (such as forest landscape, wetlands, and watershed protection).
8 Global Commission on the Economy and Climate. 2016.

- The Coalition for Urban Transitions estimated in 2019 that global annual urban investments of US$1.83 trillion (about 2 percent of global gross domestic product) from 2020 to 2050 would reduce global urban emissions by 90 percent compared to a business-as-usual trajectory, while supporting improved productivity and job creation. The result would be direct economic returns of US$24 trillion and the creation of 87 million jobs by 2030 and 45 million by 2050.[9]
- In 2018, the International Finance Corporation (IFC)—the private sector arm of the World Bank— estimated cumulative opportunities for climate-related investments by the public and private sectors in emerging-market cities would amount to US$29 trillion from 2018 until 2030, or US$2.5 trillion per year. The estimate considered six urban mitigation sectors: renewable energy, green buildings, solid waste management, climate-smart water, public transportation, and electric vehicles.[10]

Given the considerable amount of financing required for climate action and the limited current levels of investment, LGs will need to mobilize significant additional resources to fill the gap, using a variety of financing mechanisms and instruments, both domestic and international. To support them in this objective, national governments will need to play a critical enabling and facilitating role. The challenge is that, even with existing commitments from policymakers and stakeholders to make this financing available, the understanding of how to transform ambition into implementable action is limited. While several studies have been conducted on the types of climate-related investments LGs (especially municipalities and cities) can and should make in their jurisdictions, the literature lacks assessments of their experiences—and the constraints they encounter—in attempting to gain access to different types of climate finance sources and instruments. This report seeks to make a start on addressing that insufficiency and to contribute to discussions on increasing the access of LGs and cities to climate finance.

1.2 What this report is about

The purpose of this report is to provide local governments with a better understanding of the various financing instruments and sources available to them to meet climate investment needs at the local level. It organizes these instruments in a conceptual framework and provides information on each, along with case studies presenting international experiences with its use. It also assesses constraints on LGs in developing countries in getting access to these instruments and sources and outlines a set of strategic actions LGs (especially municipalities), national governments, and development partners can take to increase and facilitate this access to help meet climate investment needs. The report does not so much consider the specific investments and projects LGs can implement and the most effective ways to spend funds—as those are well covered in existing literature—but, rather, it concentrates on helping LGs understand the instruments and sources of financing they can use in raising funds to execute these investments in support of climate action at the local and municipal levels.[11]

9 Coalition for Urban Transitions. 2019. Climate Emergency; Urban Opportunity. The total investment needed for the 30-year period (2020–50) is an estimated US$57 trillion, divided among the buildings sector (US$43 trillion), the transportation sector (US$15 trillion), and the waste sector (US$0.01 trillion).

10 IFC. 2018. Climate Investment Opportunities in Cities.

11 It is worth noting that the report is not intended as a detailed "how-to" guide; it does, however, provide substantial useful material for determining which instruments may be suitable for specific contexts.

A second purpose of the report is to clarify how the sources and instruments of "climate finance" may or may not differ from the more "traditional" sources and instruments routinely used by LGs, and how they can be tailored to achieve climate-related objectives for mitigation, adaptation, and resilience. The case studies and review of international experience with various instruments demonstrate that the two types of finance are not, in many respects, fundamentally different, at least to the extent of the experiences documented to date. Contrary to expectations that climate finance is more abundant, risk-tolerant, or cost-effective for LGs than traditional finance, it has so far frequently mirrored traditional finance, particularly in the context of repayable finance, such as commercial borrowing. Green bonds issued by municipalities, for example, have often resembled traditional municipal bonds in many ways; and, crucially, many of the same constraints that hinder the increased use of the latter in developing countries apply equally to the former. At the same time, several financing instruments routinely used by LGs for capital expenditure—such as intergovernmental fiscal transfers, land value capture (LVC) instruments, user charges and service fees, and project financing instruments—can be tailored to achieve climate objectives. These examples are showcased here.

Finally, the report takes a forward-looking approach in recommending enabling conditions to facilitate and increase the access of LGs to climate finance. While noting that climate finance may not be widely prevalent at present, significant potential exists for more advantageous climate finance conditions for LGs, whether in comparison to traditional finance or in absolute terms. The financing available for climate action at the local level is also expected to grow in volume. Looking forward, therefore, it is essential for LGs to be prepared to take advantage of these prospects, and for national governments to play the enabling role of setting the right conditions.

1.3 How this report is structured

This report is structured as follows:

- **Chapter 2** provides a conceptual framework for categorizing the various financing instruments available to LGs for climate action.
- **Chapters 3 and 4** outline these instruments, organizing them according to the framework provided in chapter 2, and presents case studies from different countries for each; these are listed in Table 1.1. As noted above, several of the instruments are like those routinely used by LGs but are presented here for their utility in financing climate action; this is reflected in the discussion of the instruments and their associated case studies.
- **Chapter 5** summarizes the various domestic and international sources of climate finance available to LGs from both the public and private sectors that provide access to funds for the financing instruments already discussed. Case studies are included for some of these sources. The catalogue of climate finance sources is presented for the benefit of national governments, LGs, development partners, and other stakeholders.
- Finally, **chapter 6** offers recommendations for LGs, national governments, and development partners to increase and facilitate access to climate finance for LGs. Based on the constraints identified, it outlines a set of strategic actions LGs, national governments, and development partners can take to help meet climate investment needs at the local level.

Table 1.1
Case Studies Presented for Various Climate Finance Instruments and Sources

S/N	Climate Finance Instruments and Sources	Case Study
1	**Climate-focused fiscal transfers/ grants**	UNCDF's LoCAL facility and various World Bank financing projects supporting LGs, operating globally
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1.4 A note on terminology of LGs and geographical jurisdiction

While the report explicitly refers to cities and municipalities in its context, the material presented applies to all local governments—urban and rural. It will especially benefit urban LGs—such as municipalities—but will also useful to other types of LGs such as districts, counties, committees, townships, and governorates, among others, to the extent that they have the relevant mandates and functions for these types of activities. The report, therefore, uses the terms city, municipality, LG, and urban LG interchangeably to convey the meaning of an LG.

2

Conceptual framework for categorizing “local government climate finance”

This chapter provides a conceptual framework for categorizing the various financing instruments available to LGs for climate action. It also defines the scope of local government climate finance for the purpose of this report and introduces the distinction between repayable and nonrepayable financing instruments using the concepts of "**funding**" and "**financing**." It concludes by providing an indicative list of investments LGs can undertake to meet climate mitigation and adaptation objectives in their jurisdictions.

2.1 What is "local government climate finance" as relevant for this report?

For the purposes of this report, "LG climate finance" is considered to be any financing that is provided by public or private sector entities to LGs, or is channeled through LGs, for activities or investments that are targeted to the mitigation of GHG emissions and/or support for adaptation and resilience to the expected impacts of climate change.[12] This definition implies either that the instrument itself has an intrinsically climate mitigation or adaptation function (as does, for example, an emissions charge or a carbon tax), and/or that a specific and explicit link exists between the financing source and the climate mitigation or adaptation use (for example, a green bond whose proceeds are directed toward investment in mitigating infrastructure).[13] This approach also includes philanthropic funding dedicated to achieving climate goals, although this category currently represents a very small proportion—around 2 percent—of sources of climate finance.[14] The approach differs somewhat from that taken by other reports on climate financing, in that it considers LGs to be the primary recipients or executors. LGs are, therefore, considered the "base unit." The report does not consider investments made by private entities, such as households or firms, for climate-related purposes, except to the extent that these funds are provided, executed, or channeled through LGs.

Climate finance is presented here as a subset of green finance. Generally considered much broader in what it covers, green finance includes capital for projects that protect the environment against air and water pollution, mitigate the effects of climate change, or promote adaptation or resilience in urban and rural areas, as well as those that conserve biodiversity, terrestrial ecosystems, waterways, and marine bodies. "Climate finance," in contrast, is more limited in its scope, referring (as noted in the definition above) to capital only for projects that address the causes and impacts of climate change—that is, projects that promote adaptation and mitigation. This often requires quantifiable measurement of impact in terms of reducing GHG emissions for climate mitigation projects or, for climate adaptation

12 In this regard this 'definition' is quite similar to the definitions formally used by the World Bank and UNFCCC which, while differing in formulation, are themselves somewhat similar in essence. It is also important to note that there is no single standard definition of 'climate finance' and each organization's attempt has variations in what is considered under their definitions. See World Bank (2022a) and UNFCCC Standing Committee on Finance.

13 Under this definition, general local government revenues, such as property tax, which may, incidentally, fund infrastructure which could have climate mitigation or adaptation impacts would not count as "climate finance". It is necessary to introduce this limiting principle or the conceptual distinction between "local government climate finance" and "general local government finance" collapses and it becomes impossible to systematically identify instruments which comprise the former. Note that this definition is purely a conceptual one and it is not implicitly argued that it should be used for institutional purposes by local governments or any other organizations (e.g. for the purposes of quantifying climate impacts) where other definitions may be more helpful.

14 Source: McKinsey (2021).

projects, reducing vulnerability to the impact of climate hazards and/or conferring other adaptation benefits. Relevant to both green and climate finance are the steps being taken by national governments and private sector stakeholders to "green" conventional finance by revising policies to create an enabling environment that makes traditional finance more environmentally friendly. Like "climate finance," other terms can also be considered subsets of "green finance"; these include "clean finance" (which is often meant to address pollution), "bio finance" (often for the protection of biodiversity), and "blue finance" (often for investments related to the protection of bodies of water).

Finally, this report uses two conceptual terms, "funding" and "financing," as separate but related aspects of the discussion on climate finance for LGs, especially with respect to financing provided by the private sector. Financing refers to the raising of money for capital investment needs, while funding refers to how an LG pays over the long term for the financing raised. Any financing raised on a repayable basis needs stable and recurrent future revenue streams if the LG is to be able to pay the costs of raising it. The only type of financing that does not create future funding obligations is that which does not need to be repaid, such as fiscal transfers (usually provided on a grant basis) or an LG's own operating surplus. Financing instruments, therefore, can generally be categorized as repayable and nonrepayable—a distinction used in this report to categorize local government climate finance instruments. Box 2.1 presents the conceptual framing of these terms as they are to be applied here.

Box 2.1
The Distinction between "Funding" and "Financing," or Repayable and Nonrepayable Instruments

The two types of financing instruments available to LGs can be broadly distinguished as **nonrepayable** (or "***funding***") instruments and **repayable** (or "***financing***") instruments, with *funding* and *financing* considered as separate but related concepts. ***Financing*** refers to the raising of money for capital investment needs, while ***funding*** refers to the payment for the investment, including the financing costs, over the long term.

Any financing raised on a repayable basis, such as borrowing from any source or equity investment from investors or financiers (for example, through PPPs), needs stable and recurrent future revenue streams for an LG to be able to pay the costs of raising such financing—that is, principal plus interest in the case of debt and return on equity in the case of equity investments, PPPs, and similar transactions. The only type of financing that does not create future funding obligations that which does not have to be repaid, such as fiscal transfers (usually provided on grant basis) or an LG's own operating surplus.

For simplicity, all instruments that do not create future repayment obligations (for example, intergovernmental fiscal transfers and grants to LGs, own-source revenues, and operating surpluses) can be considered nonrepayable, or funding, instruments, while all instruments that create future repayment obligations (for example, commercial debt, such as loans and municipal bonds and equity or PPPs) are, naturally, repayable, or financing, instruments. Other recent reports have further elaborated on these concepts in the specific case of commercial or private financing.[a]

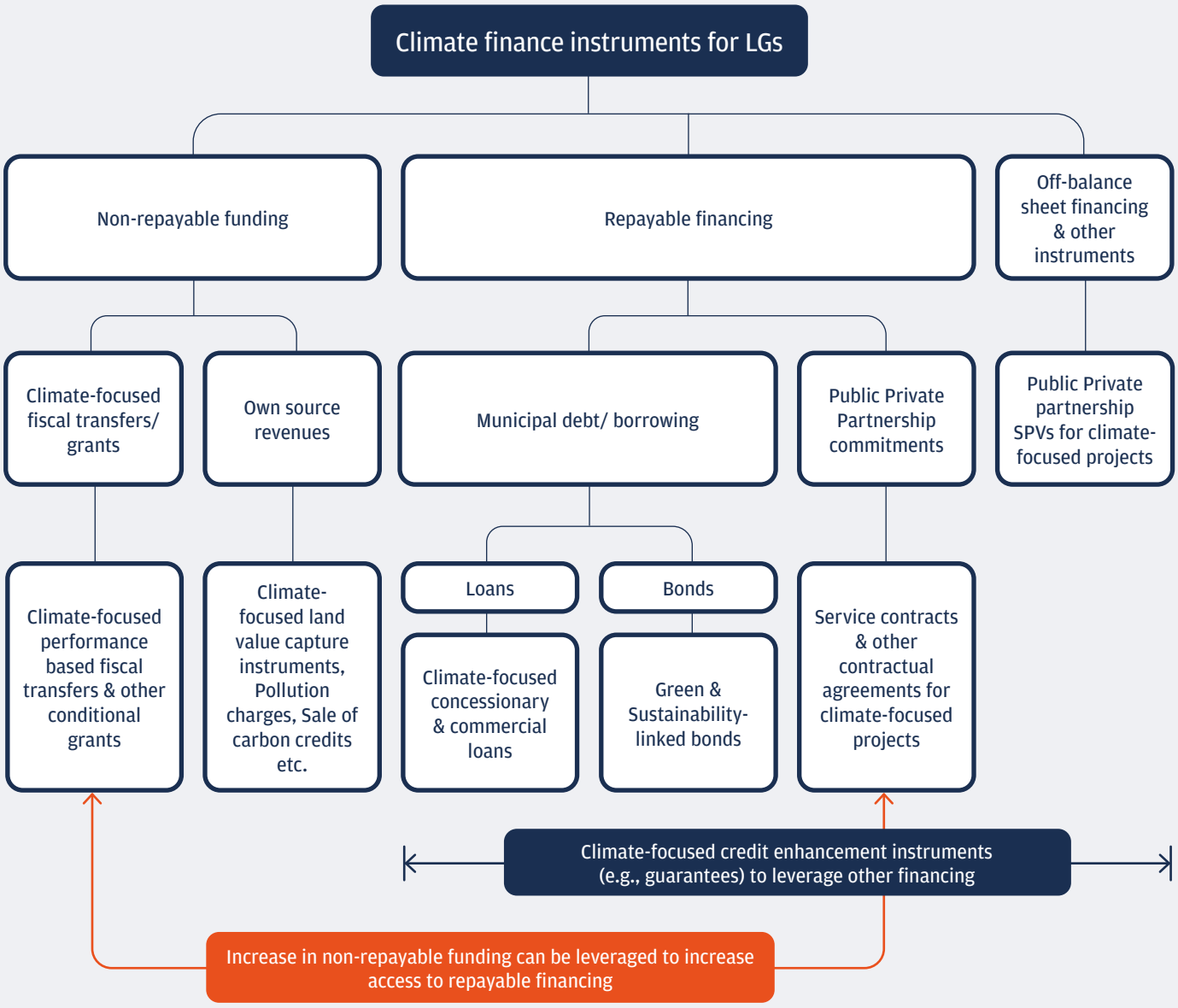
a. See for example: Athar, Sohaib; White, Roland and Harsh Goyal. 2022. Financing India's Urban Infrastructure Needs: Constraints to Commercial Financing and Prospects for Policy Action. © Washington, DC: World Bank.

2.2 A categorization of local government climate finance instruments

Mobilizing resources to finance climate-related investments can be extremely challenging for local governments in an environment that is financially resource constrained. Even when intergovernmental transfers to LGs and own-source revenues are predictable, they are rarely adequate to meet the full financing needs for major infrastructure improvements in growing cities. This applies especially to improvements related to climate change, which often cost more than other such projects. Competing priorities and requirements at the national level also often put national governments in a weak position to provide additional financing. In many developing countries, LGs are increasingly looking to diversify the mixture of financing instruments that help them achieve their climate and development objectives.

This section introduces and categorizes the various types of climate finance instruments available to LGs, covering both repayable and nonrepayable financing. Each instrument has been placed into one of these two categories, as shown in Figure 2.1. This proposed categorization is not meant to be definitive; some instruments do not fall neatly into either category. These include off–balance sheet mechanisms for PPPs and project financing and various types of credit enhancement instruments, among others. Consequently, the categorization should be considered illustrative for the purpose of advancing the understanding of the broad principles behind the instruments and their uses among LGs and other stakeholders.

Figure 2.1 Categorization of climate finance instruments available to LGs



There is, necessarily, a direct and positive relationship between more private financing and a need for additional future recurrent revenue streams (nonrepayable funding) to fund this increase. The more private financing an LG raises, the more recurrent revenue it needs in the future to pay the resulting obligations. To mobilize more finance, LGs have to demonstrate the ability and commitment to pay for it with recurrent revenues—either local or own-source revenues or fiscal transfers from higher levels of government. A partial exception are off–balance sheet arrangements for project financing, such as the creation of special purpose vehicles in collaboration with LGs. These arrangements are created partly to ringfence project revenues from the overall revenue pool (and expenditure requirements) of the LGs.

Some financing tools and instruments are more suitable for climate mitigation investments and others for adaptation. In principle, climate adaptation is inherently focused on investing in additional or incremental capital measures that may alleviate or reduce financial losses from climate-related hazards. Such investments typically entail upfront cost premiums or additional expenses over the lifecycle of an operation. The financial returns are either uncertain (for example, assumed reduction of losses at various levels of probability) or not directly measurable. Consequently, the design of financing mechanisms for such investments typically assumes there is no direct repayment, and the returns are realized in the form of value at risk which is better managed.

In contrast, a large share investments in decarbonization and climate mitigation create revenue-generating assets and activities that offer potential returns and may be attractive to project finance. Even if project finance is not attainable per se, such investments may still be more likely to secure repayable financing instruments from public institutions, such as municipal revenue bonds. The revenue flows in decarbonization investments could be as direct as proceeds from trading emission reduction certificates (ERCs). There are, however, numerous investment scenarios in climate mitigation with less direct but no less voluminous revenue sources; examples include energy savings performance contract arrangements, which generate financial returns through increased energy efficiency and subsequent savings on electric bills. Similarly, the development of power plants that use low-carbon renewable energy sources results in revenue generation through electricity sales.

The use of funds for a specific project and the creditworthiness of the implementing entity are, therefore, important considerations in determining which financing instrument will be appropriate for the required use. As will be discussed later, the choice of instrument and capital provider depends on the type of project and the maturity of the implementing local government. LGs with limited financial capacity that are developing projects unlikely to generate revenue may be ill-suited to use instruments requiring repayment; they will be more reliant on traditional or nonrepayable instruments, such as fiscal transfers and own-source revenues.

Investment projects also often use a combination (or "blend") of repayable and nonrepayable financing instruments. In developing countries, for example, nonrepayable grants—at times provided by multilateral development banks (MDBs) and development finance institutions (DFIs)—are incorporated into a larger financing package of a project to cover its development costs and for underwriting risks to reduce the cost of capital and help crowd in other sources of finance. This is particularly effective for projects expected to provide a high social or environmental return but whose commercial return may be too low to attract investment without subsidization.[15] Some of the case studies presented here feature such arrangements.

15 OECD. 2018. OECD DAC Blended Finance Principles for Unlocking Commercial Finance for the Sustainable Development Goals.

2.3 Uses of climate finance for mitigation and adaptation projects

Addressing climate change at the local level, both in terms of reducing GHG emissions and increasing resilience to climate impacts, requires a wide range of interventions across many areas and sectors. Typically, emissions from cities emanate from industrial activity, transportation, and buildings. As most social and economic activity is concentrated in cities, these often represent a very large proportion of the overall emissions from a wider area or state. At the same time, the concentration of communities, industry, and key infrastructure makes them highly vulnerable to climate-related impacts, such as heatwaves and flooding, which cause major losses to life, livelihoods, and economic activity.

Climate change affects the priorities of LGs differently in different countries. Reducing GHG emissions is often a high priority for LGs in more advanced economies because of their proportionally greater GHG emission footprints and national commitments to addressing climate change. For LGs in middle- and lower-income countries, where GHG footprints are typically much smaller but vulnerability to climate impacts is much higher, financing resilience-building measures is likely to be a higher priority, or at least equal in importance to mitigation measures.

Where can LGs spend the money raised from the various climate finance instruments available to them? Local governments can choose from a wide set of investments and projects to reduce GHG emissions and/or improve their resilience to climate impacts. Table 2.1 lists some of these.

Table 2.1
LG Investment Projects for Climate Mitigation and Adaptation

Investment Type	Explanation
Climate mitigation	
Renewable energy generation	An LG can reduce its dependence on fossil fuels and increase its use of renewable energy by investing directly in renewable energy projects within the municipality or the wider region while encouraging households and businesses to move away from fossil fuels, as well. Municipalities can, for example, support households and businesses in making a transition to renewable energy by promoting the adoption of individual solar units.
Energy-efficient buildings	Redesigning and retrofitting buildings (both public and private) can contribute significantly to reducing greenhouse gas emissions, although more invasive rebuilds can be highly complex and, typically, are very costly. These measures generate significant cost savings over time, however, as demonstrated in Bangkok, Thailand, where the city allocated about US$18 million of its budget to update electrical and cooling systems in two municipal buildings and achieved a 60 percent reduction in energy usage and a significant drop in its overall operating budget.

Investment Type	Explanation
Green public transportation	Transportation (public, private, logistics) is the largest source of emissions for many municipalities, which has led cities to explore ways to achieve both environmental and cost-saving targets in the transition from internal combustion engines to vehicles powered by renewable sources of energy.
Climate adaptation and resilience	
Flood protection infrastructure and drainage systems and strengthening of the technical design of other structures to adapt to climate change	Flooding is one among many growing risks for many LGs around the world, particularly as weather patterns change, bringing more frequent and severe precipitation events and sea level rise, the brunt of which is typically borne by the urban poor. Upgrading drainage systems, introducing permeable surfaces, and bringing buildings, riverine and coastal flood defenses, and public infrastructure to flood-resilient standards can help prevent loss of life and damage to homes and commercial properties, as can improving the design of roads, bridges, and related infrastructure to resist changes in climate.
Resilience to urban heat island effect and heatwaves	The urban heat phenomenon does not just cause discomfort; it has significant health and economic repercussions for urban areas and their inhabitants. To foster heat resilience in cities, it is essential to focus on key areas of action. These include promoting investments in urban greenery, creating cooler urban environments with the aid of wind, shade, and thoughtful urban architecture, and involving property owners in the effort to mitigate indoor heat.
Both mitigation and adaptation	
Smart water use	LGs are increasingly investing in smart water solutions to reduce energy consumption and improve resilience to droughts and other climate-related impacts by expanding and improving the management of water infrastructure. Cape Town, South Africa, which faced a severe water shortage and the prospect of a complete collapse of its water network a few years ago, has augmented its surface water supply through additional water management options, including desalination, direct potable reuse, and more reliance on underground aquifers, while also exploring ways to reduce greenhouse gas emissions.

Investment Type	Explanation
Greening of infrastructure and urban areas	The introduction and expansion of green areas in municipalities, such as tree-shaded streets, greenways, and vertical gardens, through multisector collaboration can both reduce emissions (and air pollutants in general) and provide resilience benefits through urban cooling and improved drainage, as well as improve the overall livability of the area. A particular advantage of these measures is that they are relatively low cost and easy to introduce but provide a multitude of benefits.
Municipal solid waste management	Effective treatment of municipal solid waste by LGs can have both mitigation and adaptation implications. The need for more effective treatment of solid waste, particularly with changing weather patterns and rising water tables and the associated risk of infiltration, directly corresponds with adaptation concerns. Improper solid waste management can also exacerbate flood risk. On the other hand, the use of properly treated solid waste can lead to a reduction in greenhouse gas emissions and, ultimately, a repurposing of off-gases as fuel for heating or transportation.

a. Roberts, Mark, Chandan Deuskar, Nicholas Jones, and Jane Park. 2023. Unlivable: What the Urban Heat Island Effect Means for East Asia's Cities. Washington DC. The World Bank.

The scale of these projects, their impacts, and financing needs will differ, depending on their nature and the size of the LGs. Smaller projects, such as efforts to increase energy efficiency in public buildings, may feasibly be financed directly through an LG's budget but in many cases can require the raising of capital from other sources. Some LGs may be able to finance many of these projects through traditional sources rather than having to get access to more specialized climate finance, if the project is considered sufficiently "bankable"—that is, if it has a strong commercial proposition and viability.

3

Nonrepayable funding instruments for local governments

As many LGs are constrained in their access to commercial and private finance, often, for example, being limited in the amount of debt they are able or allowed to take on, they tend to rely on traditional sources of funds—that is, nonrepayable funding—to pay for key projects and activities. An aversion to debt or inability to gain access to other types of private financing can also significantly affect their ability to fund their projects. To mobilize more climate financing for LGs, it is essential that they take advantage of all available instruments and address the constraints that relate to them.

This chapter reviews the list of nonrepayable (that is, ***"funding"***) instruments, such as fiscal transfers and own-source revenues, that are available to LGs for climate action. It also provides case studies of the use of these instruments from different countries to showcase experiences with them and the constraints on their wider use, especially in developing countries. As noted in chapter 1, several of these instruments are similar to those routinely used by LGs (and national governments) and can be tailored to achieve climate objectives and finance investments for climate mitigation or adaptation or resilience. Using the typology provided in chapter 2, this chapter discusses, first, intergovernmental fiscal transfers and grants (and their uses for climate action) and, second, a wide variety of own-source revenue instruments that can be tailored for climate use. These include, among others, land value capture instruments and environmental levies and charges. The chapter also discusses the sale of carbon credits in the financial markets as a source of funding for LGs.

3.1 Grants or intergovernmental fiscal transfers

"Intergovernmental fiscal transfer" refers to the sharing of financial resources between levels of government for public spending and service provision. Usually taking the form of grants from higher levels of government, fiscal transfers constitute the largest source of resources for LGs and have traditionally been the instrument most heavily used by subnational governments to undertake climate-related activities.[16] Sources of grant funding include central governments (through intergovernmental transfers) and third-party organizations, such as development finance institutions, which provide grants to LGs either directly or channeled through national governments, depending on the country context. Many kinds of transfers and various types of conditions are linked to these, and as mentioned, they all contribute to the closing of the overall LG fiscal gaps.

This section focuses on the specific types of grants most relevant to climate finance. Two such instruments that are related are conditional (or targeted) fiscal transfers and grants and performance-based fiscal transfers and grants. These instruments are discussed below, with a case study illustrating how they have been utilized by LGs.

3.1.1 Conditional (or targeted) fiscal transfers for climate action

Fiscal transfers may be either conditional or unconditional. Conditional transfers are also referred to as earmarked grants, with financial resources provided to LGs for specific spending purposes or projects. Unconditional transfers, on the other hand, also called non-earmarked grants, may be spent by LGs at their discretion, as if they were own-source revenues.

16 OECD's World Observatory on Subnational Government Finance and Investment 2022_

Although fiscal transfers from public revenue constitute the largest percentage of LG funding, they are often subject to challenges that limit their efficiency and intended outcomes. In many developing countries, transfers are unpredictable and often delayed, which limits the ability of LGs to plan for and appropriate the funds. Moreover, allocations can be based on unclear formulas and lack guiding legislation, which leaves room for political manipulation. Since the traditional approach to fiscal transfers often does not customize them to LGs' needs, they may be designed in a way that does not provide incentive to the LGs to utilize the funding to improve performance or address climate change.

Some countries have introduced innovative interventions to address these faults in the system and encourage LGs to enhance their capacity, attention, and performance to improve service delivery, transparency and accountability. These include performance-based grants (PGBs, described below) and targeted, sector-specific conditional grants. In the latter case, funds can be provided to LGs by higher- level governments to achieve specified national policy objectives, such as climate action.

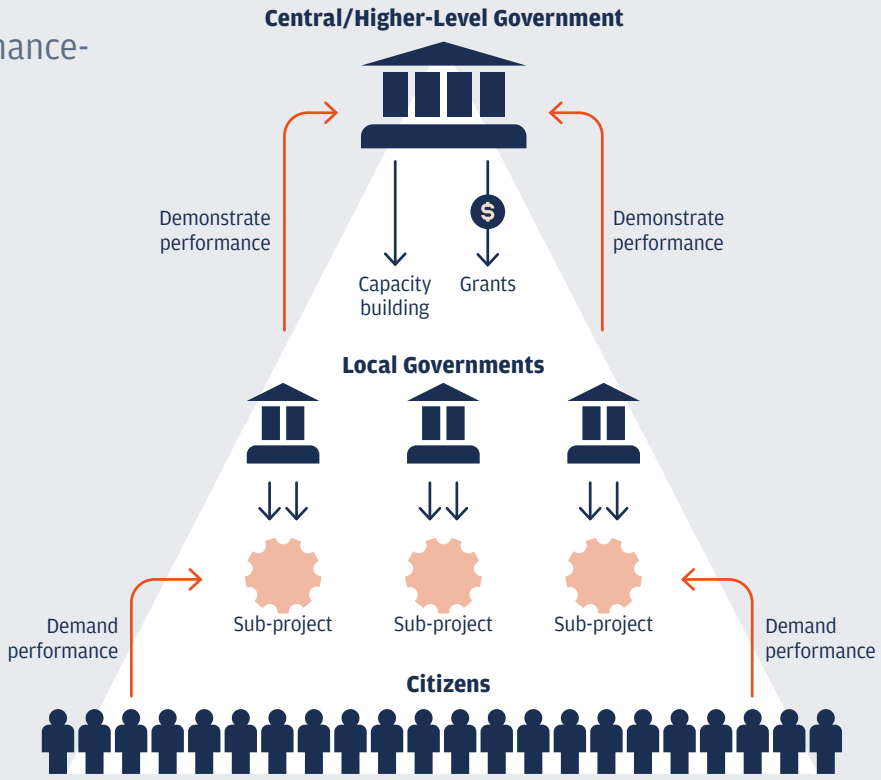
Recent examples from the United States, such as the Infrastructure Investment and Jobs Act and the Inflation Reduction Act, both passed as legislation by the federal government, offer LGs in the country opportunities to fund resiliency measures, including the weatherization of buildings, the implementation of resilience planning, and the restoration of ecosystems.[17] One notable initiative is the Climate Pollution Reduction Grants program, which provides US$5 billion in grants to states and LGs across the country, with a threefold purpose: to address climate pollution while creating jobs and reducing energy costs for families; to prioritize environmental justice and community-driven solutions in overburdened neighborhoods; and to improve air quality in areas where people live, work, play, and go to school.[18] Another program, the US$7 billion Solar for All competition, will expand access to distributed solar energy in low-income and disadvantaged communities by awarding up to sixty grants to states, territories, tribal governments, municipalities, and eligible nonprofit recipients.[19]

3.1.2 Performance-based fiscal transfers for climate action

Performance-based fiscal transfers provide budgetary incentives to cities and LGs to improve their institutional and service delivery performance. Like earmarked grants, this financial mechanism involves transfers to LGs—usually also on a grant basis—from a higher level of government. PBGs, however, are conditioned on achieving performance in predetermined areas. LGs spend these additional funds on their infrastructure and service delivery needs that fall within the mandate of the grant. The resources transferred using PBGs may be from either domestic public resources or third-party grants, often from international financial institutions (IFIs) or development agencies, and channeled through central governments. Figure 3.1 shows the typical design of a PBG program in which funds are transferred to LGs upon achieving improved institutional and service delivery performance.

17 Source: Mure et al (2023).
18 Source: American Cities Climate Challenge (undated).
19 Source: US Environmental Protection Agency.

Figure 3.1
Typical Structure of Performance-Based Grant Programs



Source: Lee et al. (2022).

The World Bank has a large financial portfolio that supports several countries in implementing PBG programs through their country systems and channeling the funds to LGs. Over the past two decades, it has provided more than US$8 billion in financing for such programs, covering a few thousand LGs in developing countries.[20] The programs are also provided with financial and analytical assistance by other development partner organizations and IFIs, such as the UNCDF. The improved institutional performance achieved by LGs using this mechanism has been encouraging, which has led to increased mobilization of funding and gradual expansion of these programs.[21]

Globally, PBG programs increasingly are being utilized to sharpen the focus on climate change mitigation and adaptation at the local level, either by devoting standalone grants specifically to climate-related actions or by integrating grants into existing programs as top-up with greater attention to climate. PBGs can be a powerful instrument for mobilizing LG funding toward climate adaptation and mitigation. National governments and international organizations can use performance-based climate-resilience grants to help LGs raise funding for their climate actions by providing confidence that the funds are used as intended and the challenges from climate change are being addressed. Top-up fiscal transfers based on the attainment of performance goals can also provide incentive to LGs to undertake climate initiatives and targeted interventions.

20 Source: Lee, Hyunji; Athar, Sohaib; Steffensen, Jesper; White, Roland; Mahgoub, Ayah. 2022. Performance-Based Fiscal Transfers for Urban Local Governments: Results and Lessons from Two Decades of World Bank Financing. © World Bank, Washington, DC.
21 Ibid.

Case study 1A

UNCDF's Local Climate Adaptive Living Facility (LoCAL)

A leading example of a PBG mechanism is the Local Climate Adaptive Living Facility. Designed and managed by UNCDF, LoCAL provides performance-based climate resilience grants in several countries,[22] supporting the establishment of a dedicated climate window in intergovernmental fiscal transfer systems. Case Study 1 illustrates how LoCAL functions.

LoCAL, designed and managed by UNCDF, was established in 2011 to promote communities and local economies resilient to climate change. An internationally recognized country-based mechanism to channel climate finance to LG authorities, it combines performance-based grants for climate resilience with capacity building and technical assistance to help LGs better assess climate risks and integrate adaptation into their planning and budgeting processes. The grants are channeled through existing fiscal transfer mechanisms in the fifteen countries where the system is activated, thereby strengthening national appropriation and accountability. LoCAL has received certified standardization for its processes.[a]

Through targeted grants, LoCAL attaches conditions to the use of its funding for climate change adaptation and has a menu for LGs of eligible investments aligned with each country's Nationally Determined Contributions (NDCs) and National Adaptation Plan (NAP). Climate-related performance metrics used under the program include, among others, the use of climate information (local data on climate change, climate risk assessments, and vulnerability assessments); the mainstreaming of adaptation in local planning, budgeting, procurement and contracting, and execution; compliance with technical specifications for incorporating climate-related elements in infrastructure; and the effective use of funds for interventions aligned with the country's NDCs and NAP. The program offers incentives for capital investment in local climate adaptation needs. For LGs to be eligible for and get access to the grants, they must meet achieve certain minimum compliance and performance measures.

Outcome: Since its inception, LoCAL has mobilized a total of US$170 million and financed more than 2,100 climate change adaptation interventions. The targeted LGs have improved their performance in the intended areas.

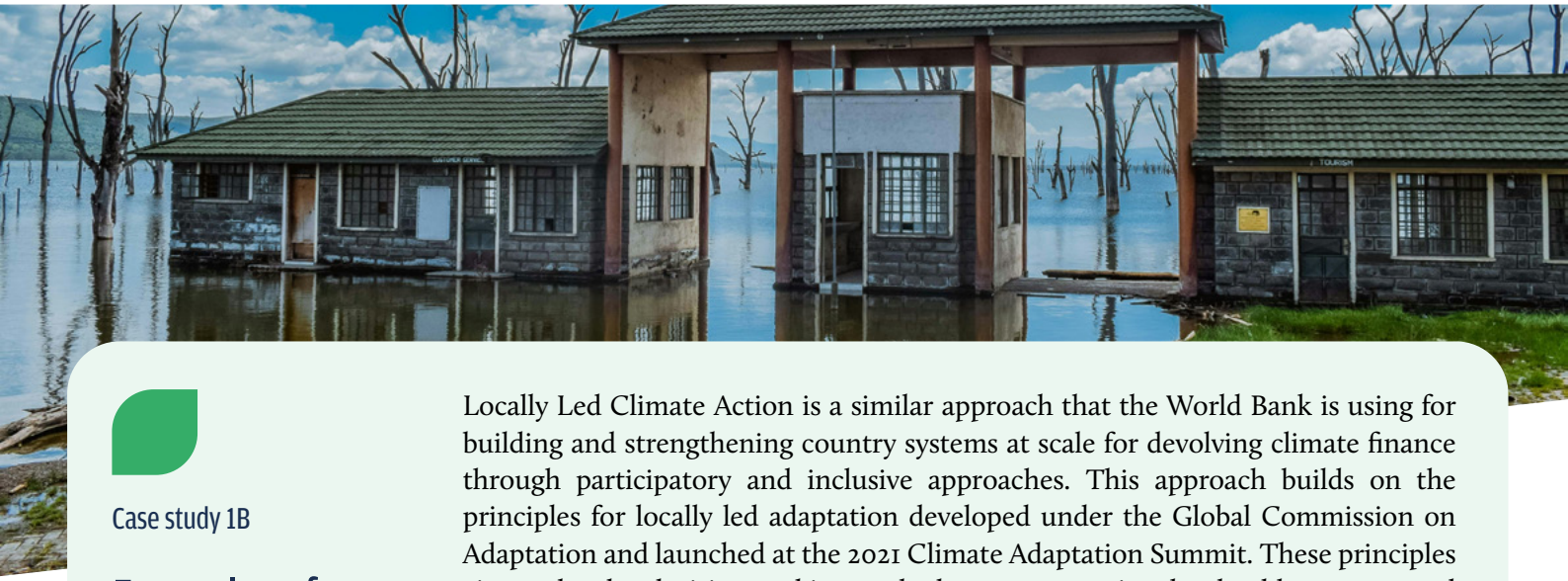
22 LoCAL has already applied this concept in fifteen countries, with as many new country programs being planned. The LoCAL program is generally developed as a supplement to the existing PBGs in a country (see UNCDF 2020), and https://www.uncdf.org/local/homepage.

Challenges: LoCAL faces challenges similar to those encountered by all programs that support performance-based fiscal transfers to LGs, which are well documented elsewhere.[b] In addition, the program requires strong coordination at the national level among various stakeholders, including the national authorities designated under the Green Climate Fund (GCF), national focal points for the United Nations Framework Convention on Climate Change (UNFCCC), ministries of finance and planning, and other ministries and agencies dealing with issues concerning LGs and climate change.

Lessons and suggestions for replicability: Programs like LoCAL should sit fully within country systems for fiscal transfers to LGs by acting as additionalities to these systems for climate purposes, with the climate-focused performance assessment of LGs mainstreamed. Furthermore, LoCAL contributes to building climate-resilient communities and local economies by working closely with local administrations. The involvement and participation in adaptation efforts of local communities and vulnerable groups in similar programs should be boosted along the deployment cycle of the grants. This can be achieved by actively engaging with these communities and incorporating their knowledge and needs into initiatives for building climate resilience.

a. ISO 14093:2022.

b. See, for example, Lee et al (2022).



Case study 1B

Examples of World Bank support to Locally Led Climate Action working through local governments

Locally Led Climate Action is a similar approach that the World Bank is using for building and strengthening country systems at scale for devolving climate finance through participatory and inclusive approaches. This approach builds on the principles for locally led adaptation developed under the Global Commission on Adaptation and launched at the 2021 Climate Adaptation Summit. These principles aim to devolve decision-making to the lowest appropriate level; address structural inequalities faced by marginalized groups; provide predictable funding that can be accessed more easily; invest in local institutional capabilities; and build robust understanding of climate risk and uncertainty.

One such example is the *'Financing Locally Led Climate Action (FLLoCA) Program'* in Kenya, which is a national-scale model of devolved climate finance. This program focuses on strengthening the capacity of county governments in the country to work in partnership with communities in understanding localized climate risks and identifying solutions in an inclusive and participatory approaches. The program also establishes County Climate Change Funds for devolving funds aimed to finance climate investments that are prioritized by communities.

Case study 1B continued.

Another example is the '*Support to Local Governance Project*' (*Projet d'Appui a la Gouvernance Locale)* in Guinea financed by the World Bank, where support for strengthening local governance and decentralization efforts also include support for locally led climate investments. The project has a component for technical assistance for local governments and communities to improve understanding of climate risks and coordination between local and national levels for implementation of Guinea's NDC. The project finances investments that support climate resilience of local communities.

3.2 Own-source revenues

Own-source revenues (OSRs) are essential to local governments and to their funding of their own climate initiatives, as they typically represent the largest pool of funds that falls completely under an LG's control. Types of OSR include taxes—for example, property taxes—and user charges. Globally, this category makes up between one-quarter to one-third of the total revenue for subnational governments, depending on country income classification and region.[23] Despite the increased focus on fiscal autonomy for LGs, OSR remains a challenge for most, especially in low-income countries. The sources and instruments available for them to raise OSR vary by their authority, incentives, and capacity,[24] with LGs with greater fiscal autonomy having access to more sources and instruments.

The connection between OSR and climate finance has been insufficiently explored, primarily because it tends to be hidden. As an example, functional assignment studies conducted by UNCDF in various countries have revealed that the operation and maintenance costs for local infrastructure funded through OSR are increasing as a direct consequence of climate change. This implies that the OSR resources allocated to addressing these additional costs could be rightfully classified as adaptation finance. LoCAL was partially designed based on this premise, with the aim of bridging the funding gap by supporting more adaptive investments. The additional costs remain, however, and LGs are resorting to a variety of methods to cover them.

While most LGs already have a set of instruments for OSR, specific focused instruments exist that can be adopted to mobilize resources for funding climate projects and initiatives. These include, but are not limited to, user fees for climate-friendly services, such as public transportation and waste collection; green energy pollution charges; various land value capture (LVC) instruments; and the sale of carbon credits in carbon markets. This section will provide a discussion of these instruments and how LGs can utilize them to mobilize additional funding.

3.2.1 Pollution and congestion charges

LGs around the world increasingly are experimenting with the use of pollution and congestion charges, both to improve air quality and to generate additional revenues to help offset costs associated with a broader suite of activities. A pollution charge is a market-based instrument used to address adverse

23 OECD et al. 2019. Report of the World Observatory of Subnational Finance and Investment.
24 UNCDF. 2022. Local Government Finance is Development Finance.

consequences of pollution resulting from the actions of individuals and firms by reducing the impacts of pollution on water, air, and soil quality. The instrument combines the elements of a user charge (a fee for the use of a resource) and a product charge (a charge on a product believed to be harmful to the environment).[25] Pollution charges can be implemented either as emission fees or as taxes applied as a proportion of the volume of pollution generated.

The effectiveness of a pollution charge depends on the institutional capacity to communicate, design, implement, and monitor it. Some of the prerequisites for success are a regulating authority to set out clear rules, a system of revenue collection, the monitoring of data on the pollutant, institutional capacity to enforce compliance, and institutional integrity.[3]

An LG implementing a form of pollution charge to mobilize funding should set up a revenue collection and distribution system and agreement to ensure revenues are used for the set objectives. The LG could split the revenues between the administration of the charge and the funding of climate adaptation or mitigation projects. A recent example of a pollution charge is provided by London's model for a congestion charge and low-emission zones, described in case study 2.[26]

It is important to note (as mentioned in the case study) that pollution and congestion charges are currently more suitable for developed country contexts, as they require certain prerequisites that are often not met in developing country cities, such as a well-developed mass transit system as an alternative method for commuting, sufficient income levels to justify the charge, and well-functioning tax collection systems at the municipal level. Nevertheless, as more cities worldwide invest in public transportation systems, the congestion charge can be considered a viable policy option.

25 Centre for Environmental Rights 2016 publication.
26 UN ESCAP article accessed from: https://www.unescap.org/sites/default/files/30.%20CS-London-United-Kingdom-congestion-charge.pdf

Case study 2

London Congestion Charge and Low-Emission Zones

In 2002, London suffered from the worst congestion in the United Kingdom, with average traffic speeds slower than 12 kilometers per hour. In terms of time lost, congestion cost London between an estimated £2 million and £4 million every week. In 2003, Transport for London—a member of the Greater London Authority group, part of London's overall governance structure—launched the London Congestion Charging Scheme to reduce the volume of moving vehicles and improve air quality. The scheme initially covered an area of 22 square kilometers, but that had almost doubled by February 2007; the area now includes the entirety of the City of London, as well as other parts of the Greater London Authority.

Drivers pay a charge of £8 to enter the low-emission zone between 7 a.m. and 6 p.m. Monday to Friday, and those found to be evading the charge are issued a penalty. Some vehicles are exempt from the charge, including hybrid cars and those that run on alternative fuels, such as electricity, hydrogen, or liquid petroleum gas.

Outcome: This scheme generates approximately £307 million per year in net revenues for Transport for London, which is invested back into the transportation infrastructure, predominantly for green projects, and it has improved air quality as people shift to low-emission transportation.

Lessons and suggestions for replicability: To gain public acceptance of a pollution charge, it is essential to conduct extensive research and trials before launching it. Additionally, planning for the charge must include effective ways to recycle the revenues generated by its introduction.

Challenges: Although congestion charges and low-emission zones can be helpful both to raise revenue and improve environmental and health conditions in cities, they can often result in severe pushback from users who see these fees as unjust and unsustainable. Also, pollution charges are currently more suitable for developed contexts, as they require certain prerequisites that are yet to be adequately established in developing cities.

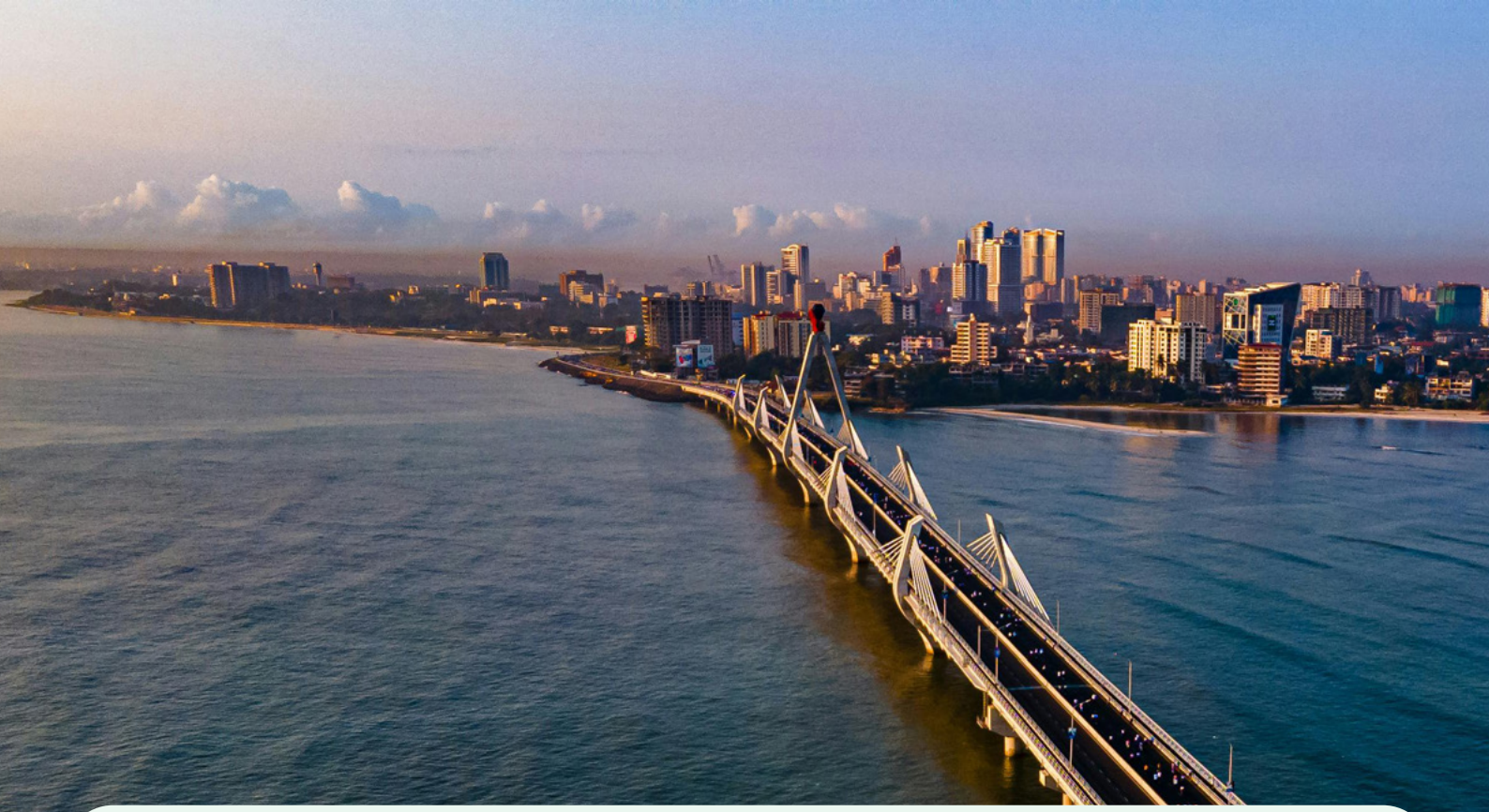
3.2.2 Climate-related land value capture instruments

Land value capture (LVC) can play an important role in financing local government climate-resilient infrastructure investments, as well as generating revenue proceeds. LGs have a range of land financing and value capture tools at their disposal to finance projects that improve a city's resilience to climate change or reduce its GHG emissions. These can vary from simple mechanisms, like betterment levies, impact fees, or development charges imposed on private developers, to more sophisticated revenue enhancement and leveraging instruments, like tax increment financing, which raises financing based on future increases in property tax revenues from a particular location—often from a commercial source—for public infrastructure investment in that location.[27] The creation of a special assessment district is another nuanced approach, whereby the property owners in that location agree to pay an additional tax that can be used to raise and service additional debt deployed for improvements that directly benefit them.[28][29]

LVC tools can be utilized for climate purposes by directing them toward initiatives that reduce greenhouse gas emissions, improve energy efficiency, enhance water management systems, or implement measures to adapt to the impacts of climate change. In the city of Boston, Massachusetts, in the United States, for example, developers are being asked to contribute to a Climate Resiliency Fund to cover the estimated US$124 million cost of protecting a city-run, 191 acre coastal industrial park. The operation of this fund is similar to a city's practice of mandating commercial developers to contribute a fixed amount to affordable housing funds or allocate funds for park space or infrastructure upgrades in proximity to their projects.[30] Additionally, the city recognizes that investments made by the public sector in building resilience have a positive impact on property values, and, thus, it intends to capture part of that future increase in land values up front. In areas prone to rising sea levels, these investments are crucial to ensuring the land remains functional and usable despite the challenges posed by climate change.[31]

The adaptation of existing LVC tools can prove particularly beneficial in developing countries, where securing financing for urban infrastructure is challenging. Certain LVC mechanisms, for instance, generate immediate revenue, allowing LGs to leverage additional finance and offering flexibility in infrastructure financing decisions. Some provide sustained payments over time or in-kind contributions, which reduce the investment and operating costs the city would otherwise incur. Case study 3 provides an example of the use of LVC in Dar es Salaam, Tanzania.

27 Source: White, Roland; Wahba, Sameh (2019).
28 It is important to note that while LVC instruments are classified in this report as nonrepayable instruments, some LVC mechanisms impose obligations on LGs. These can take the form of contributions of municipal assets, such as land allocations for development projects, or the provision of fiscal incentives to the private sector, including land value rebates. Even tax increment financing is used to raise debt, which requires servicing.
29 See also World Bank (2021)
30 Planetizen blog accessed here.
31 American Planning Association blog accessed here.



Case study 3

Use of LVC for Climate-Resilient Development in Dar es Salaam, Tanzania

The recently started Msimbazi Basin Development Project in Dar es Salaam, Tanzania, seeks to demonstrate how value can be created by transforming a flood-prone area near the city center into a lively green space and commercial and residential area. The project involves a process in which the government, with the support of World Bank financing, invests in flood mitigation and stabilizes 400 hectares of regularly flooded prime land in the Lower Msimbazi river basin, where flooding is expected to worsen in the future as a result of climate change. The intervention will create more than 300 hectares of a wetland park serving the dual purpose of recreational amenity for the city and stormwater attenuation and filtration facility, with more than 60 hectares of flood-protected terraces—attractive for a range of commercial and residential uses—available for vertical development.

Once the land is stabilized, the government will take charge of planning the urban development in Lower Msimbazi and granting development rights to private investors who are interested in developing the 60-hectare land portfolio on the flood-protected terraces. This process is expected to untap significant value in the Lower Msimbazi lands that can be captured through the disposition of land and development rights and, in that way, allow for recovery of the initial public investments in flood mitigation.

LVC mechanisms can also provide incentive for property developers to integrate sustainability and resilience features in investments in buildings, yielding climate and environmental benefits for cities in addition to revenue for LGs. Case Study 4 illustrates how this has been done in Quito, Ecuador. It is important to note that while the financial returns from these commitments might not be channeled exclusively back into climate-related capital needs by an LG, they are still considered to be within the purview of "climate finance" as categorized in this report because they give property developers and owners incentive to undertake climate-smart investments and raise revenues for LGs.

Case study 4

Land Value Capture in Quito, Ecuador

The Metropolitan District of Quito is the capital of Ecuador. To achieve sustainability objectives, the city in 2016 implemented the Eco Efficiency Ordinance. This municipal ordinance provides incentive for sustainable urban development and the reduction of GHG emissions by raising building height limits in proximity to public transportation hubs. Specifically, it allows properties to be 50 percent taller near bus rapid transit (BRT) stations and 100 percent taller near metro rail stations, contingent upon adherence to advanced energy-efficient building standards. This policy promotes environmentally responsible construction and generates revenue for the city through payments from real estate developers in return for the additional building capacity. The resource efficiency criteria it sets forth are rigorous, encompassing water and energy usage as well as seismic, safety, and bioclimatic design considerations. Projects are evaluated and scored based on their integration of water efficiency (34 out of 100 points), energy conservation (33 points), and contributions to landscape, environmental quality, and technological innovation (33 points), thereby encouraging comprehensive environmental stewardship and sustainability in building design.

Outcome: The policy has been very well accepted by the private sector, generating additional revenue sources for urban development. To date, over thirty buildings have been approved, contributing to reduced water and energy consumption, and real estate developers have paid over US$10 million to the municipality through the policy.

Source: Urban Agenda Platform, accessed here.

National governments are also pivotal to fostering the conditions necessary for municipalities to employ LVC instruments effectively in climate-related initiatives. It is essential for the relevant legal and policy frameworks to be established at the national level—or, in federal systems, at the provincial and state levels—to permit and encourage the use of LVC instruments and allow municipalities to enter into the complex transactional and contracting arrangements they require. One recent example is the government of Peru, which passed in 2021 a new law for sustainable urban development that creates a legal framework in the country to allow municipalities to apply LVC instruments to generate additional revenue; generate and manage urban land, density, and city growth; and promote the conservation of green areas and public spaces. Case Study 5 provides an overview of the legislation.

Case study 5

New Urban Development Law in Peru Supporting LVC Instruments and Climate Objectives

Many municipalities in Peru do not have adequate capacities or resources to plan and manage territorial development. Most urban growth occurs without planning instruments to guide it and does not take hazard exposure into consideration. A large part of the urban population and public and private infrastructure located in urban areas is exposed to hazards, with climate-induced disasters becoming more and more frequent. Municipalities also have limited fiscal resources. Peru is among the Latin American countries with the lowest municipal property tax revenues, and the municipalities' own-source revenues represent only about 10 percent of subnational spending.

To help address some of these challenges, Peru's government enacted the Sustainable Urban Development Law (no. 3 1313) in 2021. Key features include a set of incentives to densify and promote sustainable mobility in urban areas, which will reduce GHG emissions; improved integration of disaster and climate risk management in the development and implementation of spatial and land use plans; and the introduction of LVC instruments to enable the raising of additional resources to finance resilient urban infrastructure and service improvements. The law explicitly states the resources from LVC can be utilized for any of the following purposes:

- Financing water and sanitation infrastructure
- Construction and maintenance of urban and community equipment
- Creation and maintenance of public spaces and green areas
- Advancing housing programs and projects of social interest
- Protection and promotion of cultural, natural, and landscape heritage

Case study 5 continued.

The law empowers provincial municipalities to charge real estate property owners whose land has increased in value for one or more of the following reasons:

- Reclassification from developable or rural land to urban land
- Assignment or updating of zoning for land use that results in greater profitability or utility
- Approval of urban development plans
- Execution of public investment projects or creation or improvement of public spaces

Municipalities may charge a rate between 30 and 50 percent of the increase in the commercial land value per square meter, or less if the owner's land qualifies as social interest housing. The charge is due when the beneficiary of the land value increase applies for urban habilitation[32], a building license, or a transfer of property ownership.

The enabling regulations of the law also promote more compact (greener and less carbon-intensive) and climate-friendly urban development by requiring urban planning instruments to include densification strategies to promote access to housing. These may include incentives for densification (such as bonuses for developers) and disincentives for sprawling development (such as additional taxes charged to developers). It is important to note that the application of land management and value capture instruments from Law No. 3 1313 awaits the issuance of corresponding regulations, which, the Ministry of Housing, Construction and Sanitation is drafting, with enactment expected by July-August 2024.

The preconditions for LGs to utilize LVC mechanisms for climate purposes are not inherently different from those previously imposed on these mechanisms, as the various case studies have shown. To enable LGs to use these mechanisms and ensure their effectiveness, a set of fiscal, institutional, and regulatory capacities and conditions needs to be in place. These include, among others, national legislation and an enabling policy framework that authorizes LGs to employ LVC instruments, robust project preparation capacities, strong contracting capabilities that enable LGs to transact with private developers, a functioning property taxation or land records system, and the integration of spatial planning, infrastructure, and financing strategies.[33]

3.2.3 Sale of carbon credits

Another available but more complex source of climate financing for LGs and cities is the sale of carbon credits in domestic and international carbon markets. Emission reductions certificate or credits (ERCs)—commonly known as carbon credits—can be generated from projects or activities that avoid, reduce, or remove harmful GHG emissions, which can then be translated into carbon credits with monetary value which assigns a price on climate-harming GHG emissions. A single

32 According to Peruvian Law, urban habilitation ("Habilitación urbana") refers to the process of transforming agricultural or uncultivated land into urban areas by providing essential services such as physical access, water, sewage, electricity, and lighting.

33 See White & Wahba 2019.

carbon credit represents the reduction of one ton of GHG emissions, measured in tons of CO_2 equivalent. These credits can be sold in carbon markets, both domestic and international, providing a financial incentive for reducing emissions and helping countries fulfil their NDCs under the Paris Agreement. Projects that contribute to this effort include enhancing waste management, boosting energy efficiency, adopting renewable energy in buildings, and expanding urban greenery. By converting the emissions reductions from such projects into carbon credits, municipalities, LGs, or the private sector can generate revenue. Case Study 6 from the United States highlights the potential for municipal LGs to benefit from this approach.

Case study 6

Carbon Credits as a Source of Revenue for Cities in the United States

In 2022, cities in nine U.S. states successfully raised more than US$1 million in the first aggregated sale of carbon credits generated exclusively by urban forests. The revenue generated from selling carbon credits will be invested in increasing urban tree cover. This will be accomplished by creating urban forests as part of thirteen different projects located in cities such as Boise, Chattanooga, Cleveland, Pittsburgh, and Richmond across the states of Idaho, Illinois, Ohio, Pennsylvania, Tennessee, Texas and Virginia.[34]

The transaction was enormous, amounting to over 31,000 metric tons of carbon and representing the purchase of all the available city forest carbon credits in the country. The buyer was the Regen Network, a private technology company developing a global marketplace for ecosystem assets, services, and data.

As this is a nascent project and the first of its kind to deliver these results at scale, outcomes and lessons learned are still unclear, although the potential for significant impact and capital raising for cities is promising. It is also important to highlight that certain factors limit the geographical scope of the instrument. As thousands of hectares of forests are required to make the transaction feasible, and bundling can only operate within one country, its reach is restricted.

One carbon market relevant to LGs is the Clean Development Mechanism of the Kyoto Protocol, a carbon offset scheme governed by the UNFCCC, a major global finance initiative that allows developing countries to create revenues from the sale

34 Source: News article accessed here.

of carbon reductions. The scheme benefits climate mitigation–focused projects in cities, including both large- and small-scale projects and bundled projects across multiple sites. A citywide mechanism, LGs can adopt it across different sectors, such as buildings and municipal waste management.[35]

LGs face several challenges in utilizing this potential source of revenue, however. The primary one is presented by the sophisticated and stringent compliance criteria and processes required to claim the carbon credits and sell them for revenue. Known as measurement, reporting, and verification (MRV), this process requires detailed data and information on the reduction of GHG emissions to be gathered and published by the project sponsoring or executing entity and then independently verified. The recommendations in chapter 6, below, set forth actions national and local governments can take to build their technical capacity in this area to benefit eventually from carbon credits. The MRV process is summarized in box 3.1.

Box 3.1
MRV Process for Climate Mitigation Project Carbon Credits

Measurement, reporting, and verification (MRV) refers to a process to measure the amount of GHG emissions reduced by a specific mitigation activity over a period of time and report these findings to an accredited third party. The third party then verifies the report so the results can be certified and carbon credits issued. MRV proves an activity has reduced harmful GHG emissions so the actions can be converted into monetized credits.

MRV systems are complex and require many steps to get from the reduced emissions to the payments received in hand, and many low-income countries new to emissions reduction transactions lack the capacity to do MRV themselves. Some rely on international firms, which can be costly and undermine sustainability and country ownership. In response to this need, international development organizations are providing MRV capacity building to countries to prepare emissions reduction programs. The World Bank, for example, is helping developing countries increase their experience in building carbon credit transactions according to high environmental integrity and accounting standards. Other organizations offer similar services using other methodologies.

To begin the process, data are collected and processed to calculate emission reductions achieved against a baseline during a monitoring period. The results are then compiled into a report that is subject to third-party verification by an entity accredited per the requirements of the standard being used. Verifiers often need to sift through large volumes of data, so well-documented results that thoroughly demonstrate accuracy, transparency, and compliance with the standards can help smooth the process. Once emission reductions are verified, the standard setter certifies them, signaling the applicable emission reduction transaction registry to issue ERCs. In the case of the World Bank set standards, these credits are issued and transferred to the Bank's transaction registry so buyers, including international organizations, can pay the country for the proven results. The entire MRV cycle can take a year or more to complete.

Source: World Bank (2022b)

35 Climate & Development Knowledge Network's publication on Financing Climate Compatible Development in Cities, accessed from: https://cdkn.org/sites/default/files/files/FINAL_Finding-the-Finance.pdf.

3.2.4 Property assessed clean energy (PACE) programs

The property assessed clean energy (PACE) model is an innovative financing tool that enables local and subnational governments to facilitate energy-saving and renewable-energy projects on private properties. Currently in use primarily in the United States, the model gives commercial and residential property owners access to financing from the local PACE program to pay upfront costs for energy, water, and resilience projects on their properties and then repay the financing over several years through assessments collected as part of their property tax bills. The overseeing LG then remits the payments collected as taxes from the property owners to the finance providers. Utility cost savings or revenue from renewable energy may help the owner cover the cost of the tax assessment.[36]

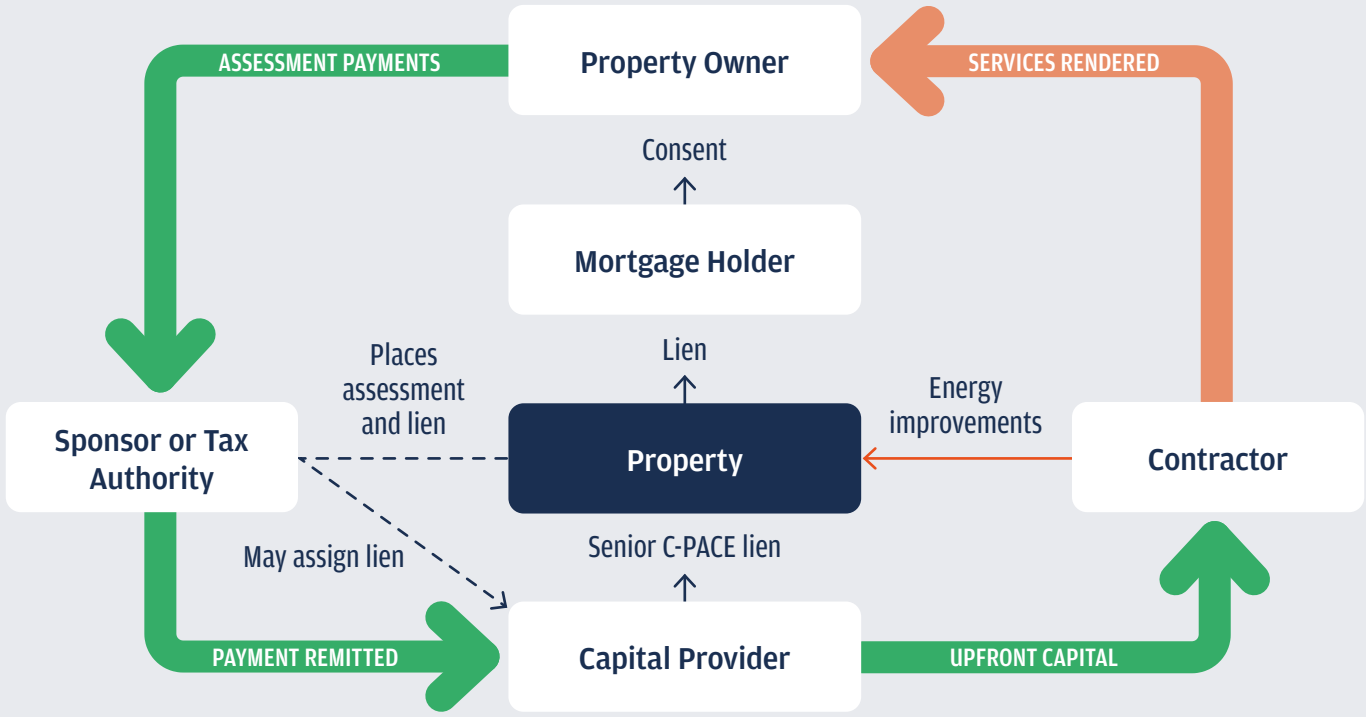
The PACE program financing is provided by private or commercial financial institutions, or it can be raised by the LGs themselves through, for example, the issuance of municipal bonds. Regardless of the financier, the LG typically acts as the repayment collector and remitter. In essence, PACE programs require the LG to serve as an intermediary in the relationship between property owners and the financial market.

The success of the PACE program rests entirely on a well-functioning property tax system in the area. Property owners who fail to pay the assessments regularly are generally subject to the same penalties they would incur for nonpayment of any other property tax bill. Based on the concept of "land-secured financing districts," PACE creates these—also known as assessment districts—at the property level. LGs in the United States are increasingly raising financing for their PACE programs by issuing municipal bonds for this purpose. These are often unrated and structured as limited obligation special assessment bonds.

PACE programs have several interesting features and benefits. Unlike a typical loan taken out by a property owner, PACE funding is tied to the property and not the owner/borrower. The assessment stays with the property in the event of a sale (assuming the buyer agrees to the transfer), and, if the property is sold, the buyer can assume the PACE payments and the benefits from the upgrades. This feature can overcome a barrier to clean energy investments in properties, as it reassures owners who might otherwise be reluctant to invest in improvements if they plan to sell the property before the energy savings offset the initial costs. The loan can be used to cover the full upfront cost of an energy or resilience upgrade, and the longer payback period—and lower annual or semiannual payments as part of property tax bills—can make the upgrade more affordable. A property lien secures the investment, and, as with other assessments collected as property tax, any past due payments related to the PACE lien take priority over the mortgage and other loans in the event of foreclosure. Figure 2.2 illustrates how a commercial PACE program in the United States is generally structured.

36 The following sources of information have been used for this section: 1) US Environmental Protection Agency, Energy Resources for State and Local Governments, Clean Energy Financing Toolkit for Decisionmakers. 2) US Department of Energy Office of State and Community Energy Programs, State and Local Solution Center. Property Assessed Clean Energy Programs. 3) US Department of Energy and Lawrence Berkeley National Laboratory. 2019. Commercial PACE Financing and the Special Assessment Process: Understanding Roles and Managing Risks for Local Governments. 4) American Council for an Energy-Efficient Economy (ACEEE). 2017. Property Assessed Clean Energy (PACE) Toolkit. 5) Investopedia. 2022. Property Assessed Clean Energy (PACE) Loan: Overview.

Figure 3.2
Simplified Process Model for Commercial PACE Program in United States



Source: Briefing paper by US Department of Energy and Lawrence Berkeley National Laboratory (2019).

Notes: Flows of funds are shown in green, with flows of goods and services in orange. C-PACE = Commercial PACE.

While local and state governments in the United States are mainly responsible for implementing PACE programs, the national government plays an important role. The programs nationwide are overseen by the U.S. Department of Energy, which also issues policy guidance and information on them and provides technical assistance to state governments to support their design and implementation. This is important to note by other national governments that may wish to replicate this model.

PACE programs are growing in the United States. As of 2022, more than thirty states had active commercial and residential PACE programs, with more than 300,000 homeowners taking on over US$7 billion in cumulative PACE loans and almost 3,000 commercial projects taking on more than US$4 billion in PACE loans. The city of Milwaukee, Wisconsin, is among those that have implemented the PACE program, as documented in Case Study 7.

Case study 7

City of Milwaukee PACE Program to Finance Energy Efficiency Improvements

To facilitate energy efficiency improvements to commercial buildings in its jurisdiction, the city of Milwaukee, Wisconsin implemented a PACE program with the goal of improving the energy efficiency of commercial and industrial buildings by 20 percent. It leverages private capital to provide upfront funding for the improvements.

The City of Milwaukee Environmental Collaboration Office will evaluate the program's effectiveness by tracking the number and monetary value of projects finalized, as well as the reported energy savings of the participating buildings. In September 2014, Milwaukee completed its inaugural PACE transaction, supporting the University Club of Milwaukee's energy retrofit. The property owner invested around US$660,000 in energy-efficient enhancements, such as HVAC system upgrades, the installation of LED lighting, window improvements, and steam trap maintenance. These improvements are expected to reduce energy consumption by an estimated 30 percent, leading to projected annual operational savings of US$60,000. As per latest reports, the city has closed eight projects worth US$13 million, yielding US$1 million in annual savings.

Source: U.S. Department of Energy, Better Buildings Solution Center.

The PACE program has several requirements and challenges, however, that may limit its widespread replication, especially in developing countries. First, as noted, its viability rests entirely on a well-functioning property tax system in the area. It also requires either the existence of a functioning and relatively sophisticated municipal borrowing market (if LGs are financing the program themselves) or an advanced financial sector with the necessary legal and policy enabling environment to permit LGs to mediate between private financial institutions and property owners. Furthermore, as may be evident from the discussion above, the implementation of these programs places a significant administrative burden on LGs. Finally, cashflow has been an issue in PACE programs for commercial buildings: once a commercial property owner is approved for PACE funds, the work is to be completed by a construction contractor who is often paid directly by the program financier (rather than the property owner) and only when the project is complete, rather than in installments. This reduces the number of contractors willing to implement the improvements.

3.3 Conclusion

Nonrepayable funding instruments, such as grants and fiscal transfers, are key to finance projects and initiatives at the local level but are often subject to challenges related to predictability, timing, and a lack of clear guidelines, which can hinder LGs' ability to plan effectively. Attaching performance metrics to grants has, in many cases, provided incentive to LGs to demonstrate their capacity and commitment to climate action.

Most LGs have limited fiscal autonomy and constrained internal capacity, which limits their ability to raise adequate OSR. Their inability to generate an adequate cashflow from investments often denies them the revenue stream they need to repay loans and, hence, attract commercial finance. OSR still accounts for a substantial share of revenue for local and subnational governments in developing countries, however, which makes it vital for funding climate action.

This chapter covered different types of OSR instruments that can be used for climate action, some of them—such as PACE and the sale of carbon credits—either untested or novel in most developing countries. The next delves into opportunities for LGs to diversify beyond own-source and nonrepayable finance using a wider set of instruments ultimately to overcome financial shortfalls. Relatedly, the most promising strategy stresses the importance of building the capacity of LGs, enhancing their autonomy, and mobilizing a wide range of instruments that fit the local context while using grant mechanisms to bridge gaps between financial inflows.

4

Repayable financing instruments for local governments

This chapter reviews the "repayable" financing instruments available to LGs for climate action, including commercial financing instruments, such as municipal borrowing, public-private partnerships (PPPs), and credit enhancement mechanisms, such as guarantees. It provides case studies to showcase the experiences of different countries with each instrument and the constraints on its wider use, especially in developing country contexts. Several of these instruments are already available in developing countries and can be tailored to finance climate-related investments. This section first reviews experiences with borrowing, covering instruments such as green loans, green bonds, and sustainability-linked bonds issued by LGs. It then covers a wide array of other instruments, including PPPs; off–balance sheet arrangements for LGs to raise financing for projects, often in collaboration with private investors; and credit enhancement mechanisms, including guarantees.

As clarified in chapter 2, any financing raised on a repayable basis—such as loans (from any source), municipal bond issuances, private investment financing through PPPs, and so on—needs stable and recurrent future revenue streams to cover the costs of raising it. These costs include interest in the case of debt (municipal bonds or loans), in addition to the repayment of principal, and return on equity in the case of private investment through PPPs and similar transactions.

4.1 Municipal borrowing

LGs in developing countries, especially those governing larger cities or economically important jurisdictions, are increasingly diversifying their sources of capital to include debt financing. Debt financing can be raised on either market-rate or concessional terms. Market-rate debt comprises commercial loans and bonds and is provided by financial institutions or raised through capital markets, while concessional debt is provided by development finance institutions to mitigate specific investment risks and help rebalance the risk-reward profiles of pioneering investments that cannot proceed on strictly commercial terms. Concessional loans, for instance, offer more favorable terms and conditions than commercial loans and bonds, including lower interest rates and fees, higher repayment and moratorium tenures, and flexible security and ranking of securities. Table compares financing terms for concessional and market-rate loans.

Table 4.1
Comparison of Concessional and Market-Rate Loan Terms

Financing Terms	Concessional Loans	Market-Rate/Commercial Loans
1. Tenor	Development finance institutions (DFIs) are willing to lend for long periods, including up to 30 years or more.	Market-rate debt for cities in developing countries are typically for no longer than 7 years.
2. Interest rates	DFIs can call upon state guarantees and, hence, lend at lower interest rates. Multilateral development banks (MDBs) may also provide concessional pricing.	Commercial banks will lend at higher interest rates based on supply and demand and to cover credit default risk and price in their operational costs of lending.

Financing Terms	Concessional Loans	Market-Rate/Commercial Loans
3. Currency	Depending on its internal processes and risk rating of a country, a DFI will either lend in local currency or a major global currency (i.e., the U.S. dollar or the euro).	LGs can get access to market-rate debt in local currency from local commercial lenders.
4. Time to financial close	DFIs typically measure a project in terms of both financial performance and impact, which can lengthen the time to reach financial close.	Market-rate lenders are often able to reach financial close more quickly than DFIs, given their ability to consider other commercial functions and collateral that a city can provide. In some developing countries, commercial banks seek to be the preferred lender to municipalities to maximize fees as the providers of working capital and salary solutions.

The chapter concludes by discussing the various debt instruments and the ways in which LGs can use them to mobilize climate finance.

4.1.1 Green loans

Green loans are debt instruments parties can use to raise funds for projects that contribute to the reduction of GHG emissions, adaptation to climate change, and a more livable environment. To gain access to green loan financing, borrowers must prove the structure of their instruments aligns with the Green Loan Principles[37] and with governance that aligns with international standards for the nature and verification of assets, use and management of proceeds, evaluation and selection of projects, and monitoring and reporting and adherence to specific certifications. Potential lenders for LGs include central governments; government-owned funds, such as municipal development banks; development financial institutions (DFIs); commercial banks; and other financial institutions. LGs may take out green loans to finance climate projects, depending on their capacity and the availability of the loans. Case Study 8 from Lima, Peru, illustrates how LGs can utilize commercial loans to finance their climate projects.[38]

37 For more information, see Green Loan Principles - LSTA.
38 C40 Cities Finance Facility, Banking on a Just and Green Recovery.

Case study 8

Commercial Loan to Finance Public Transportation Infrastructure in Lima, Peru

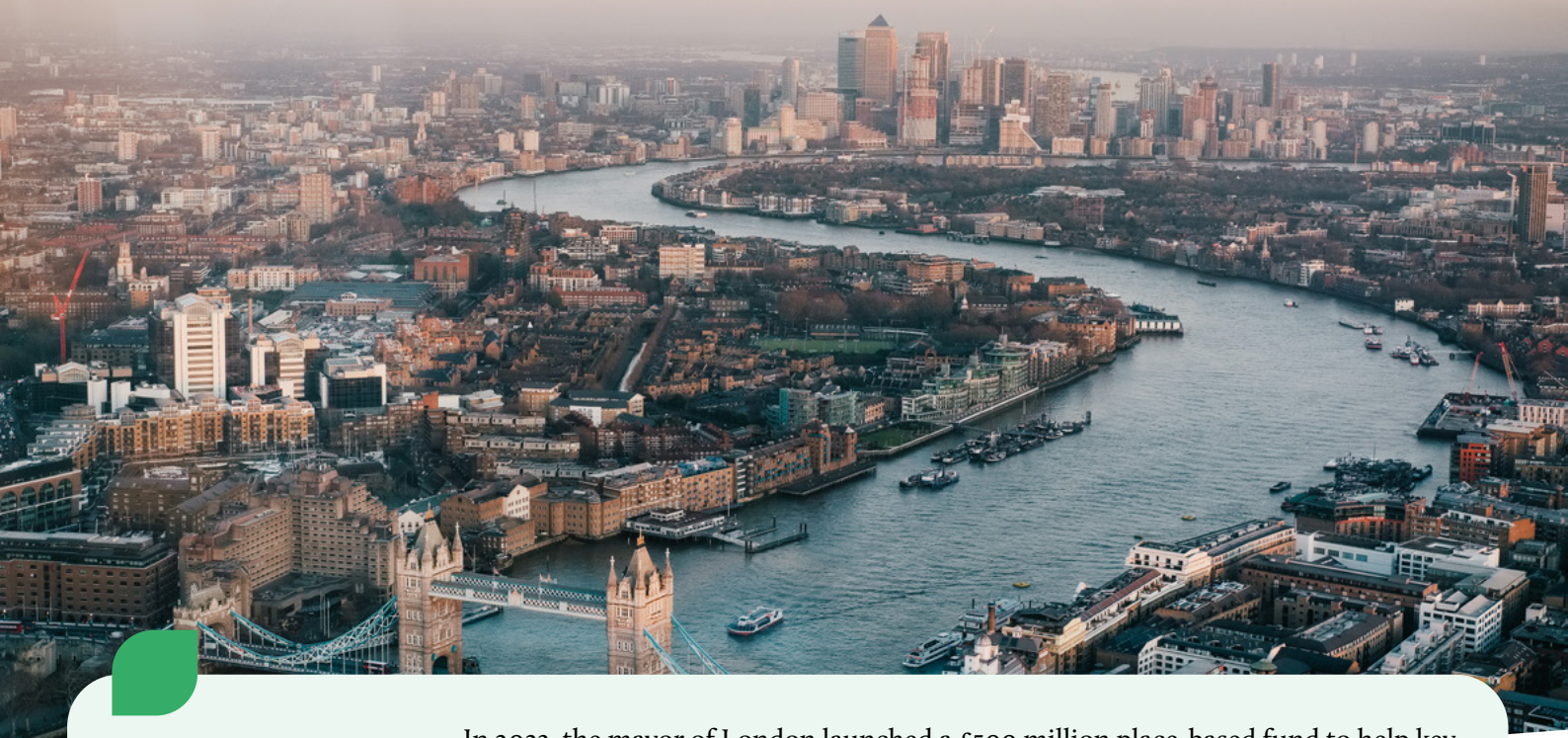
Lima, the capital of Peru, has a population of over 7 million and is one of the fastest growing cities in Latin America. With GHG emissions rapidly increasing, the city commissioned studies to determine how to address that challenge. The results showed that investment in public transportation would reduce emissions by 15 percent by 2025, while saving citizens over US$1.1 billion annually.

To enhance its funding capacity and attract more investments, Lima took steps to improve its governance structure and operational performance. Starting in 2006, it introduced elements of corporate governance management policies and improved its fiscal and financial management by updating its tax collection strategies, improving the quality of its accounting, and adopting stronger treasury and debt management practices. The city also worked with the World Bank to create a series of investment projects using innovative financing mechanisms—for example, by pooling financing opportunities and improving tax revenue collection—and it improved its capital investment planning and aligned it with national frameworks for green and sustainable project development.

These efforts improved Lima's credit rating, enabling the city to raise financing at lower financial costs and longer-term loan maturities. Partly as a result, the city obtained a US$190 million commercial bank loan (from Banco del Credito de Peru and BBVA) in 2010 to cofinance a metropolitan bus rapid transit corridor project.

Source: C40 Cities Good Practice Guides case study on Lima. Accessed here.

In some instances, national governments act as intermediaries to aggregate cities' projects and borrow on their behalf, often through pooled mechanisms. There are compelling examples of the successful application of this approach around the world, resulting in the mobilization of hundreds of millions of dollars for subnational projects. In other instances, the cities themselves act as intermediaries, borrowing on behalf of wards, districts, boroughs, or councils to achieve lower costs of capital. By doing so, the city leverages its overall stronger credit rating compared to that of its individual subunits, as well as a larger collective sum of borrowed funds resulting in reduced borrowing costs. Case Study 9 describes how the Greater London Authority has created a pooled mechanism to raise capital for climate-related initiatives at more competitive interest rates, offered over a longer period of time, than sub-city units would be able to achieve individually.



Case study 9

London Green Finance Fund for LGs

In 2023, the mayor of London launched a £500 million place-based fund to help key stakeholders in the public sector across the London metropolitan area achieve net zero GHG emissions by 2030, a goal for which the city requires over £100 billion in investment. The fund focuses on projects that will deliver benefits in energy efficiency, renewable energy, or clean transportation.

The Green Finance Fund works as an on-lending facility through which LGs and other municipal and public sector organizations working in the London metropolitan area can apply for loans for their projects. Specifically, the fund is open to organizations that form part of the Greater London Authority Group, including Transport for London, the Mayor's Office for Policing and Crime, the London Fire Commissioner, and the London Legacy Development Corporation, along with any of the thirty-two local authorities in the London area, social housing providers, bodies associated with the National Health Service, and universities and colleges. Organizations can bid for loans of up to £75 million, with flexible terms and lower interest rates than those offered by the British government's existing public sector lending scheme for public works. The funds can be used for capital expenditure, with projects that will be operational within the next three years prioritized.

As a result of the pooling of a robust project pipeline introduced by London's boroughs and other agencies in the Greater London Authority Group, as well as the blending of own-source revenues, the group has been able to attract capital from a mixture of financiers for on-lending at submarket rates with repayment schedules that correspond to the lifespan of the assets being financed. The London case study provides a good example of a metropolitan-level LG extending loans to lower-tier LGs and housing associations in its area. It is also an example of a municipal government establishing a fund and, in effect, acting as a financial intermediary.

Outcome: Beneficiaries of the London Climate Finance Fund have already begun to implement their projects. Based on preliminary success and proof of concept, London will source ever-increasing amounts of capital over the coming years, continuing to contribute to the investment of £100 billion required to achieve net zero.

Suggestions for replicability: To attract capital, cities around the world should look for opportunities to create place-based funds with specific mandates and the potential to grow, making them appealing to a variety of investors, including both public institutions and private entities.

4.1.2 Municipal, green, and sustainability-linked bonds

For cities that have demonstrated strong creditworthiness, bonds can be an important source of financing for climate-smart infrastructure projects identified through municipal capital investment plans. Bonds are fixed-income instruments that enable issuers to raise capital for financing or refinancing projects or assets. Bond issuers often include corporate entities and governments at all levels. In most cases, they provide bondholders with regular fixed coupon payments throughout the bond's term and repay the face value of the bond upon its maturity. Thematic bonds have, in recent years, been used to raise financing for environment-related projects. These include green bonds, blue bonds, and sustainability-linked bonds. Green bonds are the most commonly used climate-related bond instrument.

While bonds can be issued at the national level, municipal issuance offers the advantage and benefits of localized climate action and a stronger connection to the specific needs and priorities of the community. This is because of the ownership, management, and structure of the underlying assets, as well as the localization of the Sustainable Development Goals (SDGs). Local governments, being at the forefront of utilizing the proceeds from these bonds, also ensure increased accountability through investors.

Green Bonds

Green bonds are fixed-income instruments that enable issuers to raise funds to finance or refinance assets or projects that have environmental benefits or climate-friendly attributes. The issuance of green bonds is guided by the Green Bond Principles of the International Capital Markets Association (ICMA),[39] which include reporting and evaluation guidelines. The bonds are assessed and certified before issuance depending on the credibility of the beneficiary projects and their alignment with the set guidelines. These measures have been put into place to reduce instances of greenwashing and, consequently, the risk to investors channeling their resources into green projects. Many LGs around the world have successfully issued green bonds for climate projects.

It is important to note that climate change does not fundamentally alter the way infrastructure finance operates for LGs. To issue a green bond, a city must first be able to issue a regular bond. In addition, several studies conducted to compare the pricing of green bonds with that of traditional bonds have shown it is practically identical.[40] This suggests climate considerations have limited impact on pricing for financiers. A recent study of the municipal bond market in the United States, for instance, found that the difference in pricing between green and non-green bonds issued after 2018 was negligible, at only 2.3 basis points.[41]

Nonetheless, the mobilization of resources toward achieving the SDGs has been significant. This has attracted new and diverse investors, including socially responsible (or green investment–mandated) funds, which have higher levels of liquidity and specific investment targets. According to one estimate, the issuance of environmental, social, or governance (ESG) bonds has increased by 168 percent since 2019.[42] Progress has also been made recently at the municipal level. While

39 See green bond principles issued by International Capital Markets Association here.
40 Source: White & Wahba (2019).
41 Source: Boyuan Li, Baolian Wang and Jiawei Yu (2023). The Emerging Greenium. Brookings working paper.
42 Source: S&P Global (2023).

it has not yet gone to market at the time of writing, the Tanga Urban Water and Sanitation Authority in Tanzania is poised to issue a US$23 million green bond on the Dar Es Salaam stock exchange to finance piped water in the city of Tanga. Support from the central government has been considerable for this transaction, which will be in local currency and subscribed by domestic institutional investors. The bond framework has earned a Green Bond Certification from ICMA, as it aligns to its Green Bond Principles. The merit of the transaction is that it mobilizes domestic private finance and makes domestic capital markets a source of climate finance.

The experiences of Mexico City, Mexico, and Cape Town, South Africa, with green bond issuance are discussed in Case Study 10 and Case Study 11, respectively. These cases present an interesting set of observations for LGs that are considering green municipal bonds. Effectively, the two examples, which are typical of experiences in developing countries, support the argument that green municipal bonds are, in theory, a desirable instrument to help raise capital, as they can offer access to a more diverse market of investors—particularly institutional investors, who have few, if any, other ways to invest directly at the subnational level. In practice, however, they are often limited in their overall benefit as a tool for financing projects. This phenomenon is further supported by the few instances of repeat green bond issuances by LGs in developing countries, particularly by city treasurers and chief financial officers who see more cost than benefit from these capital market instruments.[43]

Case study 10

Mexico City's Green Bond Issuance

In 2016, Mexico City became the first city in Latin America to issue a green bond. A five-year, use-of-proceeds bond, it was issued to finance projects in energy efficiency, sustainable transportation, and water and waste management and raised US$50 million. It was 2.5 times oversubscribed, despite very uncertain market conditions, and fetched a coupon of 6.02 percent. Mexico City's Airport Trust attempted a second issuance to finance the construction of a new airport.

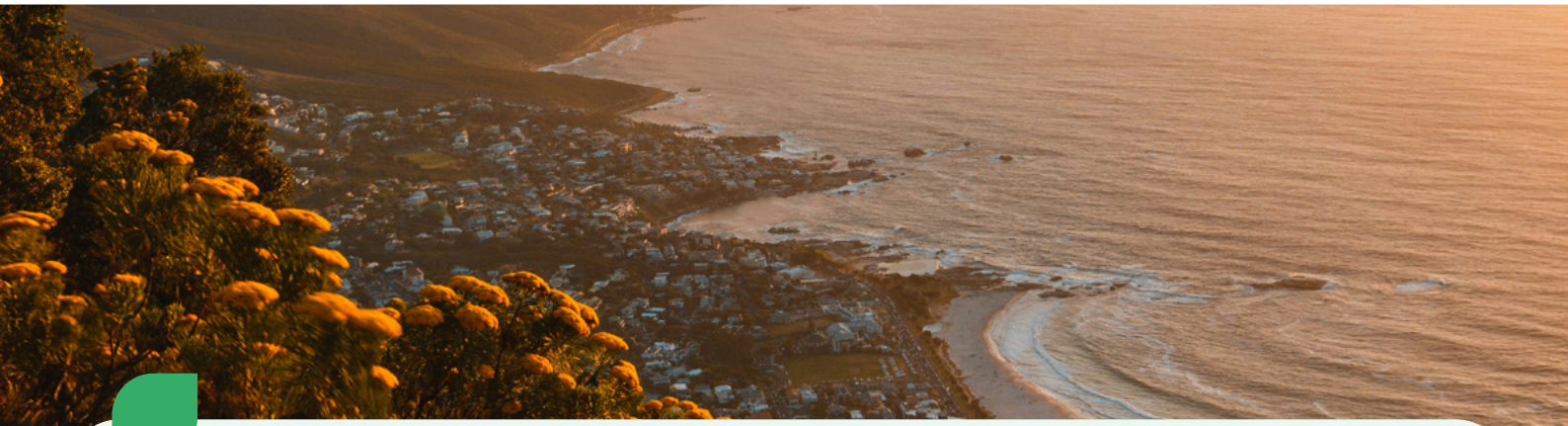
43 Source: Environmental Finance (2017).

Case study 10 continued.

Outcome: The two bonds exceeded ICMA Green Bond Principles standards, obtaining a second-party opinion from Sustainalytics, as well as green instrument evaluations from rating agencies Moody's and S&P. In 2018, however, the newly elected Mexican government decided to subject the airport project to a referendum. The majority of voters expressed their opposition to the construction of the new airport, with the result that the project was cancelled, leading to a decline in the performance of both bonds in the market. Moody's responded by downgrading the bonds to the lowest score, reflecting the increased risk associated with the cancelled project. In addition, S&P withdrew its green evaluation report, as the cancellation of the project rendered it irrelevant.

Lessons and suggestions for replicability: To attract financing for their projects, urban local governments issuing green bonds need to instill confidence in investors through stable government policy and well-articulated projects. They should also avoid projects that are politically motivated, as these expose investors to higher risk.

Challenges: Although the transaction in Mexico City was successful and helped raise the city's profile in terms of its commitment to achieving its climate ambitions, the city has not yet issued a second green municipal bond, citing higher overall costs for origination and ongoing monitoring than would be the case for similar, non-green transactions.



Case study 11

Cape Town's Municipal Green Bond Issuance

Frequent droughts in Cape Town, South Africa, have made climate change a salient issue, with the city coming close to running out of water in recent years. As part of its efforts to address this emergency, the city developed its climate finance portfolio, issuing its first municipal green bond in 2017. Used to invest in projects that aligned with Cape Town's mitigation and adaptation sustainability goals and to match its climate initiatives, the bond issuance raised ZAR1 billion (approximately US$76 million) and has been used to fund low-carbon transportation, water management, coastal protection, and energy efficiency projects across the city. The green bond was the first in South Africa to meet the stringent Climate Bond Initiative taxonomy requirements that ensure projects are aligned with global Paris Agreement climate commitments. Rated GB1 (excellent) by Moody's, it was more than four times oversubscribed, demonstrating the potential of city-led green finance. The bond has facilitated mainstream environmental sustainability within the City Council and has been an important tool in diversifying the city's funding portfolio.

Case study 11 continued.

Outcome and suggestions for replicability: Interviews with officials in Cape Town confirmed the city's continued commitment to prioritizing the funding of climate-smart investments and to seeking dedicated capital from interested investors. The informants seemed, however, to prefer the issuance of non-green municipal bonds to finance green projects and cut costs. According to them, the city considered repeating its issuance of green municipal bonds but opted instead to issue non-green bonds and use the proceeds for green, climate-aligned projects.

Challenges: Despite positive exposure in the media, the city did not financially benefit as much as it had anticipated from the designation of the transaction as green; there was neither a pricing discount from investors nor a more diverse pool of institutions providing capital than would have been the case with a traditional, non-green transaction. In addition, and similar to the Mexico City experience, the city incurred notably higher costs for the green municipal bond; these included direct costs for origination (for green certification), labor costs (for a transversal, multidisciplinary cohort from within the city), and ongoing reporting fees (to demonstrate both use of proceeds and tangible green outcomes).

Sustainability-linked bonds

Sustainability-linked bonds (SLBs) also function like traditional bonds, except they are anchored on the attainment of specific sustainability and ESG objectives by the issuer within a defined timeline. If the issuer fails to meet these goals, a penalty is imposed in the form of higher interest paid to investors. SLBs are a forward-looking performance-based instrument that enables issuers to reap the benefits of future sustainability outcomes. The SLB market stakeholders—that is issuers, investors, and underwriters—are guided by sustainability-linked bond principles. These voluntary principles guide the structuring and issuance of SLBs across five components: selection of key performance indicators, calibration of performance targets, bond characteristics, reporting, and verification. Proceeds from the issuance of SLBs are used for general purposes and, hence, are not a determinant in their categorization.[44] LGs can leverage SLBs to mobilize climate financing, provided they commit to the achievement of specific ESG objectives in the implementation of their projects. Case Study 12 and Case Study 13 discuss the experiences of SLB issuance in Helsingborg municipality, Sweden, and Zagreb municipality, Croatia, respectively.[45] [46]

44 Source: ICMA's Sustainability-Linked Bond Principles accessed here.
45 Source: KNOWESG.
46 Source: S&P Global (2022).

Case study 12

Helsingborg Municipality's Sustainability-Linked Bond, Sweden

The city of Helsingborg, Sweden, has made significant progress in reducing GHG emissions. Since 1990, they have decreased by 52 percent, and the city has set a goal to achieve net zero emissions by 2035. Helsingborg has been recognized several times as the country's most environmentally friendly municipality, and, in 2022, it became the first in the world to list a sustainability-linked bond on Nasdaq's Sustainable Bond Market.

The sustainability performance targets of Helsingborg's bond are focused on reducing absolute CO_2e emissions annually. The aim is to achieve, by 2035, an 85 percent reduction in emissions from 1990 levels. For the remaining 15 percent reduction to reach net zero emissions by 2035, the city will explore additional complementary actions. This may include measures such as carbon capture and storage.

To collect data on emissions, the city will rely on a national database for emissions provided by RUS, an organization that supports Sweden's environmental goals at various levels. The data are based on Sweden's official emission statistics, which are reported to the United Nations Climate Convention, and their collection follows methodological guidelines for National GHG Inventories provided by the Intergovernmental Panel on Climate Change in 2006. At the municipal level, emissions figures are available within the national database approximately 20 months after the emissions are released. If the city fails to reach the sustainability performance targets at the selected target observation date, it will have to pay a premium to investors; this can take the form of a coupon step-up until maturity or a one-time payment at maturity. The framework also addresses situations where the performance level against each Sustainability Performance Targets cannot be calculated or if the issuer fails to publish the relevant information. In such cases, a fallback mechanism is in place to ensure transparency and accountability.

Case study 13

Municipal Sustainability-Linked Bond in Zagreb, Croatia

The city of Zagreb, Croatia, became the first municipal utility in central and southern Europe to issue an SLB, making an issue of €305 million in 2023. The bond issue was supported by the International Finance Corporation (IFC)—the private sector arm of the World Bank—as an anchor investor, with financing of €72.5 million; the European Bank for Reconstruction and Development (EBRD) invested an equal amount. The bond was issued by Zagreb Holding, a municipal holding company wholly owned by the city of Zagreb. It has a bullet repayment, a five-year maturity yield of 4.94 percent, and a fixed interest rate of 4.9 percent, paid semiannually, and it is a direct, unsecured, and unsubordinated obligation from the issuer, with a guarantee provided by the city.

Through sustainability targets, the bond gives the issuer incentive to make investments in improving municipal waste management and renewable energy use by 2027. These targets include increasing the proportion of municipally separated waste collection to 58 percent (up from 37 percent in 2021) and the share of renewable energy within the city to 70 percent (from 50 percent in 2022). If Zagreb Holding does not meet these sustainability targets by the deadline, it faces a financial penalty at bond maturity.

Source: IFC press release.

4.2 PPPs and off-balance sheet instruments

In addition to traditional debt, LGs are exploring partnerships with private sector investors and service providers for their climate initiatives. PPPs, discussed in section 4.2.1, below, are one such mechanism, involving agreements between public and private parties to deliver a public asset or service. In these arrangements, the private party generally assumes management responsibility, with compensation usually tied to meeting performance standards. Remuneration for the private party may come from user fees, governmental funds, or a blend of both. The selection of a payment structure is influenced by the private entity's responsibilities and the municipality's capacity to include it in their balance sheets. Typically, but not exclusively, arrangements where users are charged ("user pays" arrangements) are part of the off–balance sheet agreements; these are outlined in section 4.2.2.

4.2.1 Public-private partnerships

PPPs allow LGs either to transfer risks to or share them with private entities. The structure is crafted to assign risks to the parties best equipped to manage them, thereby reducing costs and enhancing performance. Various PPP contract models are available to LGs, tailored to the specific needs of climate projects. Prominent models that can be adapted for such purposes include Build-Own-Operate-Transfer (BOOT), Design-Build-Finance-Maintain (DBFM), and Build-Transfer-Operate (BTO).

LGs may opt for PPPs to execute climate-related projects, depending on their fiscal autonomy and capacity to attract equity financing from private investors. Success factors for climate-related PPPs will be similar to those for traditional PPPs, such as well-defined risk allocation between counterparties, enforceable contractual obligations, and financial viability within the sector or project. An effective climate-related PPP is, therefore, essentially a well-structured PPP that incorporates climate considerations.

Case Study 14 describes a municipal waste-to-energy PPP project in Monterrey, Mexico, that achieved a notable reduction in GHG emissions. This case provides an example of the private sector's potential to enhance the value of public investments and underscores the necessity of establishing conducive financial conditions to attract private investment. In this specific case, grant funding through the Global Environment Facility (GEF) was utilized to improve the project's rate of return. For comparable PPP projects, LGs may need, with support from national authorities or development partners, to consider the provision of similar subsidies to encourage private sector involvement.[47]

47 Source: World Bank Independent Evaluation Group (2015).

Case study 14

Municipal Waste-to-Energy PPP Project in Monterrey, Mexico with GHG Emissions Reduction

The city of Monterrey, Mexico, sought to evaluate the feasibility of waste-to-energy landfills, recognizing that adopting a more integrated waste-to-energy approach to municipal waste management could bring added value to public investments and reduce operational costs. Nine municipalities in the metropolitan area sought to change the business model for waste management operations by generating income from landfills. With the support of the Global Environment Facility (GEF) and the World Bank, they developed a solution to address the city's issues with waste management and electricity provision.

To implement integrated waste management in the participating municipalities, a PPP was established. Private operators of landfills contracted by the municipalities were required to collect recyclable materials and utilize biogas to generate electricity at a more competitive price than the national grid. While the landfills and equipment remained the property of the municipalities, operations were contracted to the private sector. A competitive bidding process was held to manage operations, maintenance, and investments associated with electricity generation through the PPP. The bidders were prequalified based on their experience in designing, constructing, and operating landfill gas facilities, as well as their personnel and financing capabilities, and submissions were evaluated based on the highest net present value of their business models. A private company, Bioeléctrica de Monterrey, submitted the winning bid.

The waste-to-energy landfill initiative was eligible for funding from the Clean Development Mechanism of the Kyoto Protocol, and the profitability of bundling such various activities as energy generation, recycling, and public works attracted private sector participation. The initial investment for the project amounted to US$25 million, with 53 percent being private funding. The partnership received a grant of US$6 million from GEF, which improved the internal rate of return of the project from 13 percent to 28 percent.

Results: Between 2004 and 2020, the initiative reduced CO_2 emissions by 5.7 $MtCO_2e$ and generated financial savings for the municipality worth several million dollars. This was achieved by providing low-cost electricity to power the metro rail system and public lighting. The revenues generated were then used to support a proof-of-concept solar energy supply to public schools in a low-income community within the metropolitan area.

Source: World Bank (2023).

4.2.2 Off-balance sheet PPPs through special purpose vehicles

Off–balance sheet arrangements for project financing, such as the creation of a special purpose vehicle (SPV) in collaboration with an LG, are often made partly to provide more assurance to private investors by ringfencing project revenues from the overall revenue pool (and expenditure requirements) of the LG. An SPV is often used when an LG's balance sheet is not strong enough for it to enter into direct agreements with the private sector. The LG can either be the sole owner of the SPV for contracting purposes, or it can enter into a joint ownership with a private partner. The arrangement also provides assurance to the LG by ringfencing the risks, returns, and obligations of the investment from its own balance sheet, confining them to the SPV Project-related loans are extended to the SPV and not the project sponsor, such as the LG, and financial obligations of the investors are confined to the SPV's revenue streams. The lender's security is primarily the income generated by the project, with little or no recourse to the assets or balance sheet of the LG. Revenues may come from user fees, payments based on an output purchase agreement, government contributions in the shape of availability payments, and other such sources.

Even with a robust framework in place, however, financiers often approach project finance agreements with caution, seeking further assurances for their investments and (explicit or implicit) commitments of support from national and subnational governments. An analysis of decades-long project data from Asia found that half to two-thirds of these projects were not bankable without the backing of governments or multilateral development banks. This was largely the result of lenders' hesitation to provide financing on a nonrecourse or limited-recourse basis.[48] To mitigate these concerns, it may be important to consider credit enhancement mechanisms—the subject of the next section.

4.3 Credit enhancement mechanisms and guarantees

Given the relative inexperience of LGs in obtaining access to repayable finance on commercial terms, investors and lenders can rely on credit enhancement mechanisms, such as guarantees, to substitute for municipal creditworthiness, reduce credit and other types of risk, and secure more favorable lending terms. Credit enhancement mechanisms can protect investors by limiting their exposure to credit risk, making it easier to mobilize commercial finance at acceptable costs. A credit enhancement guarantee, for example, is an agreement by a guarantor or insurer to pay all or part of the costs or losses incurred by a project, in exchange for a fee, in the event of nonperformance of the project or default on obligations by the borrower. It can be a commitment in the form of fund reserves to reimburse the lender if the borrower fails to service or repay a loan. In effect, guarantees act as a type of warranty or insurance policy attached to a debt instrument.

LGs can secure guarantees from various sources, including the central government, to ensure their own credit repayment capacity. Credit guarantees or minimum revenue guarantees during the early life of a project from implementing partner institutions, such as utilities or other public service companies that perform

48 ibid

engineering procurement and contracting services, can also enhance credit and/or the project's commercial viability. Commercial or bank guarantees can be obtained for project finance and/or PPP contractual modalities.

Guarantees work to de-risk and, therefore, unlock private investment. They also facilitate better financial terms for individual projects. Guarantees may, for instance, lower collateral demands, secure long-tenured financing facilities, encourage lenders to waive deposit requirements, and reduce the cost of borrowings. These outcomes are achieved by providing assurance to the lender that all or part of the losses will be covered in the event the borrower defaults.

The number of municipal infrastructure projects at the subnational level in developing countries that have been able to benefit from guarantees and other credit enhancement measures appears to be limited. This is because of underlying risks pertaining to the creditworthiness of LGs and the implications of credit risk associated with the fiscal commitments of national governments. For this reason, national governments have, in many instances, been hesitant to offer sovereign guarantees for LG projects, and private issuers of guarantees have been hesitant to transact at the subnational level because of an incomplete understanding of underlying risks and obligations.

Case Study 15 showcases a recent example in which the Multilateral Investment Guarantee Agency (MIGA)—a member of the World Bank Group—and the IFC provided a financing and guarantees package to an SPV for a large-scale municipal waste-to-energy project with strong environmental and climate mitigation impacts in Belgrade, the capital of Serbia.

Case study 15

Municipal Waste-to-Energy Project in Belgrade, Serbia, with MIGA Guarantees and IFC Financing

MIGA and the IFC have provided a financing and guarantees package to a special project vehicle for a municipal waste-to-energy project in Belgrade, Serbia, that will clean up one of Europe's largest uncontrolled landfills and construct a new, sustainable waste management complex to help reduce pollution and mitigate climate change by reducing emissions. The project involves the closure and remediation of a saturated landfill in a suburb of Belgrade and the construction of a new EU-compliant sanitary landfill, along with a waste-to-energy facility and a facility for processing construction and demolition waste. The resulting facilities will enable the generation of renewable heat and electricity from municipal waste and landfill gas.

The project is being implemented under a long-term PPP contract awarded to an SPV with the exclusive right to treat the municipal solid waste generated by thirteen municipalities of the metropolitan area. The SPV was formed by three firms: the global utility company Suez, the Japanese conglomerate Itochu, and Marguerite Fund II, a pan-European equity fund.

The project is financed by several sources, including an IFC loan of €72 million, a parallel loan of €35 million from Oesterreichische Entwicklungsbank, and a concessional loan of €20 million from the Canada-IFC Blended Climate Finance Program. It is part of a wider package that also includes an EBRD loan of €128 million.

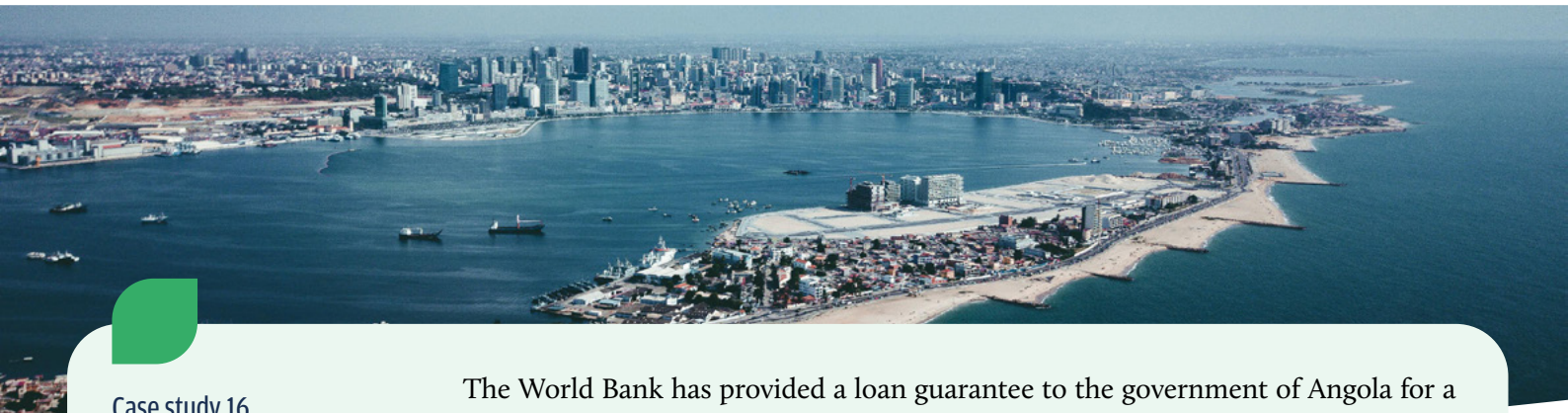
Enhancing the project's investment appeal, the Multilateral Investment Guarantee Agency (MIGA) has issued guarantees amounting to €97 million, which cover up to 90 percent of equity investments by the three equity owners of the project SPV for a term of up to 20 years. These guarantees are designed to mitigate noncommercial risks, including breach of contract, thereby protecting against losses that may arise from a government's breach or repudiation of a contract, such as a concession or a power purchase agreement. The MIGA guarantee reduces pressure on Serbia's fiscal space by serving to backstop the obligations of Belgrade city and providing comfort to investors without the need for a sovereign guarantee.

The waste-to-energy facility will have the capacity to process up to 340,000 tons of waste into renewable heat and electricity. The 30 megawatts (MW) of electricity it generates will be enough to power approximately 30,000 households in the city, and up to 56 MW of thermal energy will provide 60,000 households with heat in the winter—a significant contribution to the country's energy grid. The electricity will be sold to Serbia's power utility under a power purchase agreement with a 12-year term, post construction. The heat will be sold to the municipal district heating company under a 25-year offtake agreement.

Source: IFC press release.

Some longstanding guarantee facilities are also pivoting to support green infrastructure. The Swedish International Development Cooperation Agency, for example, has provided development guarantees, and the 2020 Treasury Bill included a mandate for the Swedish debt office to issue domestic guarantees for green projects. The state guarantees are intended to enable more large-scale industrial investment projects that help the country achieve the goals of its environmental objectives system and climate policy framework. Similarly, GuarantCo has taken steps to extend its development focus to sustainable outcomes across Africa and Asia. In 2020, GuarantCo received a €100 million contingent loan with a tenor of fifteen years for climate change projects from Agence Française de Développement, the development arm of France. The leverage ratio is 1:3, meaning GuarantCo has a guarantee capacity of €300 million. Finally, the European Fund for Sustainable Development recently greenlit UNCDF's proposal for a Sustainable Cities Guarantee Facility, for an initial resource envelope of €154 million.[49] While negotiations on the operationalization of the facility were still underway at the time of writing, this can represent a significant step in revenue enhancement for private climate finance for LGs. The facility will deploy UNCDF's pipeline management system and target LG climate projects for both mitigation and adaptation.

Case Study 16 details a municipal water supply project in Angola's capital city of Luanda that utilized a guarantee from the International Bank for Reconstruction and Development (IBRD)—part of the World Bank—to unlock commercial finance for municipal water infrastructure.



Case study 16

Bita Water Project in Luanda, Angola, with a World Bank Guarantee

The World Bank has provided a loan guarantee to the government of Angola for a commercial loan to finance a water supply investment project for the city of Luanda. The Bita water project, executed by Luanda's water utility, extends potable water services to 2 million people in Luanda, using the proceeds of an IBRD-guaranteed commercial loan to finance investments in water production, transmission, and distribution systems. IBRD provided a partial loan guarantee of US$500 million to commercial lenders, based on which the national government secured US$910 million in sovereign commercial loans for the project. The African Trade Insurance Agency and the French export credit agency BPI France Assurance Export provided complementary financing products to mobilize the overall financing requirement of US$1.1 billion.

49 See news story here.

Case study 16 continued.

The IBRD loan guarantee has a duration of fifteen years, a significant extension of the maturity of Angola's previous commercial loans that sets a precedent for future long-term financing. The loan's interest rates, which are substantially lower than Angola's standard borrowing costs, improve the financial viability of the project. The guarantee is designed to alleviate the risk of debt service default by the government by ensuring the payment of both principal and interest. It also incorporates a cash reserve account, established with funds from the loan, to provide initial loss protection.

The Bita project represents the first investment in the water sector to leverage a World Bank guarantee and serves as an example of how guarantees can attract private investment into municipal water infrastructure, a sector traditionally less appealing to private financiers than other infrastructure domains.

It is important to note, however, that guarantees can address some but not all market failures faced by borrowers and can create weak incentives for the beneficiary and risks for investors. Guarantees cannot overcome policy regulations that deter investment, nor can they compensate for a lack of technical or financial capacity on the part of the lender or the borrower. Additionally, guarantees are not designed to offset the inherent credit risks associated with projects that are fundamentally weak. A high reliance on guaranteed lending reflects difficulties in authentic debt issuance, which is secured by revenue streams of the issuing entity. Additionally, interventions of this nature should be approached cautiously because of the potential for creating moral hazard and generating perverse incentives and fiscal risks, since the underlying creditworthiness of the borrower may still be weak and insufficient to support the servicing of debt financing raised under the guarantee, which in turn creates risk for guarantors. These interventions can, therefore, even undermine the sustainability of the system they aim to expand.[50]

50 See White & Wahba 2019.

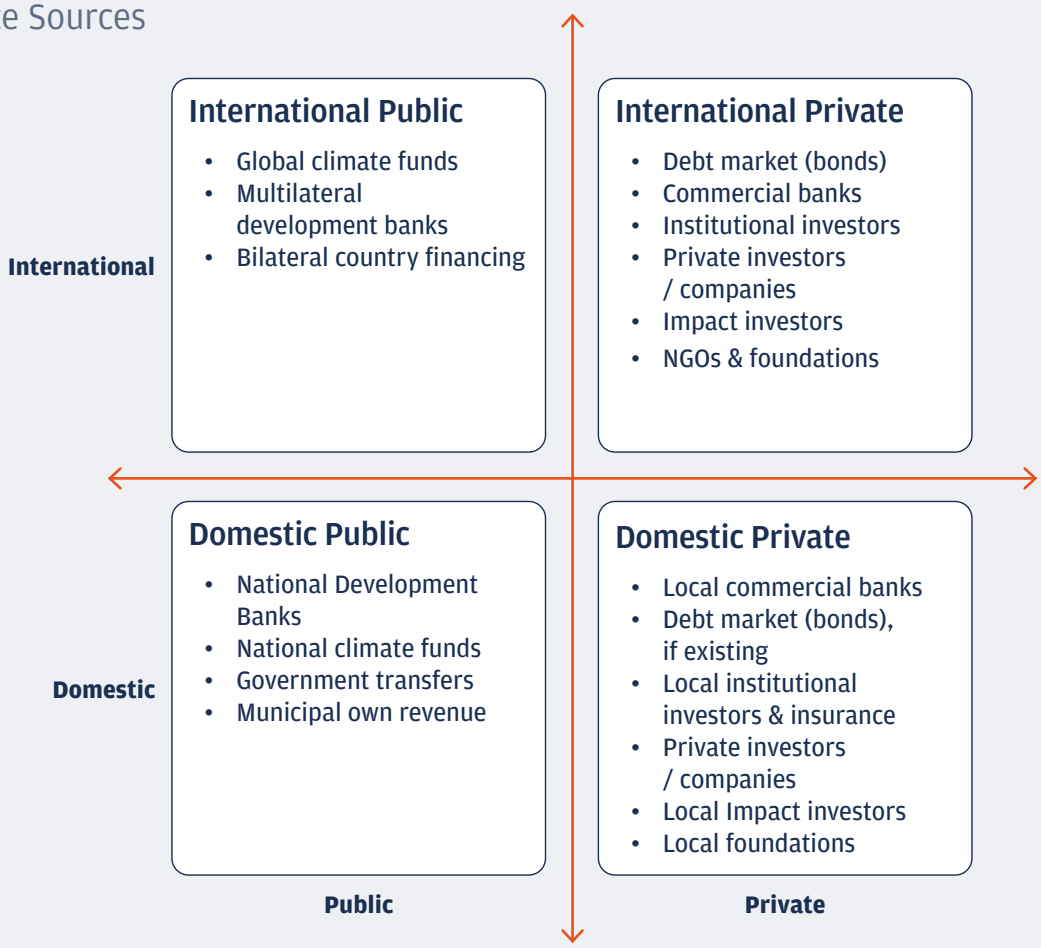
5

Sources and providers of local government climate finance

The previous two chapters identified the various financing instruments available to LGs for climate action. But where will the money come from for these instruments? Who will provide funding to LGs, whether it is through green bonds or PPPs or climate-related grants? That is the subject of this chapter.

Capital for all the financing mechanisms and instruments identified in the previous chapters is offered by a variety of different sources and providers. They can be categorized as either private or public and either domestic or international. Private financing is provided by entities and institutions in exchange for financial returns. Sources include debt markets, commercial banks and other financial institutions, philanthropic foundations, insurance companies, nongovernmental organizations (NGOs), and private investors of all types, including purely commercial as well as "impact" investors. Public climate finance is allocated from public resources by national governments; multilateral, regional, and national development banks; global, regional, and national climate funds; bilateral financing through partner countries; and, of course, municipal revenue. Figure illustrates these different types of climate finance sources and providers, and the sections below discuss how LGs can take advantage of the different source categories to mobilize resources and finance their climate action plans.

Figure 5.1
Types of Climate Finance Sources



Source: Authors

5.1 Public climate finance

5.1.1 International sources

International public sources of climate finance are chiefly of three types: global climate funds, multilateral development banks and development financing organizations, and bilateral financing.

Global climate funds

Global climate funds are established under the Kyoto Protocol, the Paris Agreement, and the UNFCCC. They include, among others, the Green Climate Fund (GCF), the Adaptation Fund (AF), and the Global Environment Facility (GEF). These funds help countries set low-emission and/or climate-resilient development trajectories. They provide financial support for technical assistance and capacity building, research, and piloting, demonstrating new approaches and technologies. Additionally, they help remove barriers that prevent access to further climate finance flows. LGs can apply to them for grant funding and concessional loans.[51] An overview of some these funds is provided in 2.

Box 5.1
Overview of Selected Global Climate Funds

Green Climate Fund (GCF)

The Green Climate Fund was established by the United Nations Framework Convention on Climate Change (UNFCCC) to serve the Paris Agreement. It uses its funds to accelerate green market creation, unlocking the financial flows needed for developing countries to make transitions to low-emission, climate-resilient development pathways.

GCF invests in transitions in four areas: built environment; energy and industry; human security, livelihoods, and well-being; and land use, forests, and ecosystems. It operates through a network of over two hundred accredited entities and delivery partners who collaborate directly with developing countries on project design and implementation. These partners include commercial banks, development finance institutions, equity fund institutions, United Nations agencies, and civil society organizations.

GCF provides flexible financial support, including grants, concessional debt, guarantees, and equity instruments, to leverage blended finance and attract private investment for climate action in developing countries. GCF is mandated to allocate 50 percent of its resources to mitigation and 50 percent to adaptation in grant equivalent.

GCF unlocks climate innovation through four stages:

- It helps countries develop integrated climate strategies and policies to create a favorable environment for climate investments.
- It invests in new technologies, business models, and practices to introduce innovative climate solutions to the market. This includes supporting incubators and accelerators and providing early growth finance.

51 Source: Climate Policy Info Hub.

- It leverages its resources to scale up these innovations. It de-risks projects to attract finance from risk-averse public and private institutional investors, thereby expanding into new markets.

It supports the greening of the financial sector by building the capacity of domestic financial institutions in developing countries to incorporate climate risks and opportunities into their investment decision-making processes and get access to capital markets.

Adaptation Fund (AF)

The Adaptation Fund provides support for adaptation activities that enhance resilience and reduce vulnerability to climate change impacts at the local and national levels. Its programs focus on areas such as food security, agriculture, water management, and disaster risk reduction. AF is primarily financed by government and private donors, as well as a 2 percent share of proceeds from certified emission reductions (CERs) issued under the Clean Development Mechanism projects of the Kyoto Protocol.

Developing countries that are parties to the Kyoto Protocol are eligible for support. To be considered eligible, these countries must demonstrate particular vulnerability to the adverse effects of climate change. This includes such characteristics as being low-lying coastal or small island countries, having fragile mountainous ecosystems, existing in arid or semiarid areas, or being susceptible to floods, drought, or desertification.

To gain access to project and program funding from AF, countries are required to submit proposals through accredited institutions that act as intermediaries between AF and the countries, facilitating the submission and implementation of projects. Funding for adaptation projects is exclusively available to these institutions. Once an institution is accredited, it can submit project proposals that align with national priorities to AF's board for consideration.

Global Environment Facility (GEF)

The Global Environment Fund is dedicated to addressing pressing environmental issues in developing countries. Through its support in areas such as biodiversity loss, chemicals and waste, climate change, international waters, and land degradation, GEF aims to foster more sustainable food systems, forest management, and urban development.

GEF primarily provides funding to support government projects and programs. The executing agency for these projects is determined by the respective government and can be a governmental institution, civil society organization, private sector company, or research institution.

GEF offers funding through four modalities: full-sized projects, medium-sized projects, enabling activities, and programmatic approaches. Full-sized projects have financing of over US$2 million, while medium-sized projects have financing of US$2 million or less. Enabling activities involve preparing plans, strategies, or reports to fulfill convention commitments, while programmatic approaches are longer-term arrangements of interconnected projects to make large-scale impacts on the global environment.

Sources: Compiled from websites of each fund.

Multilateral development banks, development financing organizations, and bilateral financing

Multilateral development banks are financial institutions established under international law by member nations from both developed and developing countries. They provide grants and loans to member countries to finance government and private projects at the national and subnational levels, including substantial funding for climate-related projects. Examples of MDBs are the World Bank (including its several member organizations), the EBRD, the African Development Bank, the Inter-American Development Bank, the Islamic Development Bank, and the Asian Infrastructure Investment Bank, among others. Bilateral development agencies, unlike MDBs, are established by one country to support development efforts in other countries They also provide grants and (non)concessional financing for climate-resilient development.

LGs can leverage international public climate finance to mobilize resources for their climate projects. Several international financial institutions offer LGs either direct lending options or lending backed by sovereign guarantee provided by national governments. It is important to note, however, that these financing options—especially direct lending without sovereign guarantee—come at a cost, as the specific repayment risk of the LG is considered, and loans are typically not offered in local currencies. Requiring the support of the national government also, of course, limits LGs' direct control of access to climate finance.

An important means of future assistance is to increase the ability of LGs to get access to international public sector climate funds. This can be done by providing LGs and national governments with support in obtaining the required certifications and accreditations for their climate initiatives to become eligible for these funds. One such effort is being undertaken by UNCDF through its LoCAL facility, which is helping national entities in gaining accreditation to access these funds and subsequently channel them to LGs. In 2019, the National Committee for Sub-National Democratic Development Secretariat in Cambodia became the first national entity in the world in charge of decentralization to become accredited to GCF. Where such direct access entities do not exist at national level, LoCAL supports regional direct access entities that can also support access to the larger climate funds for local adaptation and strengthen LGs access to funds through fiscal transfer mechanisms.[52] One recent example of this is from Benin, where LoCAL supported the national government in meeting the accreditation criteria for GCF to obtain access to climate funds, which are now being transferred to more than thirty highly vulnerable LGs across the country (see Case Study 17).

52 Examples of ongoing efforts include a program in Bhutan and a regional one in the Pacific that covers Figi, the Solomon Islands, Tuvalu, and Vanuatu.

Case study 17

Benin Adaptation Project Financed by GCF after Accreditation Support through UNCDF

Benin is already experiencing the impacts of climate change, such as rising temperatures and more frequent and intense droughts and floods. If appropriate adaptation measures are not taken, these impacts are expected to have significant effects on livelihoods and key sectors. The country has limited resources to deal with these issues, having a narrow fiscal space, high poverty rates, and inadequate infrastructure and basic services.

To help Benin address these challenges, the Local Climate Adaptive Living Facility (LoCAL) provided technical assistance to the national government to meet the accreditation criteria and make the necessary submission for access to GCF funds. GCF then approved more than US$9 million for scaling up an ongoing LoCAL project to increase adaptation actions by working with LGs and communities to enhance their capacity to implement such measures and increase the proportion of climate-compatible investments at the local level. The GCF funding will expand LoCAL's reach in this effort from 9 to 34 highly vulnerable LGs across the country.

5.1.2 Domestic sources

Besides municipal own-source revenues (OSRs) and grants from national governments, domestic public sources of climate finance include national development banks and national and regional climate funds. A national development bank is owned by a country's government and is established to provide financing for national economic development. An example is the China Development Bank, which provides long-term financing for policy-oriented projects in line with the Chinese government's development strategy. Similar to national development banks, national climate funds are established to facilitate the financing of a country's climate-oriented development strategy. Examples include Guyana's REDD+ Investment Fund, which mobilizes resources to finance projects and activities in line with the government's low-carbon development strategy, and the Rwanda Green Fund. LGs can take advantage of these domestic sources to complement fiscal transfers and OSRs in mobilizing climate finance through long-term concessional loans and grants.

National and subnational development banks can be a viable source of climate finance for LGs; Case Study 18 provides an example of the scaling up of climate finance to cities by development banks in Brazil.

Case study 18

Scaling Up Climate Finance to Cities through Development Banks in Brazil

Federal, regional, and state development banks in Brazil are currently in the process of scaling up the allocation and flow of climate finance to cities and municipalities in the country. Institutions like BNDES, Banco do Brasil, and Caixa Economica Federal have a broad reach, with Banco do Brasil serving 97 percent of Brazil's 5,570 municipalities. These banks are engaging increasingly in climate mitigation and adaptation initiatives as integral components of their commercial operations and commitment to environmental, social, or governance (ESG) principles. The country's regional and state-level development banks are also beginning to adopt comparable approaches. This shift in strategy among Brazilian banks is influenced by the global ESG movement and the competitive advantage of being environmentally conscious, with federal policies providing a supportive backdrop. An example of federal support is the "Resilient and Sustainable Cities" pillar of the government's new Growth Acceleration Program, which aims to invest over RUS$120 billion in the development of resilient and green urban areas in the coming years.

Development banks in Brazil are also increasingly entering the carbon credit market and financing municipal-level interventions that will generate carbon credits that can be sold. Caixa Economica Federal, for example, provides financing to private sector operators of municipal waste landfills, contracted by municipalities, to improve waste management operations to generate carbon credits based on reduced GHG emissions. The credits can then be sold for revenue in voluntary carbon markets. The World Bank supported this program by providing financing to Caixa through its first blended IBRD-carbon finance program in the Latin America region, combining an IBRD loan with funds from the Carbon Partnership Facility. Caixa served as the financial intermediary between the Bank and the landfill operators.

The Regional Development Bank for the Extreme South (BRDE) in Brazil also serves as a "Green Bank." It is improving its climate offerings for both public and private sector clients at the LG level, with an increased emphasis on overcoming obstacles to effective PPPs. In collaboration with the State of Paraná, BRDE has initiated a partnership to provide technical assistance to LGs for developing and implementing PPP projects with environmental sustainability and climate aspects.

5.2 Private climate finance

Private sources of climate finance include debt markets for bonds, commercial banks for loans, private and impact investors for equity finance, and philanthropic foundations and NGOs for grant funding. Apart from grants, all forms of private climate finance are provided in exchange for financial returns. Sources may either be domestic or international, depending on the entity, and they require a higher return on their financing than providers of public financing. Private finance is, therefore, more expensive to take on than public finance.

One example is the International Municipal Investment Fund, which was created following a request for proposals for a "city-friendly investment fund" issued by the partners of the Malaga Coalition, a financial system that works for cities and LGs. The purpose of IMIF is to invest in projects originated by LGs that advance the achievement of SDG 11 and SDG 13. The fund takes an equity approach, which has not always been appropriate given local regulatory environments but avoids the question of debt issuance by LGs.

Another largely untapped source of private finance is domestic capital markets. Often, institutional investors (such as pension funds) are restricted by their investment policies from financing the kind of infrastructure projects that can be originated from LGs. This is starting to change in some countries; the government of Tanzania, for example, has recently committed to developing a municipal bond market in local currency.

Philanthropic foundations and charitable organizations have also been played a vital role in mitigating climate change, with finance for that purpose more than tripling in the past eight years.[53] Most foundations and NGOs provide funding through grants. Unlike other forms of private sector finance, foundation funding is provided with no expectation for a return and is mostly intended to safeguard the people supported by these foundations against the adverse effects of climate change.

To attract private financing, LGs need to have the required systems and accountability frameworks in place to boost investor confidence. Since credit ratings are also crucial in gaining access to private debt climate finance, LG must also develop their creditworthiness, and credit enhancement mechanisms from central governments and international financial institutions are necessary. To help LGs relate different sources to specific instruments, the accompanying table illustrates the different instruments that can be used to solicit financing from various sources.

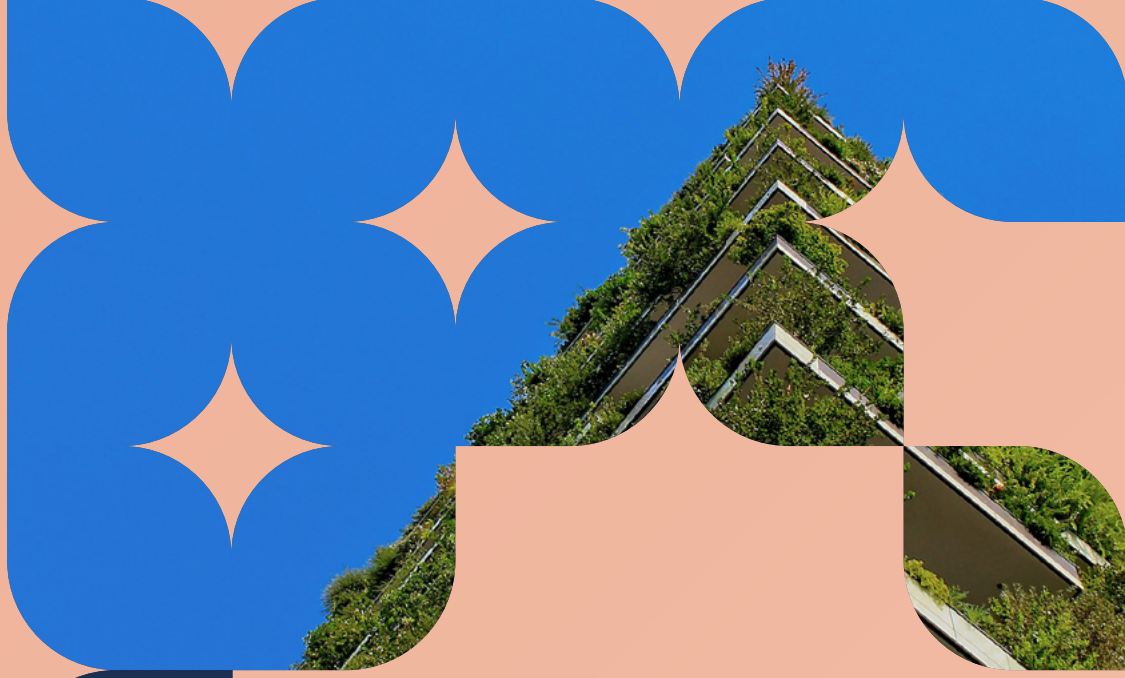
53 A Climate works Foundation article on Climate Change Mitigation Philanthropy, accessed from: https://www.climateworks.org/report/funding-trends-2022/.

Table 5.1
Sources of Climate Finance and their Respective Instruments

Category	Source	Instrument
Domestic public sources	National development banks	Grants, credit enhancement mechanisms, concessional green loans
	National/regional climate funds	
	National/regional government transfers	Grants, green loans
	National municipal development funds	
International public sources	Global climate funds	Grants, credit enhancement mechanisms, concessional green loans, market-rate loans
	Multilateral development banks	
	Bilateral development banks	
Private sources	Debt markets	Green bonds, blue bonds
	Private investors	Project-level equity, quasi-equity, PPPs
	Impact investors	
	Commercial banks	Market-rate green loans
	NGOs	Grants
	Foundations	Grants, program-related investments

5.3 Summary of climate finance sources and providers

As with climate finance instruments, LGs have various sources available to them for climate finance, the choice of which should be determined by project needs and LGs' capacity. Financial instruments discussed under repayable and nonrepayable financing (chapters 3 and 4, respectively) are housed in both private and public institutions that may be either domestic or international. Global climate funds, multilateral development banks, and bilateral financing on the international front provide vital support to countries, but they present challenges, such as currency disparities and the need for sovereign guarantees from national governments, that complicate LGs' efforts to get access to funds. In contrast, domestic sources, including national development banks and municipal revenue, offer more direct access to funds through long-term concessional loans and grants. They still, however, require that LGs have robust systems, accountability frameworks, and creditworthiness to attract private investors.



6

Recommendations

To mitigate and adapt to the climate challenges LGs in developing countries are already experiencing, they need to be able to obtain climate finance at scale to invest in decarbonization and resilience-building projects. LGs have various constraints, however, that limit their utilization of finance for these purposes. These may be regulatory, financial, technical, or related to LGs' limited absorptive capacity. This chapter offers key stakeholders recommendations for addressing these constraints and supporting LGs in the development and funding of their climate-smart projects. The chapter is split into two sections.

Section 6.1 provides recommendations that address the general prerequisites for laying a foundation for LGs to gain access to all types of finance, including but not limited to climate finance. As has been shown, climate finance is, in many ways not too different from other traditional financing instruments to which LGs have access; consequently, many traditional instruments can be tailored to achieve climate-related objectives. Contrary to expectations that climate finance is more abundant, risk-tolerant, or cost-effective for LGs than traditional finance, the experience so far has been that it frequently mirrors it, particularly in the context of repayable finance, such as commercial borrowing. Green bonds issued by municipalities, for example, have often resembled traditional municipal bonds in many ways, and, crucially, many of the constraints that hinder the increased use of the latter in developing countries apply equally to the former.

Section 6.2 then offers recommendations specific to climate finance that can increase finance flows to LGs for the various instruments that have been discussed.

These sections are split in turn into recommendations for LGs, for national governments (as enablers for cities and LGs), and for international financial institutions and development partners (to support the efforts of countries and LGs with technical and financial assistance). While noting that climate finance may not be widely prevalent at present, the potential for more advantageous climate finance conditions for LGs is significant, as the volume of financing available for climate action at the local level is expected to grow. Looking forward, it is essential for LGs to be prepared to take advantage of these growing prospects in the future, and for national governments to play an enabling role in setting the right conditions. Table 6.1. provides a summary of all the recommendations provided in the chapter.

Table 6.1
Summary of Recommendations

Target Institution/ Stakeholder	Recommendation
Enabling LGs' access to all types of financing (section 6.1)	
LG level	• Strengthen core institutional and technical capacities on investment planning, financial management, and own-source revenue collection. • Improve project identification/prioritization, and develop pipeline of "bankable" projects. • Strengthen engagement with potential financiers/investors. • Advocate and build the case with higher tiers of government.
National governments	• Strengthen fiscal base and expenditure mandates of LGs. • Strengthen LGs' technical and absorptive capacity. • Facilitate an enabling environment for private financing.
IFIs and development partners	• Support national systems of fiscal transfers to LGs in support of local climate change response. • Help LGs improve their technical capacity, creditworthiness, and project structuring.
Enabling LGs' access to climate finance (section 6.2)	
LG level	• Build the information systems and analytical base for climate-related investments and financing. • Identify and prepare climate-related interventions and projects for financing, backed by climate action plans. • Advocate and build the case with higher tiers of government.
National governments	• Build investor relations for and awareness of commercial and concessional financing for LG projects. • Support LGs in identifying and preparing climate-related interventions and projects for financing. • Provide more public and concessional financing.
IFIs and development partners	• Help strengthen engagement with potential financiers/investors and build awareness of commercial and concessional financing. • Support preparation of climate-related interventions and projects for financing. • Provide more public and concessional financing.

6.1 Recommendations to enable LGs' access to all types of financing

The review of experiences and constraints presented in this report has shown that the ability to increase financing—especially from private sources—to LGs to a level that makes a substantial contribution to investment needs depends on improving their revenue base, creditworthiness, and institutional capacity. This section addresses these core constraints.

6.1.1 Recommendations for LGs

Strengthen core institutional and technical capacities on investment planning, financial management, and own-source revenue collection.

- **Build capacities in investment planning and financial management.** To gain access to climate financing effectively and manage increased funding, LGs must bolster their core institutional and financial management capacities, which, in turn, will improve their creditworthiness and provide confidence to private investors. This entails improving performance in such areas as capital investment planning; project preparation, procurement, and execution; and public financial management, fiduciary, and reporting systems, including the production of timely and robust financial statements using reliable accounting standards and data. Demonstrating robust financial practices is important for access to all funding, particularly direct grants, as grant providers need to ensure the funds are allocated to entities capable of maximizing impact in a responsible manner. For debt, equity, and guarantee providers, evidence of strong financial management is necessary to confirm LGs can fulfill debt obligations and allocate funds for projects effectively.
- **Enhance OSR collection performance and capacity.** Depending on their fiscal autonomy and ability, LGs can collect more OSR that can be used to mobilize additional resources. Their fiscal base will be improved by addressing revenue constraints by having a buoyant local revenue base and by recovering the cost of urban infrastructure and services through strong property taxation, user fees, and other targeted revenue sources. Without a strong local revenue base, PPP projects, for example, will depend predominantly on fiscal support through availability payments for viability and bankability. These actions will collectively provide confidence to investors in the overall quality of financial management and revenue systems.

Improve project identification and prioritization and develop pipeline of "bankable" projects.

- **Identify strategic projects in territorial and capital investment plans.** LGs need to prepare strategic territorial and prioritized multiyear investment and financing plans that identify projects and investments within their mandates. These plans should consider urban development trends, infrastructure requirements, and gaps in municipal service delivery. They should also identify sources of financing for the prioritized projects to facilitate their implementation. Once prepared, the plans are to be converted into bankable projects, allowing LGs to position themselves as credible counterparties for private investors. This is especially important for preparing a pipeline of

projects in high-potential sectors and services, including municipal solid waste management and public transportation.

- **Collaborate with other LGs for project aggregation and consolidation.** Projects by individual LGs may tend to be disaggregated, which makes them more costly for investors per transaction. LGs can make them more attractive for investors by pooling projects and other operations, such as procurement, with other LGs and municipalities to leverage economies of scale. This is especially true for metropolitan-scale projects like public transit networks and municipal waste treatment facilities—landfills, for example, as in the waste-to-energy PPP project in Monterrey, Mexico, described in case study 14.

Strengthen engagement with potential financiers and investors.

- **Build financial expertise to improve communication with potential financing partners and investors.** LGs typically do not have the financial expertise to communicate with private sector investors in financial terms, making it difficult for them to present projects in a way to which they will be receptive. They also have limited experience with project bidding, using processes that may not attract a diverse pool of investors. LGs can build or hire expertise to design commercial transactions for private financing, liaise with investors, and streamline their project bidding processes. Less sophisticated LGs will often need to rely on national governments and other partners for facilitating these engagements.

Advocate and build the case with higher tiers of government.

- **Advocate for policy changes under municipal bylaws to expand investment and resource capacities and ability to gain access to financing**. LGs will need to advocate consistently for national governments to provide the resources, authorization, and capacity they need to gain access to more funds. One approach used in several countries is to establish separate legal structures, such as corporatized entities or project SPVs, to facilitate capital investment projects and transactions. Some such actions require enabling legislation or approvals from national governments. LGs can also advocate for investment mandates that allow them to invest equity, transfer or securitize assets, and raise limitations for borrowing. Exploring partnerships with national entities or other LGs can also provide opportunities for joint ownerships and shared resources.

6.1.2 Recommendations for national governments

Strengthen the fiscal base and expenditure mandates of LGs.

- **Create effective intergovernmental fiscal transfer systems for sustainable revenue streams for LGs.** A large part of LGs' climate funding will come directly from national governments in the form of intergovernmental fiscal transfers and grants. For LGs to be financially secure entities capable of investing in climate-smart projects, governments need to ensure they are adequately funded through recurring, timely, and predictable revenues so they can plan. These systems can also be utilized to help LGs improve their management performance and achieve climate targets, as noted in section 3.1.

- **Review regulations to allow LGs stronger expenditure mandates and control over infrastructure planning.** LGs vary in their autonomy to raise revenues and undertake capital expenditures, with those with more powers to do so having an advantage in gaining access to climate funding. LGs with the power for example, to set plastic bag levies or pollution charges can use the revenue from those initiatives to fund climate projects. Governments could review LGs' fiscal regulations and mandates and grant them further autonomy if they can raise OSR be used as climate funding. Similarly, LGs need to show they have prepared territorial and investment plans to utilize these additional mandates.

Strengthen LGs' technical and absorptive capacity for infrastructure investment.

- **National governments should endeavor to improve the absorptive capacity of LGs to utilize their mandates and resources,** prioritizing the larger LGs with better prospects for private financing. This can include supporting them with technical assistance, advisory activities, and the development of national-level frameworks and standards for planning strategic capital investments, building a pipeline of investment projects, and improving their capacity to develop and implement bankable projects and complex transactions.

Facilitate an enabling environment for private financing.

- **Improve regulatory frameworks for municipal borrowing, PPPs, and off–balance sheet financing structures.** National governments need to create more conducive policy and regulatory conditions for municipal borrowing, PPPs, and other innovative financing activities to provide LGs access to more private financing. Up-to-date regulations often include policy decisions, such as raising tax limits and user charges to the necessary levels for financing and debt servicing and making PPP transactions financially viable. Governments may also need to revise ex ante rules and procedures governing LGs' access to borrowing. This could involve creating a rules-based allocation process for approval of municipal borrowing transactions and clarifying and improving ex post procedures to provide dispute resolution with investors or creditors and managing potential defaults by LGs, to reduce investors' risk perception on borrowing. Key to the success of PPPs is the presence of credible public counterparties that can hold the private partner accountable while honoring its contractual obligations, and the existence of a credible dispute resolution mechanism in case such obligations are not met.

- **Provide LGs with credit enhancement support, such as guarantees on a limited basis**. A large proportion of climate finance for LGs in the long term will potentially come from the private sector, as it can provide the scale of capital required for them to reach their climate targets. The private sector perceives LGs' climate projects as riskier, however, because they are a new asset class with limited experience in financing such projects. For this reason, available financing tends to be expensive, as the additional risk is accounted for in higher interest rates or unfavorable terms. National governments (and international partners) can explore the option of establishing credit enhancement facilities to attract private finance for LGs. These can be designed to leverage and crowd-in private financing by offering limited underwriting, such as partial risk guarantees routed through commercial banks. It is important to note, however, that the issuance of guarantees carries a potential for creating moral hazard and generating perverse incentives and fiscal risks, and careful consideration of these possibilities is essential. Chapter 4, above, provided a discussion on this topic.

6.1.3 Recommendations for international financial institutions and development partners

Support national systems of fiscal transfers to LGs in support of local climate change response.

- **Help national governments and LGs improve their fundamental fiscal transfer systems.** To gain access to climate funding and financing and deploy it effectively, LGs need a strong foundational base in terms of understanding their carbon footprints and climate risks and integrating them into their plans and budgets. Getting those fundamentals right is essential and will support the deployment of the new instruments, as well, and development partners should support national governments and LGs in improving them. The World Bank and UNCDF, for example, currently support several national governments in establishing climate-related fiscal transfer systems targeted to LGs.

Help LGs develop improved technical capacity, creditworthiness, and project structuring.

- **Provide training and assistance to LGs to improve their credit ratings and make their projects more attractive to investors.** To get access to climate financing from commercial sources, LGs need either to have strong credit ratings or to have project financing instruments, such as PPPs, available to them. With little to no experience with debt markets or private investors, however, LGs typically have substandard credit ratings, as they have not proved their ability to service debt and rely heavily on intergovernmental transfers. International financial institutions could work with LGs and provide training on how to improve their credit ratings and interact with private investors for project finance, which should result in greater investor confidence and increased access to climate financing. Additionally, IFIs could help LGs utilize innovative mechanisms to make their projects more financially attractive to investors. They can, for example, help LGs combine different projects to create larger investment opportunities, attracting a more diverse investor pool and reducing financing costs through economies of scale.

6.2 Recommendations for increased access to climate finance

Once LGs have put the right systems and needed expertise in place, they can partner with national governments and IFIs to gain access to more climate finance. This section outlines specific actions each of these groups can take to enhance climate finance flows to LGs.

6.2.1 Recommendations for LGs

Build the information systems and analytical base for climate-related investments and financing.

- **Strengthen climate information and data systems through climate risk and vulnerability assessments, GHG inventories, and MRV-related capacity.** A vital first step for LGs in gaining access to climate-related finance is to build their capacity and expertise in the data and information systems—such as GHG

emissions inventories—that they need to understand, evaluate, and address various aspects of climate change, including the risks and vulnerabilities to which they are exposed. They will need to get access to, understand, and use rigorous scientific climate information for their jurisdictions and create processes for mainstreaming climate change in investment planning and project design. LGs also need to master the sophisticated and stringent compliance requirements and processes (noted in chapter 3) to measure, report, and verify reduction of GHG emissions if they are to claim carbon credits as a potential revenue source. The MRV process requires a project-executing entity to gather and publish detailed data and information, which must then be independently verified before the project can claim, and sell, carbon credits for revenue.

Identify and prepare climate-related interventions and projects for financing, backed by climate action plans.

- **Develop long-term climate strategies, action plans, and investment plans to guide climate action and signal opportunities to various climate funders.** Climate finance providers have long-term investment strategies and will look for opportunities that align with their investment goals. LGs should create their own medium- to long-term climate strategies, action plans, and capital investment plans to provide greater certainty on their priorities and signal to climate finance providers that they can offer tangible investment opportunities. The LGs will need to be able to demonstrate that their plans and projects address climate change and to report on them, as required by many financiers. Additionally, to attract support from national governments, these plans must be aligned with the country's NDCs and NAPs. LGs can obtain expertise through project preparation facilities, such as those provided by the World Bank and other IFIs. Obtaining grants to unlock further capital and cheaper concessional lending from these organizations is also essential to demonstrate their ability to repay their loans and enhance their credit ratings, which will translate into slightly lower costs of capital.

- **Develop a bankable and technically appraised pipeline of climate-related projects.** Following their preparation of strategies and action plans, each LG should have a pipeline of prioritized climate projects. LGs should also consider pooling projects, either internally or through collaboration with other LGs, to leverage economies of scale and offer larger investment opportunities that will attract a greater variety of investors.

Advocate and build the case with higher tiers of government.

- **Engage with national government on NDC and NAP processes**. By understanding the national policy agenda and how their actions can contribute to it, LGs can enhance their own understanding of climate change, leading to more effective planning, programming, and interventions and enabling them to make a better case for national government support on climate interventions. LGs can also contribute to MRV of climate change activities, assisting the country with international reporting and mobilizing additional support from international development partners.

6.2.2 Recommendations for national governments

Build investor relations for and awareness of commercial and concessional financing for LG projects.

- Mobilize others through convening power. A key role of national governments will be to use their convening and regulatory powers to shape this agenda at scale. Their ability to do so will be important to building the market for climate financing for LGs.
- **Create awareness of available climate financing opportunities and support LGs in gaining access to them.** LGs often do not know about available opportunities for climate funding, particularly from international institutions. National governments can create accessible platforms to share such opportunities from various sources. They can also provide LGs with technical assistance on funding applications for climate-related projects and activities and help them attract grant funding for climate projects. This is important because grant funding is typically competitive, and application processes can be time consuming and require specialized expertise and data. LGs need to be equipped with the necessary capacity and know-how to submit successful applications.
- **Facilitate relationships with private financing and climate financing institutions.** Experience shows that private financial institutions often do not fully understand municipal finance, while city officials are not acquainted with the requirements of prospective investors. Each type of financial institution should be consulted to gain an understanding of their appetites for various instruments and terms, governance, and regulatory constraints. National governments can play that facilitation and advocacy role by working with LGs to convene workshops with various lender and investor groups. These will be opportunities to build relationships between lenders or investors and borrowers based on long-term infrastructure and financial plans and expose financial institutions to the potential of the market for climate financing at the local level.
- **Support LGs in acquiring certification and accreditation of climate debt instruments.** LGs will require support to receive certification and accreditation of climate finance instruments, which they may not be able to afford and for which they may need to rely on government support. National governments can commit resources to assisting any LGs that need accreditation by independent rating agencies in structuring their financial instruments.

Support LGs in identifying and preparing climate-related interventions and projects for financing.

- **Equip LGs with technical expertise for climate-related project development and enhance bankability.** Although some LGs may have recurrent revenues available to use as climate finance, they often lack the expertise and capacity to use this capital meaningfully to mobilize resources and finance climate initiatives. National governments can provide them with dedicated technical assistance and advisory activities by, for example, hiring financial experts to assist the LGs in showing the financial viability of their climate projects, with the objective of strengthening their institutional capacity and creditworthiness. National governments should work with LGs to make such capacity available,

either internally or through outsourcing, and help to improve the capacity of municipal staff for this work. This is especially important for PPPs, which may need national governments to work closely with LGs on the preparation of specific projects to improve their bankability. Governments can also initiate the grouping of LGs to leverage the pooling of projects, enhancing bankability and attracting grant funding.

Provide more public and concessional financing.

- **Allocate financing for climate-specific fiscal transfers or grants to LGs.** National governments can implement (or scale up, where they already exist) targeted fiscal transfers for climate action by allocating funds for such programs within national budgets. The optimal way to ensure strong results is to make such programs performance based, with LGs able to get access to funds as top-ups to their existing budgets upon achieving specific climate-related targets and actions, and then spend these funds on local climate investments. Chapter 3, above, covered this financing modality in detail and highlighted the expanding experiences of developing countries, supported by IFIs.
- **Consider enhanced use of financial intermediaries, such as national development banks and funds, to channel climate finance to LGs.** Some countries have financial intermediaries, such as national and subnational development banks and municipal development funds, that can be used as vehicles to channel climate financing to LGs, as shown in case study 18, above, on development banks in Brazil. Dedicated windows for LGs can also be created within existing or planned national climate funds. This would allow LGs access to funding specifically allocated for climate-smart projects. National governments can also provide accreditation of entities that can channel funds to LGs, although this approach needs to be considered carefully. Experience from other countries, including India, has shown that public sector financial intermediaries for municipal or LG projects can crowd-out private finance by offering financing to the LGs on nonmarket concessional terms. These intermediaries have also struggled themselves to raise financing from the financial market, often relying on financing from the public sector or IFIs.[54]

6.2.3 Recommendations for international financial institutions and development partners

Help strengthen engagement with potential financiers and investors and build awareness of commercial and concessional financing.

- **Provide information and technical assistance on available funding opportunities.** IFIs and development partners can create awareness of opportunities available for climate funding, either through more targeted promotion or by working with national governments to create information platforms. They can also work directly with LGs to provide training and technical support on applying for available funding, since applications tend to be competitive and time consuming and require technical knowledge to complete.

54 In the Indian states of Tamil Nadu and Gujarat, for example, which have significant potential for commercial financing for urban infrastructure, the presence of such institutions has resulted in minimal market-based financing. See Athar, White, and Goyal 2022.

- **Support LGs in acquiring certification and accreditation of climate debt instruments.** IFIs can provide support to LGs in the form of technical assistance to obtain accreditation and grants to subsidize the costs. They could also lobby for the reduction of these costs to encourage more utilization of climate finance instruments.

Support preparation of climate-related interventions and projects for financing.

- **Help LGs align short-term climate action strategies to long-term development priorities.** As alluded to earlier, climate funding providers are often inclined to provide funding to the applicants most able to maximize the impact of the grants. One way LGs can increase their chances is to ensure their climate action strategies align with their long-term development priorities, which signals to funding providers their commitment to climate targets. This alignment can be difficult to achieve, however, because long-term development priorities are often set at a national level. Development partners and IFIs can leverage their climate expertise and advise LGs on how to achieve this alignment, even if their autonomy to set development priorities is limited.

Provide more public and concessional financing.

- **Facilitate the expansion of targeted fiscal transfers to increase climate funding**. Development partners and IFIs can promote the adoption of performance-based climate-related fiscal transfers and grants that integrate funding, incentives, and technical assistance. Chapter 3 highlighted the growing and successful experiences with this approach in developing countries supported by IFIs, such as the World Bank and UNCDF.

- **Support the provision of credit enhancement support to LGs on a limited basis.** IFIs can play a strong role in helping LGs gain access to climate financing, both as providers of climate finance, through concessionary lending, and as guarantors of private climate finance, through credit enhancement mechanisms such as guarantees. As noted in section 6.1, however, the issuance of guarantees carries the potential for creating moral hazard and generating perverse incentives and fiscal risks, and careful consideration of these possibilities is essential. Chapter 4, above, provided a discussion on this topic.
- **Support LG-specific climate finance facilities.** IFIs can provide this support effectively through finance facilities dedicated to LG climate projects and can crowd-in large amounts of private climate finance. Such facilities can also provide LGs with technical and capacity support to develop bankable projects. Chapter 5, above, described some existing facilities.

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