Working paper 552

Financing the sustainable urban future

Scoping a green cities development bank

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Key messages

- Cities are key to a low-carbon and climate resilient future, however, a lack of access to finance is a key barrier preventing cities in middle- and lower-income countries from realising their sustainability ambitions.
- Existing development finance institutions (DFIs) are often constrained by their mandates and balance sheets to work directly with cities or mobilise climate investment at the pace and scale needed.
- To respond in the necessary timeframe requires a new approach focused on cities and subnational entities as recipients. In addition to DFIs significantly increasing subnational lending for climate investments, more support will be needed in the form of new institutions that lend directly to cities.
- A Green Cities Development Bank (GCDB), which would combine aspects of development banks and green banks, focused on urban climate investments, would be a timely institutional response with the potential to unlock finance for cities at scale.
- Creating a GCDB will be a significant undertaking, but the alternative – cities unable to finance climate investments at scale – means the concept of a GCDB presented in this working paper deserves serious consideration to ensure a sustainable urban future.

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Acronyms

ADB	Asian Development Bank
AFD	Agence Française de Développement (French Development Agency)
AfDB	African Development Bank
AIIB	Asian Infrastructure Investment Bank
CAF	Corporación Andina de Fomento (Development Bank of Latin America)
CCFLA	Cities Climate Finance Leadership Alliance
DFI	development finance institution
EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
GCDB	Green Cities Development Bank
GCF	Green Climate Fund
GEF	Global Environment Facility
IADB	Inter-American Development Bank
JICA	Japan International Cooperation Agency
MDB	multilateral development bank
MDF	Municipal Development Fund
ODA	official development assistance
OECD	Organisation for Economic Co-operation and Development
SPV	special purpose vehicle

Executive summary

Cities are key for the future of climate action and will play a crucial role in determining whether emissions trajectories align with the objectives set out in the Paris Agreement (UN, 2015). The key will be the extent to which cities can access the necessary finance for sustainable infrastructure at the city level. Numerous approaches have been proposed to meet this challenge but policy-makers have not yet actively considered the potential of a coordinated response that serves as a financial institution focused on cities.

Existing institutions do not provide sufficient support to ensure that the sustainable infrastructure identified in city climate action plans is financed. Development finance institutions (DFIs), including the World Bank and regional development banks, were created to mobilise capital investment in low-income countries. Such global finance institutions perform an extremely valuable function – they have taken important steps within their mandates to increase climate investment and have developed an increased focus on the needs of cities, and should continue to expand support to cities in financing sustainable infrastructure. However, due to their organisational design, mandates and capitalisation, these institutions are constrained in their capacity to mobilise and direct capital for sustainable investment in cities at the pace and scale needed. To respond to climate change in the relevant timeframe requires a new approach that is based on cities and subnational institutions, rather than nation states, as core recipients.

This working paper frames the financing challenge for cities committed to climate action and provides an initial assessment of possible solutions. Specifically, it explores the potential for an institutional response through a Green Cities Development Bank (GCDB), a new development finance institution lending directly to cities with a focus on urban climate investment needs.

We make the case that such an institution could be a viable and effective complement to existing approaches to help cities finance climate investments, combining the best elements of green banks and development banks and directly supporting cities and subnational entities in accelerating capital deployment into climate compatible investments. The working paper considers the challenges of creating a new institution and proposes specific steps to take this forward. It recommends that multilateral development banks (MDBs) and bilateral DFIs should prioritise urban low-carbon and adaptation projects and develop and deploy new mechanisms to significantly increase their subnational lending.

Moreover, policy-makers should explore the development of new institutions that can lend directly to cities for climate compatible investments, while countries and cities that are interested in a multilateral system inclusive of subnational actors should explore the creation of a GCDB as a scalable institutional response to climate change.

1 Introduction

Cities are critical to creating a low-carbon future. As the global population grows and becomes increasingly urban, cities have become important focal points for low-emission and climate-resilient infrastructure. However, continuing business-as-usual approaches to investment in cities will be insufficient to achieve the objectives of the Paris Agreement and the Sustainable Development Goals (SDGs) to reduce the risks of climate change and create a sustainable urban future (UN, 2015). Over the next two decades new investment will be needed at an unprecedented pace and scale (IPCC, 2018; Figueres et al., 2017).

Cities hold many capabilities and responsibilities needed for progress towards sustainability, but whether they fulfil their potential depends on raising finance for a significant expansion of low-emission climate-resilient infrastructure.[1] Development finance institutions (DFIs) – including multilateral development banks (MDBs) such as the World Bank Group; regional development banks such as the Inter-American Development Bank (IADB), European Bank for Reconstruction and Development (EBRD), European Investment Bank (EIB), and Corporación Andina de Fomento (CAF, Development Bank of Latin America); and bilateral DFIs such as Agence Française de Développement (AFD, French Development Agency) – represent increasingly important sources of capital and technical assistance in mobilising investment for sustainable infrastructure (Global Covenant of Mayors for Climate and Energy, 2017; World Bank, 2017). However, current efforts by DFIs and other sources of finance fall short of the scale and pace of climate compatible investment needed in cities to meet the objectives of the Paris Agreement and the SDGs.

Given the scale and urgency of the challenge, more effective approaches are needed to align and increase financing (EBRD, 2018a; Larsen et al., 2018; Ahluwahlia et al., 2016). Scaling up current approaches and developing new initiatives will be necessary, with institutions needing to expand and innovate their financing for subnational and urban investments in order to meet global climate and sustainability goals (C40 and Arup, 2017). National government financing efforts – including those supported by international financial institutions – will be vital, however a serious shortfall in investment capital will remain for cities and subnational entities.

In view of the need of cities to mobilise finance, ahead of the United Nations Conference on Housing and Sustainable Urban Development (Habitat III) in 2016, mayors of the world's major cities called for national governments and international financial institutions to help finance low-carbon and sustainable infrastructure projects. The C40 Cities Call for Action on Municipal Infrastructure Finance (C40, 2016) proposed a range of reforms that, if implemented, would help create a sustainable and low-carbon future, including:

- the power to control finance must be devolved to cities
- cities must be granted direct access to international climate funds
- national governments must create a stable policy and regulatory environment
- innovation, standardisation, pooling and pipelines must become the new normal
- cities must be supported to develop their capacity to prepare and execute projects.

1 See Annex A for additional detail on climate compatible investment opportunities.

Moreover, the Call for Action also proposed that development banks respond to city needs:

> If the existing development banks cannot meet this challenge, then they should support the international community to work with city leaders to create new national, regional or municipal development banks ... These new institutions should be able to lend directly to urban infrastructure and support cities to implement climate action and sustainable development plans. (C40, 2016: 3)

Major city organisations, including ICLEI-Local Governments for Sustainability, the Global Covenant of Mayors for Climate and Energy and 100 Resilient Cities, as well as the United Nations and other international bodies, have recognised the urgent need for climate compatible investment in cities at scale (see, for example, ICLEI, 2018). Such investments are often economically beneficial compared to business-as-usual approaches and can deliver the stable long-term returns demanded by institutional investors (Gouldson et al., 2015). However, these benefits tend to be poorly understood by private sector investors, who often lack the knowledge required to originate such deals and determine the investment needs, risks and expected returns of specific sustainable infrastructure projects (ADB, 2017).

This working paper responds to C40's Call for Action and proposes a new solution to address the financing gap for climate investments that cities face – a GCDB that focuses on climate compatible investments in cities and subnational regions. As envisioned, a GCDB would have access to international capital markets from an investment grade credit rating and the ability to offer concessionary loans for climate investments in cities, particularly in low-income countries. It would respond to the growing importance of cities as focal points for climate investment and would represent an institutional response to the climate challenge as part of a broader set of solutions necessary to achieve the objectives of the Paris Agreement and the SDGs.

This working paper seeks to identify the challenge before exploring solutions and elaborating on the proposal for a GCDB. The next section describes the central role of cities and the investment in infrastructure needed to secure a sustainable urban future. Section 3 describes the barriers that cities face in accessing finance for climate compatible investments, while section 4 reviews and assesses the range of options currently available to support them. Section 5 outlines a possible GCDB, including a proposed mandate, key objectives and operating principles, and section 6 compares design options in terms of viability, scalability and risks. Section 7 explores the more promising of these options – a GCDB with both cities and countries as members and backed by sovereign guarantees. Section 8 outlines our conclusions and recommendations.

This working paper represents a first step towards building the business case for an institutional response to address the climate investment needs of cities, particularly in low- and middle-income countries. We recognise that further work will be needed to determine the appropriate scale, structure, sources of finance and governance for any new institution. Current initiatives and institutional approaches are necessary and should be expanded, but they are constrained in their potential to address the specific needs of cities in large measure due to the mandates and decision-making processes of institutions that are designed with countries as clients. Given the scale and pace of action needed, new approaches deserve careful consideration and, as with any new venture, must be weighed against the costs of inaction and the risks associated with business as usual.

2 Cities are key to our climate future

Cities will shape future emissions trajectories and are key to our climate future. Rapid urbanisation, particularly in low-income countries, is causing cities to expand dramatically. More than half of the world's population lives in urban areas and 2.5 billion new urban residents are expected by 2050 (UN-DESA, 2014). Cities occupy only 2% of the world's land mass but produce more than 80% of global gross domestic product (GDP), consume over two-thirds of the world's energy, and account for more than 70% of global energy-related CO_2 emissions (C40 and Arup, 2017; UN-Habitat, 2011). Due to decentralisation, city governments shoulder responsibility for urban infrastructure services and city-level decision-makers are often responsible for key activities – including public transport, energy use and urban planning (C40 and Arup, 2015) – that are core to tackling climate change.

Without action by cities, we cannot realistically achieve the temperature goals under the Paris Agreement. The *Deadline 2020* report highlights the scale and urgency of the urban emissions challenge: based on a comprehensive set of emissions data from many of the world's largest cities, the study demonstrates that under business as usual, C40 member cities will emit their share of the global 1.5°C carbon budget for 2100 by 2025, and the world's entire 2100 carbon budget by 2060 (C40 and Arup, 2017).

Cities are not only focal points for climate change mitigation, but they are also exposed to climate risks, particularly in vulnerable urban areas and communities (Choi et al., 2018; Simon, 2016). As the recent IPCC *Special report on global warming of 1.5°C* states:

> [U]rban systems can harness the mega-trends of urbanization, digitalization, financialization and growing sub-national commitment to smart cities, green cities, resilient cities, sustainable cities and adaptive cities, for the type of transformative change required by 1.5°C-consistent pathways .... Cities are also places in which the risks associated with warming of 1.5°C, such as heat stress, terrestrial and coastal flooding, new disease vectors, air pollution and water scarcity, will coalesce. (IPCC, 2018: 331)

Moreover, as a summary of the same IPCC report notes, 'All 1.5°C-consistent pathways require action in and by cities, often in partnership with regional and national governments' (C40 and Global Covenant of Mayors, 2018: 14).

Given the lifespan of infrastructure assets, decisions made today will determine how cities expand and operate for decades and will 'lock-in' emissions trajectories. Near-term decisions will determine whether we avoid high-emissions development pathways and avert catastrophic climate change (C40 and Arup, 2017). This is particularly critical in developing countries, where cities are growing rapidly or are even being created. Density, efficiency and connectedness are preconditions for both tackling climate change and attracting investment in the value-added sectors that underpin sustainable growth (UN-Habitat, 2016; see also Global Commission on the Economy and Climate, 2014).

Cities can often move effectively to deliver emissions reductions but – given their importance

in achieving global climate goals – remain underpowered. City mayors and metropolitan governors have expressed their willingness to contribute to sustainable development and dedicated climate action. However, they face barriers in accessing the capital needed for climate compatible investment, particularly in low-income countries.

The Global Commission on Economy and Climate (2014) projects that under a low-carbon scenario, $93 trillion will need to be invested in infrastructure globally by 2030.[2] An estimated 70% of this infrastructure will relate to urban areas – annual investments of $4 trillion plus an additional $0.4 trillion to $1.1 trillion to make these investments low carbon and climate resilient (CCFLA, 2015). In total this indicates an aggregate cost of approximately $5 trillion per year for low-carbon, climate-resilient infrastructure in cities. According to CCFLA (ibid.: 11), current infrastructure spending stands at $2.5 trillion to $3 trillion per year, approximately half the amount needed for a sustainable future.[3]

Further, the Organisation for Economic Co-operation and Development (OECD) estimates that for infrastructure to be consistent with a 2°C scenario (with a 66% probability) approximately $6.9 trillion will be needed for investment in energy, transportation, and water and sanitation and telecoms over the next 15 years (OECD, 2017a: 29). According to the Climate Policy Initiative, annual climate finance flows (including but not limited to infrastructure) averaged $463 billion over the 2015–2016 period, including from national, multilateral and bilateral development finance institutions, which comprised $194 billion per year (Oliver et al., 2018).[4] According to a study by the Cities Climate Finance Leadership Alliance (CCFLA), nine major international development banks[5] provided $19 billion in urban climate finance in 2014 (CCFLA, 2015).

In a separate study, the International Finance Corporation (IFC) assessed the national climate change commitments and related policies in 21 countries and found an initial investment opportunity of $23 trillion between 2016 to 2030 in key sectors. Among these, the largest investment opportunities were in buildings and transport, which together totalled over $20 trillion (IFC, 2016: vi). Even if only a fraction of this figure were located in cities, the estimates suggest significant potential to advance private sector finance for climate investments in Asia, Africa and Latin America.

Such estimates demonstrate the investment gap that needs to be closed and highlight the opportunity for a new approach that expands current funding streams. Recent experience by C40 underscores strong unmet demand from cities for sustainability investments. City Chief Financial Officers involved in C40's Financing Sustainable Cities Initiative cite challenges in reducing the cost of capital for climate investments to affordable levels, and in engaging with private financiers for city projects. Following a recent call for proposals, the C40 Cities Finance Facility, which offers technical support to cities on the financing of major green infrastructure projects, received 110 applications for sustainable infrastructure totalling over $6 billion (C40 Cities Finance Facility, 2018) – a clear signal of the need for significantly greater financing support.

2 For comparisons of infrastructure supply and demand estimates, see Bhattacharya et al. (2016) and Godfrey and Zhao (2016).

3 For additional estimates, see chapter 2 of Global Commission on the Economy and Climate (2014). (https://newclimateeconomy.report/2014/cities/).

4 The figure of $194 billion includes national DFIs at $132 billion, bilateral DFIs at $16 billion and multilateral DFIs at $46 billion.

5 The Asian Development Bank (ADB); AFD; the African Development Bank (AfDB); CAF; EIB; IADB; the Japan International Cooperation Agency (JICA); Kreditanstalt für Wiederaufbau (KfW); and the World Bank.

3 Barriers to climate compatible investment in cities

Cities face a range of barriers that limit their access to finance, including in climate compatible investment. Growing cities, particularly in low-income and emerging economies, are frequently under significant financial strain (UN-Habitat, 2016). Many struggle to fund basic services, such as education and healthcare, and have limited fiscal space to cover the up-front costs of infrastructure. Making infrastructure low carbon and climate resilient can incur additional initial costs, even though such investments often generate savings over time. As a result, cities are often constrained in their ability to respond to climate investment priorities. As the CCFLA notes:

> Today's financing landscape does not provide cities with adequate access to affordable financing suited to low-emission, climate-resilient infrastructure. The challenge is not simply to increase the amount of money in the pipeline, but also to create an enabling environment that encourages existing and new financing to flow from a broad spectrum of sources. (CCFLA, 2015: 8)

Furthermore, low-carbon infrastructure investment faces several nested barriers – some of which apply to infrastructure, some to developing countries, and others that are specific to low-carbon infrastructure (Granoff et al., 2016). Fiscal constraints on sub-sovereign finance – including limited capacity to impose taxes or fines that could provide a revenue base, as well as the inability to borrow from national governments, or issue municipal bonds – remain a primary barrier to investment. This means that the funds directly held by city governments will only be able to supply a small proportion of the additional resources required to build low-carbon, climate-resilient infrastructure (Green Growth Action Alliance, 2013). These constraints are closely tied to creditworthiness and the ability to access local and international capital markets.

Across the world, cities operate under varying rules in relation to their borrowing authorities and powers. Only about 4% of the 500 largest cities in developing countries are deemed creditworthy in international capital markets and only 20% can access local capital markets, according to the World Bank (Hogg, 2013). Some cities are permitted to issue bonds while others are completely prohibited from all borrowing, and a number are permitted to borrow without any sovereign oversight while others can only borrow with permission.

According to a survey conducted by C40 to determine city borrowing powers amongst its membership base, these constraints are more binding in low-income countries. In places the laws and rules on sub-sovereign indebtedness and the approvals process for sub-sovereign projects represent an important impediment to cities' access to finance, as shown in Table 1.

In addition to limitations on municipal government borrowing rights, limited capacity to prepare infrastructure projects represents another significant barrier. The lack of bankable projects ready for investment is recognised as a main cause of the shortfall in infrastructure investment by both public and private investors. The World Bank estimates that 'only about 20 percent of

Table 1 Cities' access to financing

Response	All cities (% respondents)	Cities in low- and middle-income countries[i] (% respondents)
Ability to borrow from regional/national government		
Fully able	32	15
Able with approval	27	42
Not able to do this	9	8
Answered 'n/a'	17	8
Did not answer	15	27
Capacity to issue municipal bonds		
Fully able	39	27
Able with approval	18	15
Not able to do this	8	15
Answered 'n/a'	18	15
Did not answer	17	27

Note: sample size = 66 cities, of which 26 in low- and middle-income countries (Addis Ababa, Bangkok, Buenos Aires, Beijing, Bogotá, Cape Town, Caracas, Curitiba, Dar es Salaam, Delhi, Dhaka North, Dhaka South, Hanoi, Ho Chi Minh City, Istanbul, Jakarta, Johannesburg, Karachi, Lagos, Lima, Mexico City, Mumbai, Nairobi, Rio de Janeiro, São Paulo, Shanghai). [i]In countries that are included in the OECD Development Assistance Committee (DAC) list (OECD, n.d.).
Source: C40 Mayoral Powers Analysis (2014)

the world's 150 largest cities have even the basic analytics needed for low-carbon planning' (World Bank, 2013: n.p.) While donors have established a number of project preparation support facilities in recent years – including the C40 Cities Finance Facility, Cities Development Initiative for Asia and others – this is generally only the first step required for systemic change (Nassiry et al., 2016). As a recent CCFLA (2018) study underscores, cities have much larger needs for project preparation support than existing facilities and initiatives can provide (see also Nassiry et al., 2018).

Project concepts and ideas exist in many cities, but they are often not well-structured or designed in terms of bankability. Even where projects have been well-structured, high costs of capital resulting from a lack of availability of development finance or insufficient ability or even willingness by private investors to assess the capital risks of a project can leave few affordable financing options. Better coordination of existing resources could help, along with greater capacity to manage the project development process through to a positive investment decision. However, the undersupply of coordination services and transaction management, particularly aimed at crowding-in private investment for climate-related projects in cities, represents an additional challenge for cities seeking project finance (CCFLA, 2018).

Additional impediments include under-developed capital markets for local-level borrowing and investment, as well as lack of expertise among private investors for urban projects (Martinez-Vazquez and Vulovic, 2016). Private investors lack incentives to incur the transaction costs associated with urban financing models, including the aggregation and standardisation that may be required for smaller projects, while perceptions of country, currency and exchange rate risk and uncertain development and transaction costs can deter investors whose asset allocation may limit their exposure to low-income countries (ADB, 2017).

Experience from C40's engagement with cities suggests that private and institutional investors struggle with core challenges related to sustainable urban infrastructure, including lack of understanding of cities and their financial conditions. Private investors often have limited experience with the financing mechanisms that cities are able to use and limited knowledge of

low-carbon, climate-resilient technologies and their long-term financial performance.

A lack of supporting policies, structural barriers, contracts and institutional arrangements, and high perceived levels of investment risk are key impediments to investment in urban infrastructure in general, and low-carbon, climate-resilient infrastructure in particular. As shown in Table 2 these constraints can be considered under four broad categories: legal and regulatory; fiscal and financial; planning and information; and institutional.

Table 2 Constraints to investment in sustainable urban infrastructure

Category	Constraints
1. Legal and regulatory	• Uncertainty over regulatory and tax policies that affect low-emission, climate-resilient infrastructure • Mismatches between administrative boundaries and infrastructure scope • Legal barriers to public–private partnerships • Limited powers to raise funds, increase taxes or fines
2. Fiscal and financial	• Lack of funds to cover costs of project preparation • Challenges with the collection and level of fees and taxes, resulting in limited certainty on revenues • MDBs, in general, do not lend directly to cities • Poor creditworthiness or not credit rated • Weak municipal finances due to limited capacity to collect taxes • Limited track record of municipal borrowing • Cost recovery and affordability/cost of capital hurdles • Underdeveloped capital markets for local government borrowing • Lack of reliable funding streams • High transaction costs particularly from numerous small-scale investments • Lack of proven funding models at the city level • Lack of expertise amongst private sector banks to invest in city projects at scale
3. Planning and information	• Lack of holistic, integrative sustainable city planning • Difficulty in incorporating climate goals into urban infrastructure planning • Information asymmetries and misaligned incentives for green investments • Cities lack awareness of investors' needs • Limited investor understanding of risks of – and models and technologies for – sustainable urban infrastructure, resulting in low levels of engagement
4. Institutional	• Insufficient city control over infrastructure planning and complex stakeholder coordination • Institutions unable to fulfil services and mandate due to inadequate financing • Limited institutional capacity for project preparation in developing low-emission, climate-resilient infrastructure projects that can attract financing • Differences in political priorities between national governments and city administrations and frequent political changes that prevent action • Competing priorities

Source: CCFLA (2018) and the authors

4 Current support mechanisms for climate compatible investment in cities

A range of options exist for accessing finance for climate compatible investments, including, but not limited to, activity led or facilitated by MDBs and other DFIs. In low- and middle-income countries, these options include: scaled-up multilateral and bilateral development finance; issuance of green bonds; direct access to global climate funds; the establishment of national green banks and also Municipal Development Funds (MDFs); and collaboration through networks to improve investment conditions and access to financing. All of these options are necessary, but current levels of climate compatible investment fall short of the scale needed.

Here we review and assess each of these options, including their contributions to and limitations for mobilising capital for climate compatible investment at the scale needed for cities in low- and middle-income countries. They are ordered according to their estimated relative contribution to urban-level climate finance.

4.1 Multilateral and bilateral development finance

Multilateral and bilateral DFIs are broadly oriented towards national rather than city-level entities, but represent an important source of finance for investments relevant to cities. Based on figures from a CCFLA survey of nine MDBs and DFIs, overall climate finance flows from MDBs and DFIs amounted to just under $54 billion in 2014, representing 26% of the banks' total commitments with an average of 31% of climate finance channelled to urban areas.[6] Separate estimates point to direct annual urban lending in 2013 of $25 billion to $30 billion, and $60 billion to $90 billion in estimated indirect urban lending, with banks typically earmarking 10–15% of their portfolio to dedicated cities programmes (Future Cities Catapult, 2014). In 2018 the MDBs reported total climate finance commitments of $35.2 billion in 2017, up 28% from the previous year (AfDB et al., 2017). Although urban climate finance is not broken down, a number of areas of climate mitigation investments relate to cities, including renewable energy, energy efficiency, water and waste water, and transport (ibid.: Table A.C.1).

6 See CCFLA (2015: 22). JICA did not provide a total climate figure for 2014 and was therefore excluded from the CCFLA analysis.

The EBRD and AFD are among the most active development banks for cities in developing countries. At year-end 2017, EBRD's outstanding non-sovereign loans amounted to €18.9 billion against €4.1 billion of sovereign loans (EBRD, 2018b). AFD had approximately $10.3 billion of non-sovereign loans outstanding, about one-third of its loan portfolio, as compared to $15.6 billion of sovereign loans.[7] At year-end 2017 ADB had $5.4 billion in outstanding non-sovereign loans against $95.9 billion sovereign loans, about 6% of its portfolio.[8]

The urban sector strategies of DFIs are often aimed at the macro-economic level, seeking to boost cities' productivity through improved city governance and financial management, access to urban infrastructure and housing, integrated land-use planning and private sector development. In some cases, these efforts also include dedicated urban climate initiatives. For example, one of the ADB's strategic priorities is to 'help build liveable cities that are green, competitive, resilient, and inclusive' (2018b: vi), while the IADB has an Emerging and Sustainable Cities Initiative (IADB, 2018). The World Bank (2018) recently announced that it would double its climate investment to $200 billion over five years, up from $20.5 billion in 2018, including efforts to help '100 cities achieve low-carbon and resilient urban planning and transit-oriented development'. Since 2017 the Global Environment Facility (GEF), which is part of the World Bank Group, has supported 28 cities in 11 developing countries with approximately $151 million, and has leveraged $2.4 billion in co-financing (Global Platform for Sustainable Cities, 2018).

National governments increasingly recognise the role of urban areas in delivering on their Nationally Determined Contributions (NDCs) and working with city and subnational leaders on joint projects. Efforts towards improving city creditworthiness, supported by DFIs including the World Bank, are starting to help cities address this challenge.

If directed by donor and borrower member countries, incumbent multilateral and bilateral DFIs and recently established institutions such as the Asian Infrastructure Investment Bank (AIIB) might scale up their existing efforts to support sustainable urban development. This could involve either lending to national governments for projects targeting the development of sustainable urban infrastructure or lending directly to city administrations to help them pursue their priorities. One benefit of this strategy is that it would make use of existing structures, capacity and relationships to emphasise national-level policy reform and urban development planning. Another is that it would ensure subnational governments' needs are considered, either through subnational participation in the development of DFI partnership strategies, or via the development of stand-alone subnational partnership strategies.

However, even as MDBs respond to climate change as a strategic priority, their ownership, mandates, operational practices and institutional arrangements suggest that – without further reforms or a much stronger push from their shareholders – incumbent institutions are not geared to respond to the climate change investment needs of cities. Current institutional and structural arrangements result in insufficient climate investments in cities because MDBs tend to focus on sovereign rather than sub-sovereign finance as their members and clients are sovereign countries not cities. MDBs develop lending programmes in partnership with national ministries, which then channel finances based on the national government's investment and political priorities. Country strategies, which provide the framework for DFI lending, are led by the national government.

In general, MDBs are incentivised, skilled and staffed to direct financing into sovereign-guaranteed loans. For major multilaterals, such as the World Bank, subnational lending without sovereign guarantees would require a revision of their charters and lending policies, which would take time as well as significant political will, re-training/hiring of new staff capable to act in these areas, and finally the redeployment of

7 See slide 15 in AFD (2018).

8 See Table 8 in ADB (2018a). Of this total, approximately $2.1 billion was attributed to the Urban Sector Group.

capital away from other areas. For these reasons, there are practical limitations to the growth of sub-sovereign lending to more than a limited proportion of MDB operations.

At a financing level, MDBs focus on national priorities and cannot increase capital commitments or shareholdings without agreement by member countries. At an operational level, they have a limited number of specialists capable of addressing urban development and finance challenges, or of supporting cities to address the approvals process for sub-sovereign finance.

4.2 Green bonds

Green bonds are fixed income financial instruments with proceeds earmarked for climate or environmental projects and which are typically secured by the balance sheet of the issuer (Climate Bonds Initiative, 2018a). Recent years have seen a rapid increase in green bond issuances, with $155 billion issued in 2017 compared with $87 billion in 2016 (up 78%) (Climate Bonds Initiative, 2018b; see also Moody's, 2018). This growth – which has been driven in large part by emerging markets such as China – highlights the potential opportunity for raising capital for climate compatible investments, including by cities able to access capital raised through green bond issuance.

At present, cities in developing countries represent less than 2% of total green bonds issuance since 2007 (Oliver, 2016). Bond issuance depends on creditworthiness to investors, with the creditworthiness of cities in low- and middle-income countries constraining their ability to issue bonds themselves. Moreover, a city can prepare and issue a bond only if it has the legal authority to raise finance given often strict regulations on municipal government borrowing rights and limits (Martinez-Vazquez and Vulovic, 2016). Nonetheless, as the Climate Bonds Initiative (2016) observed:

> Despite the difficulties some cities may have for direct capital raising … there is still scope for growing the green city bond market: local utilities, transport authorities and waste management companies may be better suited for bond issuance. Established assistance measures such as credit enhancements, third-party guarantees, or on-lending by more creditworthy entities could also be utilised to support issuances from non-creditworthy local governments.

Bonds are typically issued to free up capital on the issuer's balance sheet; a track record with green infrastructure, which may be limited for cities in low-income countries, can also be helpful. City treasurers may view tracking the use of proceeds and complying with market practice for green bonds (such as the Green Bonds Principles (ICMA, 2018) or Climate Bonds Standard (Climate Bonds Initiative, 2018c)), as unnecessary burdens compared to business as usual.

DFIs can help cities enhance their creditworthiness through financial structuring, guarantee instruments or providing cornerstone investment, and can also help clients structure green bonds and even purchase them. The World Bank pioneered the green bond market when it issued the first green bond in 2008, while in 2014 Johannesburg became the first city in an emerging market to issue a bond (Climate Bonds Initiative, 2014). Other cities and subnational entities, including in Latin America, Africa and Asia, have explored the potential for green bond issuance to finance sustainable infrastructure.

4.3 Dedicated climate funds

Donors have established a number of dedicated climate funds with the goal of channelling concessional and grant finance to developing countries to support capacity-building, to catalyse wider investment in climate mitigation and adaptation activities and to involve multiple DFIs on single projects. Between 2010 and 2014 these funds provided between $150 million and $200 million per year specifically to urban projects, and their focus on cities has continued to increase since (Barnard, 2015). For instance, the recently established $10 billion Green Climate Fund (GCF) has named climate-compatible cities as one of its five cross-cutting investment priorities (GCF, 2016).

Although climate funds have been designed to engage with national government focal point

ministries, there is growing discussion of how cities and subnational representatives can be involved in project selection decisions, and of allowing direct access to green and climate funds for city governments and other subnational institutions (which assumes legal authority for cities to receive such funds) (C40, 2016; Paes, 2016; Barnard, 2015).

However, climate funds face a wide array of priorities, can be politicised in their governance, and lack sufficient scale to tackle the green infrastructure deficit on their own. Moreover, the application process for funds such as the GCF and GEF can take years (German Climate Finance, 2016). The ability for cities to benefit from climate funds is not only constrained by the requirement for applications solely from national government focal points, but also by technical competence and transaction costs involved in preparing, implementing and monitoring projects in accordance with the funds' standards and reporting requirements.

4.4 Green banks

A green bank or green investment bank (GIB) is a publicly capitalised entity 'established specifically to facilitate private investment into domestic low-carbon, climate-resilient infrastructure and other green sectors such as water and waste management' (OECD, 2017b:3). Green banks or GIBs present a model that has been successful in deploying capital in cities and municipalities and in leveraging private sector capital (see Box 1). When staffed with skilled public and private sector experts, green banks can be highly efficient and can leverage private capital at the project level. Green banks have

Box 1 Green banks

By 2015, 13 national and subnational GIBs had been established, almost exclusively in developed countries (OECD, 2017b). These are publicly capitalised entities created with the goal of building scaled-up private investment in low-carbon sectors that are in-principle 'bankable' but attract limited interest from commercial institutions. Many investments made by existing GIBs have been in cities, facilitating private sector investment in areas such as energy-efficient street lighting, energy efficiency retrofits, and renewable energy production. In doing so, they make projects more affordable and accessible and address the market failures that prevent such projects being realised.

Target clients and counterparties of green banks are entities that are experienced at achieving success in green infrastructure, but whose ability to accelerate deployment is limited by capital constraints for the type of projects being considered. Green banks work with project sponsors and financial institutions to deploy proven technologies and projects that are in demand by clients and their respective customers, are economically viable, and can support commercial costs of debt, but for which debt capital is not readily provided by the markets due to existing barriers and market failures.

Green banks use a number of financing techniques, combined with deep technical and market knowledge, to encourage greater investment. These include:

- a specific focus on green projects
- local capital formation and pump-priming investments
- the ability to take first loss where required
- the ability to absorb project preparation costs
- engagement with market participants, particularly the private sector.

In recent years, green banks have been set up in a number of developed countries, including Australia, the United Kingdom, Malaysia, Japan and South Africa, as well as at the subnational level in Connecticut, New York, Maryland and Washington DC in the United States. According to the Green Bank Network, its member banks invested $7.6 billion throughout 2016 and supported $25.9 billion in clean energy projects (Coalition for Green Capital, 2017).

been established in over a dozen jurisdictions, including at the subnational level; however, at present, there exists no dedicated institution capable of playing this role for sustainable infrastructure projects at the subnational level in developing countries. The spread of green banks into more countries would help increase support for green infrastructure investment.

4.5 Municipal Development Funds (MDFs)

MDFs are set up essentially as subnational development banks, using their reserves of government and donor public funds to finance infrastructure projects at the local level that would otherwise be too numerous and small for international institutions to efficiently finance directly (Peterson, 1996).

A common objective of MDFs is to access domestic commercial finance to blend with donor and government finance, with the eventual goal of becoming self-sustaining entities not reliant on further injections of public funds. However, most MDFs have struggled to realise this ambition (due to the inability of borrower municipalities to repay private debts) and have remained as specialised institutions for channelling donor and government funding. MDFs have experienced differing repayment records from municipal borrowers – in some cases, the link to national government has made borrowing and repayments politicised, with some cities continuing to receive loans despite a history of failing to repay (ibid.).

Repayment records have been strongest where an MDF is a second-tier financial institution that lends funds to local commercial banks, as is the case with FINDETER in Colombia, for instance (ibid.). In such circumstances commercial banks make their own credit assessments of municipal borrowers and have control over lending allocations. However, banks will only lend to municipal borrowers when they have reliable revenue streams, are free from government steering of investment decisions, and when inflation rates are stable enough to allow medium-term lending. As a result, this model is still not feasible in many countries.

4.6 Initiatives and networks

Finally, new initiatives – including the Coalition for Urban Transitions, a special initiative of the Global Commission on the Economy and Climate – are also working with national governments to address some of the legal and regulatory challenges that cities are facing. In particular they are highlighting good practices in vertical integration, aiming to provide robust evidence for the best policy options available to national governments and the economic benefits and consequences of action, and answers to how to fill the funding gap. International networks, such as the Cities Climate Finance Leadership Alliance and Global Covenant of Mayors for Climate and Energy, are bringing together the major actors in city-level sustainable infrastructure finance with the aim to address some of the financing barriers and close the urban financing gap.

Capacity gaps and costs of project preparation are being steadily addressed through city-level project preparation facilities, including those attached to DFIs and those taking a broader approach by considering a range of financing mechanisms.

These are all welcome developments overall, however the rate of change remains slow, the resource requirements are high, and the impact is incremental. Current strategies are not proportional to the scale and particularly the pace of the problem, nor do they address many of the barriers that prevent city leaders from implementing ambitious green development strategies. New solutions are needed, and existing solutions must be scaled up.

5 Potential for a green cities development bank

The approaches described in the previous section are vitally important and should continue to be pursued to improve the flow of investment into urban green infrastructure. However, the urgency of the climate challenge, the critical role that cities play in our climate future, and the barriers that cities face in mobilising capital mean that multiple approaches are required. We must build on and expand efforts by existing institutions, push for innovation in climate finance instruments and investment vehicles, and consider new approaches. It is also important to assess the risk of *not* advancing an institutional response that could complement ongoing efforts and mobilise additional finance at scale.

To this end, we see the potential for a new institution – a Green Cities Development Bank (GCDB) – structured as a combined green bank and DFI that operates as a financial intermediary to meet the specific climate investment needs of cities. Creating such an institution would enable a group of like-minded countries to invest more capital than they are able to put into existing DFIs and would convey a strong political message – from donors and participating cities, countries, corporations and organisations – on their commitment to supporting a low-carbon, climate-resilient future. It would also send a clear signal to private sector actors on the intended direction towards sustainable urbanisation.

But the challenge of setting up a new institution should not be underestimated: it will take time and effort to establish and operationalise such a new entity.[9]

5.1 Mandate and key objectives

In its ideal form, a GCDB would combine core elements of development banks and green banks (see also section 4). As a green bank, a GCDB could act as a cost-effective first mover, designed to leverage and blend private capital, actively source transactions and develop standardised products and documents. As a development bank, it could be structured to provide low-cost loans and be set up from the start to provide significant support through guarantees, acting as a risk-mitigation partner.

Taking a combined approach, and focused specifically on cities, a GCDB would be well positioned to support the implementation of billions of dollars of sustainable infrastructure in urban areas, where activity to reduce emissions and deliver climate resilience is urgently needed and where investment can have the largest impact.

A key advantage of any GCDB would be its dedicated and focused mandate: unlike incumbent DFIs, it would be a 'pure-play' to provide finance for climate compatible investments in cities at a cost of capital that makes projects viable. In doing so, a GCDB would also support the development of local capital markets and expand city financing capacity.

Ideally, a GCDB would have three overarching objectives: to be focused, fast and flexible.

5.1.1 Focused

Lending criteria would focus on key low-carbon, climate-resilient investments and projects would

9 Previous research has suggested reform of existing international financial structures to allocate a greater share of capital to sustainable infrastructure and notes that finance and policy experts have been split on whether incumbent institutions should be reformed, or new institutions should be created (Floater et al., 2017).

be screened to ensure greenhouse gas emission reductions and increased climate resilience.[10] Projects would align with a city climate action plan and climate compatible urban green infrastructure would form a key component of any project (see Annex A).

Insights from C40 suggest there is significant opportunity to support cities committed to a low-carbon, climate-resilient future by investing in a focused number of areas. During initial operations, the GCDB's focus would be on supporting a limited range of projects chosen according to: their potential for transformative impact and driving socioeconomic improvements; their climate change mitigation benefits and alignment with broader city plans and global development goals; and the extent to which multiple cities have expressed, through their climate action plans or other means, their willingness or commitment to take the same type of project forward.

A GCDB would focus in particular on project financing structures that could develop local capital markets (Humphrey, 2018) and improve the capacity of local financial institutions to invest in green urban infrastructure. The GCDB would actively share the transaction models it has used to support urban infrastructure investment and share successful approaches in order to strengthen knowledge, learning and expertise.

5.1.2 Fast

To be effective, a GCDB would be established within a relevant timeframe for climate action and become operational at scale faster than other options such as current DFIs.[11] It would operate within the timescales of city politics.

If DFIs and facilities such as the GCF take two to three years to process funding for climate investment projects, the target timeframe for the GCDB would be 12–24 months. This would be more in line with how the UK GIB operated, with the aim to operate at the speed of a private investment firm.

Given the urgency of the climate challenge, a GCDB would need to move capital faster and invest in high impact, rapidly deployed projects that can increase the pace of the transition to a low-carbon economy and inspire further action consistent with the Paris Agreement. By focusing on a limited number of sectors and a reduced range of interventions, 'commoditising' its service offering and approaching speed as a strategic variable, a GCDB could also lower its cost of operations.

This will require a highly proactive effort to originate investment opportunities and to engage in high-impact projects in terms of emissions reductions or resilience that can be undertaken on a relatively fast timescale.

5.1.3 Flexible

A GCDB would work flexibly to meet the needs of the projects and cities it serves and to maximise the impact it could have on as many cities as possible. It would lend to the most appropriate recipient (public or private), and would adapt to changes in technology and new lending practices and business models.

A GCDB would also be able to adapt its approach depending on the financing restrictions placed on cities: as described in Table 1, in cases where cities are not permitted to borrow directly a GCDB would consider alternative innovative financing mechanisms. Where new mechanisms for support are made available, national governments can change legal and regulatory frameworks to allow these opportunities to be taken advantage of.

5.2 New opportunities

The world has changed radically since the founding of the World Bank in 1944, and of regional development banks such as the IADB in 1959 and ADB in 1966. The creation of a

10 See Annex A. Sectors of operation may be aligned with the Green Bond Principles, Climate Bonds Standard, or future European Union green taxonomy, in order to ensure the GCDB can use capital raising through green bonds. See, for instance, ICMA (2018); Climate Bonds Initiative (2018c); and the key sectors identified in C40 and McKinsey (2017).

11 The UK GIB – an example of a single sovereign green bank – was set up rapidly, well within the timescales that might be expected of constitutional change for multilateral institutions.

new institution would provide an important opportunity to rethink how a DFI should be designed and function. Insights from recently-created development banks the New Development Bank and AIIB would be especially relevant, in particular the extent to which they have been able to depart from previous approaches and focus their strategies on low-carbon investment priorities.

In addition to the above objectives, a GCDB would target inclusive climate action: green projects that deliver broad socioeconomic benefits, especially those aligned with the SDGs and the New Urban Agenda. An assessment of such benefits might include: poverty reduction and economic growth; improved air quality and public health; increased access to employment, especially for low-income residents; and contributions towards gender equality. Importantly, the priority will be to ensure climate action at scale, not projects with minimal or add-on climate change benefits.[12]

Through its lending activity a GCDB would support the development of creditworthiness by helping cities to build a track record of successful transactions, address due diligence and risk-management challenges in order to leverage private and other finance sources for urban green infrastructure, develop local capital markets to promote investments in local currencies, and facilitate subnational lending and related governance mechanisms.

A GCDB could be an important centre of expertise for urban climate change investment and green infrastructure. As such, it would develop new and replicable financing models, innovations in urban infrastructure approaches and insight into financing needs to address the urban climate challenge. A GCDB would share its expertise and approaches with others in the sector, ensuring that all institutions learn from any new models and knowledge.

5.3 Operating principles

A GCDB would operate under a set of principles that guide its approach to the cities it supports. This would include:

1. **A 'best value' test.** As a core operating principle, a GCDB would need to work in the best interest of cities. Support would be directed towards investments that could deliver rapid emissions reductions and adaptation protections on the basis that GCDB support is itself the best financing option. Decision-making would seek to safeguard partners from undue risk and not to disburse at all costs – the financial sustainability of the supported cities, projects and their communities would be of paramount concern.
2. **Transformational impact.** Priority would be given towards transformational projects identified in city climate action and climate resilience plans or in the overall vision of the city, as well as projects aligned to broader city plans and strategies for low-carbon, climate-resilient urban development.
3. **Climate impact and resilience.** Lending criteria would focus on key low-carbon, climate-resilient investments. Projects would be screened to ensure greenhouse gas emission reductions and increased climate resilience (see Annex A for further detail).
4. **Financial and technical sustainability.** Projects would need to be based on feasible plans for operation and maintenance, as well as for cost-recovery to ensure long-term sustainability.
5. **Catalysing private investment.** A GCDB would seek to catalyse private sector investment at the project and programme level, with a focus on engaging and developing local private capital markets. The GCDB would explore options to maximise private sector financing of supported projects as well as potentially of the organisation itself. It would seek to develop mechanisms to raise and blend private sector finance. Where possible, the GCDB would support

12 An indicator framework is provided by the GCF (2014 and 2018), which targets projects that can foster transformational change in climate change mitigation and adaptation.

fully privately financed transactions or blend concessional and non-concessional finance and structure co-financing transactions with private sector partners.

6. **Cooperation.** To be efficient and effective a GCDB would need to take a collaborative and open approach to working with partners, including MDBs and other DFIs, as well as particular private firms and investors. As the OECD (2015: 18) has noted: 'In emerging economies, [green banks] may be able to work alongside multilateral development banks and other sources of public climate finance to de-risk [climate compatible] infrastructure projects to enable private investment capital to flow'.
7. **Transparency**. By promoting transparency in its work, conducting regular monitoring and reporting, and sharing detailed information on supported projects, a GCDB would catalyse action and enable replication of successes in other cities and by other financial institutions. It would report on its investment portfolio in alignment with the recommendations of the Task Force on Climate-related Financial Disclosure (TCFD) (Larsen et al., 2018).
8. **High-quality expert staff** reflective of the regions the GCDB serves are paramount to the success of a GCDB. The ability to recruit and retain experienced international debt and equity finance and transaction experts will be essential.

The section that follows outlines options for potential implementation models for a GCDB. While an important outcome of this analysis is the view that some of these options are certainly viable, it is recognised that these models will require further development and elaboration if a GCDB were to become a reality.

6 Design considerations for a potential green cities development bank

The scale of a GCDB would be an important early design consideration to ensure the availability of appropriate project capital to deploy its balance sheet, recruit staff and signal its ambition. Ideally the institution would become a major player in global urban finance and would be structured to provide tens of billions of dollars of project financing to unlock city-level projects that would otherwise be unfinanced.

Several implementation models might be considered for the creation of a GCDB, with variations in ownership structures, financing arrangements and potential to address the challenges of financing sustainable urbanisation. The models include:

- **Option 1:** Cities development bank with sovereign guarantees
- **Option 2:** Broker for sovereign guarantees
- **Option 3:** Green bank for cities
- **Option 4:** City-backed green development bank

Each of these options is described in further detail below and is assessed on a preliminary basis in Table 3.

6.1 Cities development bank with sovereign guarantees

Under this model, a GCDB would be structured in a similar way to a multilateral DFI, with its primary financial support from national governments. It would issue a series of shares structured as both paid-in and callable capital, which would be provided by national-level governments of countries with fiscal space and strong credit ratings, as well as by city-level governments and possibly other types of shareholders.

Through commitments of callable capital and preferred creditor status, a GCDB would gain an investment-grade credit rating higher than its member or borrowing cities would be able to achieve. In addition to sovereign shareholders, this model could also include cities as members as well as other types of investors.

An outline of how such a model could be capitalised is provided in Annex B.

6.2 Broker for sovereign guarantees

Here, a GCDB would act as an investment bank, supporting individual sustainable transactions to reduce their costs of capital by passing on a pre-negotiated sovereign guarantee on a project-by-project basis.

6.3 Green bank for cities

A GCDB could take an approach more aligned to green banks. At the outset this form of GCDB could be supported through capital commitments from several national-level sovereign governments, philanthropies, investment funds or climate funds. As the capital is drawn down, it would convert to shares in the GCDB at a pre-determined ratio.

The aim would be to catalyse additional private capital at scale as part of the transactions undertaken. This would allow the bank to operate at speed, take on debt and equity, look at each deal from a commercial perspective and address market failures. A GCDB could

unlock transactions that are too specialised for traditional banks, based on a greater understanding and therefore costing of the risks.

This model would require returns at a level sufficient to cover the GCDB's costs of capital and operating expenses, which may make city projects potentially too costly if unsubsidised by other sources. It remains unclear whether developing countries have a sufficient number of projects that could be financed on a private-sector basis and would deliver the scale of action necessary.

6.4 City-backed green development bank

Under this model, the city-backed green development bank would operate like a DFI, but instead of shares of callable capital held by sovereign governments, shares would be held by city governments.

In effect, this approach would transfer a financial guarantee from a city in one part of the world to a city undertaking sustainable investments elsewhere. It is possible that a solely city-backed institution may be viable, but it seems that cities' limited ability to provide guarantees or financing would impede the ability of such a structure to scale rapidly or achieve the impact needed.

A further, non-bank option could be a sovereign-guaranteed green fund, guaranteed by a national-level government. Under this model, a fund would be raised to finance specific types of projects, backed by a guarantee from one or more sovereigns or an existing DFI. The guaranteed funds would be on-lent to the projects at rates lower than would be available if these projects were financed by the cities themselves.

Assuming a streamlined governance and approvals mechanism, such a fund could deploy capital quickly. However, scalability of such a model may be limited by the number of sovereigns willing to engage and their willingness to continue to provide further guarantees each time the fund is recapitalised. A further challenge could come in the nature of official development assistance (ODA) treatment of guarantees. With no paid-in shareholder capital, such a fund would rely on donor money to cover running costs in the initial stages and guarantees would need to be renegotiated each time the fund needed to recapitalise.[13]

Based on this analysis, option 1 – a cities development bank with sovereign guarantees – appears to offer a viable model for delivery of a GCDB. To support further thinking about this proposed model, the next section describes in more detail how such a bank might be capitalised. As with all options outlined in this section, even option 1 will present challenges in set-up and implementation. Other options should therefore be considered for further analysis, as it is possible that a hybrid model would be the most effective approach to support delivery of urban green infrastructure. Such an approach could provide sovereign guarantees to reduce the cost of capital, while allowing a GCDB to remain financially sustainable as it delivers on being focused, fast and flexible.

13 This could also be an underlying consideration for the other options.

Table 3 Options analysis

Option	Viability	Scalability	Attractions	Risks
1. Cities development bank with sovereign guarantees	High	Limited by number of sovereigns that engage, however there are many sovereigns able to make large commitments, so scale could be high	Adapts and extends a familiar model to the needs of cities Presents a proven solution to the challenges that cities face	Set-up and scaling up may involve significant costs including multilateral agreements Could end up being governed or significantly influenced by a small number of national governments Developing an efficient approach to decision-making may be challenging
2. Bank as broker for sovereign guarantees	Medium – limited by the unusual nature of the model and the labour-intensive nature of the approach	Limited by number of sovereigns that engage and their willingness to enter into multiple agreements Further challenge comes in the nature of ODA treatment of guarantees	Potentially relatively fast set up with a sovereign partner or partners	With no paid-in shareholder capital, the institution would be highly reliant on donor money to cover running costs in the initial stages Could be quite resource intensive (for both GCDB and sovereigns) if detailed negotiations are required for each project supported
3. Green bank for cities	Medium – such an institution could be created and is similar to the model for the UK GIB, however its ability to address the challenges facing cities in developing countries at scale is untested	Limited by the number of projects that could be made viable by offering loans at the cost of capital that would be required by private finance	Significant private capital may be available that could be channelled into such an institution Does not require the complex negotiations needed to deliver a sovereign guarantee	Even with project risk assessment support, it is possible that costs of capital could be too high without a sovereign guarantee
4. City-backed green development bank	Low – very few cities have the creditworthiness or fiscal room to act as guarantors in the way that national governments can	Limited by the low number of cities that could provide guarantees	Radically innovative in theory as bank set up to support cities being led by cities	Very limited ability to deliver significant guarantees or financing

Source: authors' own.

7 Potential for a green cities development bank with sovereign guarantees

To support further thinking about the potential of a GCDB with sovereign guarantees, this section outlines in more detail how such a bank might be capitalised and governed, the types of clients it might support, and the instruments it might use.

Consideration as to whether the GCDB is established as some form of multilateral development institution or international organisation will necessarily involve its prospective founding shareholders, as noted below.

7.1 Capitalisation

In this illustrative model, the GCDB would issue a series of shares structured as both paid-in capital (approximately 20% of the shares) and callable capital (80%), which would be provided by the governments of countries with sufficiently strong credit ratings and fiscal space to support the operations of the GCDB.

In this context, potential sovereign shareholders could include countries such as Australia, Canada, China, Germany, France, Japan, Luxembourg, the UK, United States and others (see Table 4).

The attraction of a sovereign to serve as shareholder and potentially host city for the GCDB would depend in part on its credibility as a centre of green finance. For example, the recently launched Global Green Finance Index can also inform the scoping of potential shareholders and related candidate cities for the GCDB headquarters, as the index provides a ranking of global finance centres with respect to the perceived depth and quality of their offerings in green finance and illustrates their current status and potential future role (Long Finance, 2018). Mechanisms for engaging borrowers in a shareholding or governance capacity will need to be explored further.

Under a variation of this model, the GCDB could also allow paid-in and callable capital to be subscribed to by the private sector (e.g. large funds) and/or philanthropic foundations.[14]

Through commitments of callable capital and preferred creditor status, the GCDB would gain an investment-grade credit rating higher than its member or borrowing cities would be able to achieve. In common with other DFIs, such a rating for the long term would be targeted above A+, with a comparable short-term rating.

Higher local ratings could be possible given the credit ratings and, potentially, guarantees of GCDB's shareholders, but would need to be weighed against the GCDB's desired outstanding loan portfolio in relation to its equity capital.

As an example, the GCDB could be capitalised by a series of shareholders who provide a combination of paid-in and callable capital:

- **Paid-in capital** that is transferred directly to the GCDB.
- **Callable capital** that is not required to be paid in but will be provided if requested by the GCDB (in the event of a default). The capacity to allow for callable capital

14 See Annex B for additional detail.

Table 4 Potential GCDB national government shareholders

Country	Region	Credit rating	C40 member cities
Australia	Asia and Pacific	AAA	Melbourne, Sydney
Canada	Americas	AAA	Montréal, Toronto, Vancouver
China	Asia	A+	Beijing, Chengdu, Dalian, Fuzhou, Guangzhou, Hangzhou, Hong Kong, Nanjing, Qingdao, Shanghai, Shenzhen, Wuhan, Zhenjiang
Denmark	Europe	AAA	Copenhagen
France	Europe	AA	Paris
Germany	Europe	AAA	Berlin, Heidelberg
Japan	Asia	A+	Tokyo, Yokohama
Luxembourg	Europe	AAA	
Netherlands	Europe	AAA	Amsterdam, Rotterdam
Norway	Europe	AAA	Oslo
Singapore	Asia and Pacific	AAA	Singapore
South Korea	Asia and Pacific	AA	Seoul
Sweden	Europe	AAA	Stockholm
Switzerland	Europe	AAA	
United Kingdom	Europe	AA	London
United States	Americas	AA+	Austin, Boston, Chicago, Houston, Los Angeles, New Orleans, New York, Philadelphia, Portland, San Francisco, Seattle, Washington (DC)

Source: the authors; credit ratings from Standard & Poor's (2019).

is common to the MDBs and is an important element allowing the institution to raise lower-cost capital on the back of shareholdings from donors.

The GCDB would adopt a flexible approach to shareholdings to allow for callable capital commitments from multiple sources. In order to secure a stable capital basis, large-scale callable capital would come from national governments of large or developed countries which have comparatively larger fiscal space and/or strong credit ratings. At the same time, the GCDB would provide mechanisms for shareholdings from institutional and commercial investors and funds, finance institutions and philanthropic organisations.

Under this model, the GCDB could use an approach to shareholding that follows examples such as the membership structure of CAF or the Dutch Development Bank (FMO), whilst also adopting elements of green bank and other private sector shareholding arrangements.

The GCDB's gross outstanding borrowing would be limited to the sum of callable capital, paid-in capital and reserves (including surplus). These guidelines could also be set depending on shareholders' risk appetite and related impacts on the GCDB's credit rating. With sovereign guarantees from its investment grade-rated shareholders, the GCDB may also establish higher lending and borrowing limits beyond its equity capital.

As a partly government-linked entity, the GCDB would pursue a financial structure and lending policy consistent with an investment-grade credit rating, which would allow it to be partly capitalised by bond issuance.

Where possible, the GCDB's capital raising would be in domestic markets, which would facilitate lending in local currencies and would help protect from exchange-rate fluctuations. This would also support local capital markets, and potentially their development of new instruments providing finance for subnational entities. The GCDB would also raise capital on international

capital markets, possibly through the issuance of green bonds to support its lending operations.

Under such a shareholder model, we estimate 15 national governments (and/or funds or philanthropic foundations) could provide approximately $20 billion in shareholder capital, approximately $14 billion of which would be callable. If established as intended over the next two to three years, we anticipate a GCDB supporting $1 billion of projects by the early 2020s, with the aim to support $40 billion to $50 billion of transformative projects over the following decade.

As important as the lending volume itself is the example that the GCDB could set for other financial organisations. In demonstrating the attractiveness and viability of climate compatible investments at the city and subnational level, a GCDB could help to increase the level of expertise with deal structures at the subnational level (in particular for low- and middle-income countries) and expand the pipeline of bankable opportunities for cities' climate plans.

For more details on this proposed shareholding model see Annex B.

7.2 Governance

As previously outlined, the GCDB would be designed for focus, speed and flexibility. Governance would be informed by lessons from existing green banks and international and national DFIs. The GCDB would aim to adopt an institutional design fit for the 21st century, which would ideally embody an optimal combination of decision-making features from DFIs, green banks and private finance institutions.

For example, the chief executive and senior management team would need to be empowered to allow for streamlined, technical and de-politicised decision-making. The GCDB's loan oversight committee should consist of individuals selected for their financial, legal, climate and engineering expertise. For speed of execution, decision-making on most individual projects would be delegated to either the senior management team or an investment committee selected for qualifications and experience.

Governance principles would need to align with the GCDB's mission and goals. As with any new institution, the full governance arrangements require further elaboration, however the following principles might serve as initial guidelines:

- The governance structure should minimise the inefficiencies caused by politicisation, allow for efficient decision-making and ensure compliance with the GCDB's principles of operation.
- The GCDB should be structured to be suitably flexible in its operations to ensure the support offered meets changing city needs and advances in technology and financing.
- Membership of the board and investment review committee should prioritise skills (particularly financial, legal, climate and engineering), over representation for specific constituents.
- Cities – as the recipients of GCDB support – should be involved in strategic decision-making. The modality of this representation needs to be further explored.
- The GCDB should be built for growth and mechanisms should exist to allow for capital increases.

The GCDB should be led by an empowered executive team consisting of well-qualified experts with independence from political decision-making. The orientation of both the governance and executive structures should embed rules that align with private investment practice, accompanied by a sense of professionalism, urgency and client orientation.

7.3 Legal considerations

Legal review does not indicate any insurmountable regulatory barriers to establishing a new entity of the kind being proposed. However, a number of considerations are summarised below.

7.3.1 Headquarters

The primary headquarters of the GCDB will need to be in a favorable jurisdiction which enables it to perform its objectives and services and, if required, be recognised as an international institution able to operate on a global basis.

The headquarters could be chosen through an initial competition between engaged and supportive national governments, based on an assessment of their commitment to advancing urban green infrastructure finance and ability to attract global talent.

In light of regional differences in the financial, technical, administrative, and legal and regulatory capabilities and feasibility for subnational/sub-sovereign urban green infrastructure lending, the institutional design could feature a central body with a strong regional presence.

7.3.2 Legal structure

As noted above, consideration will need to be given as to whether the GCDB is established as some form of multilateral development institution or international organisation, and the extent to which it has sovereign backing, immunities and privileges.

For example, it may be established along the lines of the ADB, AIIB or the GCF, or alternatively as a less formal organisation like the Global Infrastructure Hub. The GCDB could also follow a model such as that of other domestic GIBs.

The type of organisation or corporate structure that is adopted will depend upon the host country's legal arrangements and its ability to accommodate such an organisation. The GCDB would be subject to relevant laws and regulations applicable within its host jurisdiction to ensure legal validity and eligibility to operate.

7.3.3 Governing instruments and mandate

It is critical that the governing instruments of the GCDB fully provide it with the legal authority to carry out all of its activities across all jurisdictions in which it wishes to operate.

7.3.4 The role of cities in the GCDB

The extent to which individual cities can engage with the GCDB will depend upon the laws that govern that city as well as the laws of the host country that govern the operation of the GCDB itself. Many cities have restrictions on their ability to invest and borrow funds and to be members of international organisations. Others have few, if any, restrictions and could actively engage both in the activities of and in lending from the bank.

7.4 Target clients

The GCDB will aim to support a number of different counterparts in order to drive capital into climate compatible investments. Illustrative examples include:

- **National government and sovereign-guaranteed channels.** This would be the traditional DFI approach to channelling finance. Whether or not such a modality constitutes a net increase in the level of financing to cities/local governments will depend on the terms and conditions applicable to the financing and the incentives that apply to the intermediaries.
- **Financial intermediaries.** These include MDFs and national development banks which already interact with and provide project finance to urban agencies and private finance organisations . The GCDB would also work actively with local private capital markets to support reductions in costs of capital through improved deal structuring and risk assessments, loan finance, credit guarantees and enhancements, and first-loss debt. The GCDB would thereby crowd-in private capital, which will support the development of local capital markets focused on green urban infrastructure.
- **City governments and subnational entities active in urban areas** (e.g. regional governments or MDFs). To have an impact on emissions, a GCDB would need to be able to support a wide range of cities. C40 data (see Table 1) shows that in some cases cities already have borrowing powers and the ability to issue bonds, while others are more constrained in their access to capital. While this data is restricted to large cities, the expected geographical coverage for a GCDB includes Latin America, Asia (including India and China) and Africa. Cities in emerging economies in Europe could potentially be eligible too.

  As mentioned previously, the extent to which individual cities can engage with the GCDB will depend upon the laws that govern that city as well as the laws of the GCDB host country. Recognising that some cities are prohibited from borrowing, an ideal GCDB would be structured to provide

flexible support in a way that suits cities best. Governments may also be willing to implement legal changes to allow cities to access such financing mechanisms.

- **City-owned corporations.** City-owned urban-level development corporations take many forms and are specifically created to finance and implement urban projects or a programme of multiple projects. Examples include municipal utilities, Special Purpose Vehicles (SPVs) for specific projects, and private companies providing service delivery to the city. These could boost the efficiency and effectiveness of climate investment projects that require coordination across multiple sectors.

  The reasons for a GCDB to support such corporation are manifold, including capacity to plan and arrange finance over the long term, broader access to private sector finance and more efficient service provision, as well as ring-fencing revenues and risks related to one or more projects outside of the government's budget and fiscal responsibility.

  Urban-level corporations such as corporations owned by a city and those delivering sustainable urban services through a private entity could potentially draw on a menu of finance products and instruments. They can also foster equity investments and take private equity directly into the corporation or establish various SPVs and/or joint ventures to utilise private equity.
- **Private companies**. This includes private firms that design, construct and/or operate or deliver sustainable urban infrastructure and related urban services (e.g. private sector public transport operators). Examples include: an energy company seeking to install solar panels on the roofs of city buildings; a private bus company seeking financing to transition their fleet to electric buses; and a construction company building new transit-oriented and highly energy efficient commercial and residential buildings.

A number of pre-conditions relating to scale, long-term structure and recruitment would help ensure effectiveness:

- The ability to recruit and retain a high-quality expert staff is paramount to the success of a GCDB. Experienced international debt and equity finance and transaction experts will be essential.
- The proposed new institution should be structured so that its operations can continue in the long term. Recapitalisation and leveraging of private capital are necessary features to build into any model.
- Scale should be built into the institution from the outset. A GCDB should open for business with appropriate project capital to demonstrate its ability to deploy its balance sheet and signal its ambition. This is vital for recruitment and for ensuring that it can operate effectively over time.

7.5 Finance products and instruments

By using a range of instruments and approaches to financial structuring as needed, the GCDB could increase the range and type of financing available to other investors (including private investors), could lower the cost of capital for climate compatible infrastructure, and could increase deal flow of climate compatible investments.

Broadly speaking, there are a range of financial instruments available for the GCDB, including:

- debt
- equity
- guarantees and other credit enhancement mechanisms
- use of these instruments as part of blended finance packages alongside the private sector.

In most cases, these four types of instruments can be used to support the target clients described earlier, although their specific design would vary. The GCDB would develop expertise in the deployment of such financing mechanisms across a range of priority climate compatible investments.

Efficient use of resources to catalyse wider investment – particularly from the private sector – would be core to the GCDB from the outset, in common with other green banks. It would explore

options to maximise private sector financing of supported projects, as well as potentially at the organisation level, and would seek to develop mechanisms to raise and blend private sector finance. The GCDB would work closely with local and international fund managers and financial firms to structure transactions that attract and deploy public and private capital into climate compatible investments.

To maximise the use of its balance sheet, the GCDB would seek to co-finance its investments with multilateral, bilateral and national DFIs or private sector entities. In the case of private co-financing, the GCDB could take a first-loss position, provide an element of concessional finance for a blended finance offering, or support increases in the tenor of loans. Where urban-level governments or agencies can borrow from capital market institutions such as banks or issue bonds, the GCDB could provide a guarantee or other form of credit enhancement support (e.g. by a national government).

8 Conclusion and recommendations

The need for rapid and large-scale action to address climate change is clear. It is also clear that cities have a central role to play in reducing global carbon emissions in line with the goals set out in the Paris Agreement. This working paper demonstrates the extent of the challenge that cities face in financing low-carbon, climate-resilient infrastructure and the necessity for greater financial support for cities to develop such critical infrastructure.

While vital and important, we have demonstrated that current and foreseeable financing arrangements – including increased lending by existing institutions, innovations in financial instruments and investment vehicles, and policy and regulatory reforms – are not able to meet the need for finance at the city and subnational level and appear unlikely to adapt quickly enough to meet present and future climate needs. Existing institutions should undertake all available approaches to close the investment gap for urban sustainable infrastructure, however this will still be insufficient to enable cities to play their full role in addressing the global climate challenge.

The creation of new institutions has been a central solution to key global challenges for decades. In the 21st century, climate change – and the urgency with which it needs to be tackled – has become an existential global threat that warrants radical and innovative responses. However, as the responsibility for tackling global issues falls to a greater degree to subnational governments, the institutions tasked with supporting these governments must be able to mobilise the capital required at the city level. To respond to climate change at the scale and in the timeframe needed requires a new approach, and cities cannot rely on institutions designed for nation states. The prospect of a GCDB represents an opportunity for transformative institutional change with a major role in the creation – and financing – of sustainable cities.

We therefore recommend:

1. Consistent with the C40 Call for Action on Municipal Infrastructure Finance, **MDBs and bilateral DFIs should prioritise urban low-carbon and adaptation projects that are identified in city climate action plans and that align with city development plans.** They should: develop and deploy at scale new mechanisms to significantly increase their subnational lending, earmarking lending to subnational entities for green infrastructure; tailor loan products to better meet the needs of cities; and formally involve the largest cities in the development of country assistance strategies.
2. As existing development banks boost finance available to cities for climate compatible investment, **policy-makers should work with city leaders to explore the development of new institutions that can lend directly to cities** to support the financing and development of climate compatible urban infrastructure.
3. **Countries and cities interested in a multilateral system that includes subnational actors should explore the potential for an institutional response to climate change in the form of a GCDB.**
4. **Private investors and philanthropic foundations committed to action on climate change should look for ways to support new institutional responses** such as a GCDB as part of a range of responses to the existential risk posed by climate change.

A GCDB, structured as a development bank for cities focused on climate compatible investments

– with international expertise, focused, fast and flexible operations and supported by sovereign governments – is a timely and viable prospect that should be given serious consideration. As an institution designed to address the immediate global need, a GCDB has the potential to unlock finance for cities at scale.

An institutional response such as this will be a significant undertaking, with much work needing to be done in order for a GCDB to become a reality. However, the alternative – underfinanced cities unable to invest in low-carbon, climate-resilient infrastructure at scale, which raises the risks of catastrophic climate change and puts the Paris Agreement goals even further out of reach – makes pursuit of this concept worthwhile and perhaps vital for a sustainable urban future.

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Annex A Climate compatible investment opportunities

Climate compatible investments include both low-carbon and climate-resilient infrastructure. In the broader sense, *low-carbon* infrastructure supports climate change *mitigation*, i.e. emissions reduction that can help slow down or reverse the current high-carbon trends and thereby soften or avoid negative impacts from climate change. On the other hand, *climate-resilient* infrastructure supports climate change *adaptation*, i.e. putting in place or upgrading urban systems that can help cities to cope with shocks and stresses expected from climate change impacts (Sustainability for All, 2018).

Climate compatible investments for cities therefore may involve climate change mitigation benefits, adaptation or resilience benefits, or both. Indeed, projects should combine elements of both – for example, identifying potential physical risks to an energy project and designing the investment to ensure long-term resilience. Taking climate risks and emissions reductions opportunities into account can lead to benefits for both mitigation and adaptation projects.

For climate change mitigation, the key sources of urban greenhouse gas emissions generally fall under the categories of electricity consumption, transportation, building energy use and, to a lesser degree, waste and industrial processes. The relative importance of these varies according to, among other things, a city's geographic location, density, economic base, and affluence level, and has been the subject of many studies, including C40's work with McKinsey (C40 and McKinsey, 2017). The decision around sectors of operation may take into consideration classifications by other DFIs.[1] Sectors of operation may be aligned with the Green Bond Principles, Climate Bonds Standard, or future European Union green taxonomy, in view of the potential for the GCDB to raise capital through green bonds (see ICMA, 2018; Climate Bonds Initiative, 2018d; European Commission, 2018).

The most strategic and cost-efficient infrastructure investments for reducing emissions vary considerably on a city-by-city basis. Kennedy et al. (2014) provide illustrative examples of low-carbon infrastructure strategies tailored for different types of cities, grouped according to population density and the carbon intensity of their electricity grids. The necessary infrastructure includes large, centralised investments, such as for public transit systems, as well as smaller, distributed investments, such as for building energy efficiency retrofits.

Climate change mitigation project types include but are not limited to:

- **Energy efficiency**. Processes, techniques, and technologies deployed to decrease the consumption of energy and/or to make the production, transmission, and consumption more efficient, including smaller-scale applications in appliances, products and buildings, as well as larger-scale schemes in smart grids, energy storage, and district heating.

1 For example, see Table A.C.1 in AfDB et al. (2017: 29–31).

- **Renewable energy.** Production, transmission and consumption of energy from renewable energy sources such as solar, wind, geothermal and small-scale hydroelectric generation.
- **Battery storage.** Development and deployment of battery energy storage systems.
- **Mass transit**. Public transportation carrying large numbers of passengers on rail, road or water. This includes light-rail and metro-rail transit, bus rapid transit and ferry services, which achieve significant environmental savings due to reduced emissions and increased passenger capacity.
- **Urban mobility**. Transport solutions below the scale of mass transit, both public and private, which provide cleaner options through electric vehicles and bike-sharing programmes.
- **Solid waste**. Reduction, recycling, and reuse of waste, as well as energy- and emission-efficient processes and technologies for waste-to-energy, reduction of short-lived climate pollutants and other value-added waste products.

For climate change adaptation, the priority infrastructure investments for increasing the resilience of cities to climate change and disaster impacts will differ by location. A challenge in planning appropriate investment strategies for long-lived infrastructure is that the exact extent of future impacts in a given place is inherently uncertain and does not follow a simple path-dependency or historic pattern. However, in many cases, anticipatory 'no regret' strategies exist that increase resilience while producing additional benefits that would be desirable in any scenario. Examples include improved building standards, flexible flood management structures, development of early warning systems and investments to reduce losses from electricity, water, and heating systems (Larsen et al., 2018; Hallegatte, 2009).

Climate change adaptation and resilience projects include:

- **Water, sanitation, wastewater.** Production, transportation, consumption, treatment, and reuse of drinking and wastewater through: efficient operation; smart appliances; decentralised and nature-based systems, contributing to reduced consumption and losses; and water recycling.
- **Flood infrastructure**. Soft and hard components of resilience-strengthening, flood-mitigating infrastructure, using decentralised and nature-based systems with potential for multiple uses.
- **Housing and buildings**. Providing secure and resilient housing with access to basic urban services in a resource-efficient way, improving building performance with regard to natural resource uses, emissions, and climate resilience, promoting efficient multi-use/re-use options.
- **Natural resources**. Sustainable management of air, land and water in their direct uses, for instance in land re-/development, urban agriculture, or forestry, preservation and restoration of natural environments, integration into infrastructure design and cycles.
- **Urban design**. Fostering an integrated approach to infrastructure across individual sectors, using interdependencies by linking systems and improving efficiencies, enabling environment-friendly supply- and demand-side actions and community engagement.

Annex B Example shareholding model for a GCDB with sovereign guarantees

In this model the GCDB would issue a series of shares structured as both paid-in capital (approximately 20% of the shares) and callable capital (80%), which would be provided by the governments of countries with fiscal space and strong credit ratings. Potential sovereign shareholders could include countries such as Australia, Canada, China, Germany, France, Japan, Luxembourg, the UK, the US and others. Mechanisms for engaging borrowers in a shareholding or governance capacity need to be further explored.

Under a variation of this model the GCDB may also allow paid-in and callable capital to be subscribed to by the private sector (e.g. large funds) and/or philanthropic foundations.

Through commitments of callable capital and preferred creditor status the GCDB would gain an investment-grade credit rating higher than its member or borrowing cities would be able to achieve. In common with other MDBs, such a rating for the long term would be targeted above A+, with a comparable short-term rating. Higher local ratings could be possible given the credit ratings and, potentially, guarantees of GCDB's shareholders, but would need to be weighed against the GCDB's desired outstanding loan portfolio in relation to its equity capital.

As described above, under such a shareholder model, we estimate 15 national governments (and/or funds or philanthropic foundations) could provide approximately $20 billion in shareholder capital, approximately $14 billion of which would be callable.

Two different categories would be proposed:

- Sovereign shares for national governments and related sovereign or supra-sovereign bodies (e.g. European Commission)
- Non-sovereign shares for institutional and commercial investors (e.g. pension funds, banks, infrastructure investors), finance institutions (e.g. bilateral development finance institutions) and philanthropic organisations (e.g. endowments and foundations). This share type could also include borrowing and non-borrowing cities, creating an opportunity for cities to directly support the GCDB's work.

Three different share series would be proposed:

- A shares for national governments and related sovereign bodies (sovereign shares)
- B shares for institutional and commercial investors, finance institutions and philanthropic organisations (non-sovereign shares)
- C shares for urban-level entities (i.e. local and regional governments and their corporations – ensuring mechanisms exist to avoid conflicts of interest) (non-sovereign shares).

In view of the different financial capacities of potential A, B and C series shareholders, A shares would require more capital per share than B or C shares. Also, the number of A shares would exactly match the number of sovereign entities subscribing to the GCDB.

An illustration of this share model uses an assumed 15 shares under the A series ($1,000 million per share), while B series are assigned 100 shares ($50 million per share) and C series are assigned 50 shares ($5 million per share).

The corresponding shareholding (assuming all shares are subscribed to) would be A series 74%, B series 25%, C series 1%. Callable and paid-in capital rates would differ with A series 80% callable and 20% paid-in corresponding to levels used in the establishment of the AIIB – well above the level of the World Bank (about 5%) but below the level of CAF (50% at least initially). This reflects an expectation that A shares will be held by investment-grade sovereigns and that such participation will provide the requisite support to the GCDB's credit rating. B series shares would have 50% callable/paid-in, and C series 20% callable and 80% paid-in.

As illustrated in Table A1, a combination of A, B, and C series shares could amount to $20,250 million in equity shares, of which $14,550 million would be callable capital (71.9%) and $5,700 million would be paid-in capital (28.1%), with B and, particularly, C series shareholders obligated to pay in a larger part of their capital than A series shareholders due to the differing credit ratings.

The GCDB, following commencement of operations, could also tap its reserves and income from its finance products and instruments. This income would include, for instance, interest payments on outstanding loans, repayment of outstanding loans, dividends from equity participations, profits from equity sales and fees from guarantees.

Table A1 Illustrative distribution of A, B, C series for GCDB shareholders (model outlining proposed full operations)

	Sovereign shares	Non-sovereign shares (optional element to be further evaluated)		Totals
Share series	**A**	**B**	**C**	
Eligible shareholders	National governments and sovereign bodies	Institutional and commercial investors, finance institutions, philanthropic organisations	Urban-level entities (subnational governments and their corporations)	
Number of shares	15	100	50 (distributed between non-borrowing and borrowing members)	
Nominal value per share	$1,000,000,000	$50,000,000	$5,000,000	
Callable capital share	80%	50%	20%	
Payable capital share	20%	50%	80%	
Share capital	$15,000,000,000	$5,000,000,000	$250,000,000	**$20,250,000,000**
	74.07%	24.69%	1.23%	
Callable capital	$12,000,000,000	$2,500,000,000	$50,000,000	**$14,550,000,000**
	82.47%	17.18%	0.34%	
Paid-in capital	$3,000,000,000	$2,500,000,000	$200,000,000	**$5,700,000,000**
	52.63%	43.86%	3.51%	
Board votes	15	7	1	**23**
Relative voting power	65%	30%	4%	**100%**

Source: authors' calculations.

Further work is required to develop appropriate finance and risk-management safeguards and lending limits. In addition, the necessity or feasibility for the GCDB to gain preferred creditor status from its borrowers needs to be further researched and analysed with reference to relevant precedents.

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