

CLIMATE INVESTMENT FUNDS

Joint CTF-SCF/TFC.22/4.2/Rev.1

April 6, 2020

Joint Meeting of the CTF and SCF Trust Fund Committees

Washington D.C. (Virtual Meeting)

March 24, 2020

CLIMATE-SMART URBANIZATION PROGRAM

***DRIVING THE SPATIAL TRANSFORMATION OF CITIES TOWARD LOW-CARBON AND CLIMATE-RESILIENT
DEVELOPMENT***

1. Overview of the sector

1. **Urban areas are central to the fight against climate change¹ and to adapting to its expected impacts.** More compact, connected, and coordinated cities could deliver significant greenhouse gas emission reductions, strengthen resilience to physical climate risks while stimulating socially inclusive economic growth.²
2. Unprecedented urbanization is transforming the world and the way people live. For the first time in history, more people live in cities than in rural areas. Around 55 percent of the world's population live in urban areas and this share is expected to increase to 68 percent by 2050.³
3. Growth in the urban population is driven by overall population increase and by the upward shift in the percentage of people moving to urban areas in search for social and economic opportunities offered by cities. Together, these two factors are projected to add 2.5 billion to the world's urban population by 2050 in the rapidly expanding cities and in new secondary cities, with almost 90 percent of this growth happening in Asia and Africa. By 2050, the share of urban population is projected to reach 56 percent in Africa and 65 percent in Asia (UN, 2014). Just three countries—India, China, and Nigeria—are expected to account for 35 percent of the growth in the world's urban population between 2018 and 2050. Close to half of the world's urban dwellers reside in settlements with fewer than 500,000 inhabitants, while around one in eight live in 33 megacities with more than 10 million inhabitants. By 2030, the world is projected to have 43 megacities, most of them in developing regions. Urban share of the global GDP is just below 80 percent and will contribute to the majority of GDP growth by 2050.
4. If managed well, urbanization can help reduce poverty and increase prosperity by improving access to land, basic services, and jobs, as cities can accelerate growth, attract investment, spur innovation,

“By 2050, two-thirds of the world’s population will be living with the infrastructure and planning decisions we make today. [...] Urbanization is occurring in places with much lower average levels of income than historical averages, particularly in sub-Saharan Africa, and new urban areas are emerging. Over 60% of the land projected to become urban in 2030 has yet to be developed, and smaller cities are growing faster than mega-cities.”

The New Climate Economy, 2018, the Global Commission on the Economy and Climate, *Unlocking the inclusive growth story of the 21st century*

and enhance productivity. The transformative potential of cities and urban communities to drive productivity growth stems from agglomeration: the clustering of businesses and individuals in an environment that promotes scale and specialization. Population densities bring workers closer to jobs, increasing their opportunities and fueling their productivity.

5. Cities and towns bring people physically closer, facilitating the exchange of ideas and bringing about innovations. This includes, through the ingenuity and engagement of people and communities,

¹ IPCC (2014). *Human Settlements, Infrastructure, and Spatial Planning*. In: Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report.

² The NCE (2018), *Unlocking the Inclusive Growth Story of the 21st Century – Accelerating Climate Action in Urgent Times – Cities*.

³ United Nations (2018). Revision of World Urbanization Prospects.

innovation in how to plan and develop climate-smart cities and towns. High “good” densities also enable network effects, making it cheaper to provide services efficiently and equitably (see Figure 1).

- At the same time, new disruptive technologies (i.e., electric mobility, advances in communication technology, sharing economy), behavior change, and economic practices (i.e., telecommuting) may offer opportunities to reduce economic and environmental impacts of urban decentralization in the future, as they impact commuting patterns.

Figure 1: Urban planning: Achieving more compact urban growth, connected infrastructure, and coordinated governance



- A large share of urban growth in developing countries is unplanned and unstructured with significant economic, social, and environmental costs.** Many cities in Sub-Saharan Africa, for example, have grown rapidly but without enough policy coordination, efficient planning, and adequate infrastructure and services. Cities are characterized as crowded with people and dwellings, including longstanding residents and recent in-migrants in both formal and informal settlements, disconnected due to a lack of transport and other critical infrastructure, and costly for both households and firms because of their inefficient spatial forms.⁴ Nearly two-thirds of the region’s urban population live in areas classified as slums by UN Habitat, resulting in increasingly high levels of congestion, pollution, illness, disease, crime, and insecurity, as well as in lower resilience to extreme climate events. Underinvestment in infrastructure services such as reliable electricity and inadequate street lighting can also increase the vulnerability of particular groups, as in the case of women urban residents including female slum dwellers who face increased risk of gender-based violence due to poor lighting on streets and around transport stations.

⁴ World Bank (2017).

For cities to grow economically as they have grown in population size, they must create productive environments to attract investment, increase economic efficiency, and create livable environments that prevent urban costs from rising with increased population densification. Productive jobs, affordable housing, effective infrastructure and cleaner mobility services – delivered through accompanying good urban governance that is inclusive, participatory and gender-responsive - will be urgently needed for residents and newcomers alike. As such, the value of awareness-raising and capacity building at the local level and early investments in neighborhood infrastructure and services, as well as the spatial planning, coordination, and prioritization among these investments, are equally critical.

2. Rapid urbanization in developing countries in the context of climate challenges

8. **Cities and towns are heavily exposed and vulnerable to climate change risk and their impacts.** Rising sea levels, increased precipitation, inland and coastal flooding, more frequent and stronger cyclones and storms, landslides, heat stress, drought, and water scarcity will have significant adverse impacts on urban infrastructure systems and services, ecosystem services, (including energy, water, health⁵ and other services), urban governance, urban economies, and urban population. These impacts are expected to be exacerbated in the next decades given that the expansion of urban land use is likely to take place in areas of increasing vulnerability to extreme climate events.⁶
9. Climate change may also negatively impact infrastructure and worsen access to basic urban services and quality of life in cities. Basic services include safe drinking water, proper sanitation and drainage, solid waste management, affordable transport, and access to health care and education. Green areas and infrastructure such as urban forests, trees and parks also define the livability and quality of life in cities.⁷ Many major coastal cities are already under threat. In addition, it is in cities that most of the vital economic and social infrastructure, government facilities, and assets are located (see Figure 2).⁸

Climate change risks are amplified for particular segments of urban populations. Urban populations lacking essential infrastructure and services or living in poor quality housing and areas exposed to physical climate risks and impacts (i.e., slum dwellers in developing countries) can be hit hardest by climate-related hazards. By 2030, climate change is expected to bring 77 million urban residents into poverty if there is no significant investment to improve the resilience of cities globally.⁹ Climate change risks, including urban flood risks, have differential impacts on urban population groups depending on factors such as gender, age, livelihood base, and disability or migrant status; as well as adaptive capacity elements as access to services and income level. For instance, women and persons with disabilities may face greater challenges when natural hazards hit due to factors including limited mobility, inability to access adequate information and early warnings, and loss of their support systems.¹⁰ Impacts from extreme weather and climate-related events affect women's mortality and morbidity disproportionately, with greater health and gender-based violence impacts compared to

⁵ See Bartlett et. Al (2008) for discussion of health impacts of climate change on urban populations, from increased vector- borne and chronic disease incidence, from such physical phenomena as flooding, air pollution, and urban heat island effects. These impacts can have differential age and gender impacts, due to vulnerability of children and the aged, as well as the time poverty impacts on women due to increased care responsibilities.

⁶ IPCC AR5 (2014).

⁷ US Forest Service (2018). [Urban Nature for Human Health and Well-Being](#).

⁸ For example, the average annual losses from coastal floods in the 20 riskiest cities in the world (i.e., high costs of ports upgrades) can reach up to 0.75 percent of the local GDP.

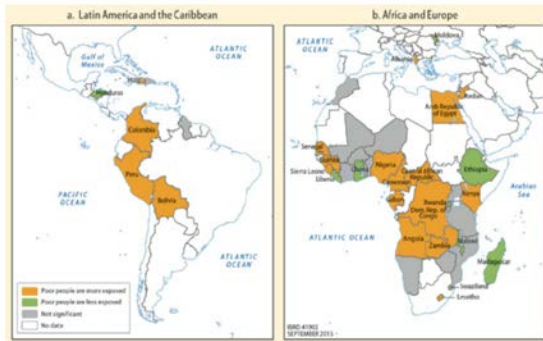
⁹ The World Bank (2015). [Investing in Urban Resilience: Protecting and Promoting Development in a Changing World](#).

¹⁰ United Nations (2015). Sendai Framework for Disaster Risk Reduction 2015-2030.

men.¹¹ Women can also take longer to recover their livelihoods from the impact of climate hazards. Vulnerabilities of excluded groups such as migrant workers, persons with disabilities, and elderly who are living in slum environments are also aggravated during urban flood events.

Figure 2: Exposure to river floods and coastal floods in urban areas

The urban poor are more exposed to river floods in many countries



Source: World Bank (BRD 41902, September 2015) based on Winsemius et al., forthcoming. Note: Exposure was calculated for river floods.

Most cities with the highest coastal flood losses are in South and Southeast Asia*



Source: World Bank 2013

10. **Cities are also becoming climate migration hotspots.** Increased frequency and/or intensity of extreme weather events and slow onset events such as desertification, which affect the availability and quality of natural resources, are expected to be a significant push aspect in human migration patterns. In 2018, the World Bank estimated that Latin America, sub-Saharan Africa and Southeast Asia will generate 143 million more “climate migrants” by 2050.¹² “Climate migrants” will migrate from less viable areas with lower water availability and crop productivity and from areas affected by rising sea level and storm surges.¹³ The poorest and most climate vulnerable areas will be hardest hit.¹⁴ These trends, along the side of the emergence of “hotspots” of climate in- and out-migration, will have significant implications for the adequacy of infrastructure and social support systems and climate-sensitive sectors.¹⁵ Addressing basic infrastructure gaps in a climate-smart way can help reduce vulnerability overall and risk exposure in urban areas. Integrating climate change measures into urban policies, strategies, and planning is key to secure resilience and sustainable development prospects.

2.1. Effective planning will be needed to address climate impacts on cities

11. **Our efforts to successfully limit global warming hinge on cities.** With dense population and diverse range of emitting industries, activities, and services, as well as being a locus of consumption of good and services by their residents, cities are the origin of considerable greenhouse gas (GHG) emissions. In 2013, 64 percent of global primary energy use originated in urban areas associated with GHG

¹¹ Das, M. and Majumdar, S. 2019. “What does social inclusion mean for a resilient city? A policy note on urban floods”. Washington DC: World Bank; Global Facility for Disaster Reduction and Recovery. 2016. “Gender Action Plan 2016-21”; World Bank 2010. Economics of Adaptation to Climate Change: Social Synthesis Report Washington DC: World Bank; Hallegatte, S. et al 2016. Shockwaves: Managing the Impacts of Climate Change on Poverty. Washington DC: World Bank.

¹² Kumari Rigaud K. et al (2018), [Groundswell: Preparing for Internal Climate Migration](#). The World Bank.

¹³ Ibid 10.

¹⁴ Ibid 10.

¹⁵ Ibid 10.

emissions of about 24 GtCO₂.¹⁶ While the magnitude of sources varies, the GHG emissions in urban areas are dominated by buildings, transport, and waste. The methane emissions from urban waste management alone accounts for 3 to 5 percent of the global GHG emissions. Because of cities' high population density and economies of scale, urban climate mitigation efforts can have a disproportionate positive impact, with significant cost reductions and co-benefits, such as reduced local pollution, improved health, and livability.

12. **Urban areas present a unique opportunity to plan, develop, build, and manage cities that are ecologically and economically sustainable.** New and rapidly urbanizing areas in developing countries, where urban form and urban infrastructure are not locked-in, hold the largest mitigation and adaptation opportunities with respect to human settlements and built infrastructure and systems.¹⁷ It is urgent to act on these priority areas given that 55 percent of total urban land in 2030 is to be built between 2000 and 2030 (about half in Asia with China and India leading half of Asia's urban development). Rapid urbanization in lower income countries is also expected to contribute to 90 percent of projected increase of urban transport emissions if the increase in air polluting car mobility goes unabated.
13. **The urban planning and design phase is a strategic point of engagement to identify and facilitate high-impact solutions** to curtail local environmental pollutants, avoid carbon lock-in, and improve cities resilience to climate-related impacts. The major change of urban forms, household and intra-household behaviors and consumer choices, and land use are recognized as important ingredients of the large-scale transformation required to achieve the internationally agreed climate goals.¹⁸ To motivate cultural and behavioral change in urban planning and design, the active engagement of urban communities is essential. In this context, building community capacity and promoting community participation can be an effective avenue to climate-smart urban planning. Cities can implement high-impact solutions by decarbonizing urbanization on one hand and deepening climate resilience on the other hand. For example, there are many efficiency and environmental gains to be had with ex-ante urban investments in reserving land for public right of way for infrastructure investments that follow with demand.¹⁹ If cities steer present resource-intensive urban systems towards resource-efficient urbanization pathways for land, water, waste, transport, and energy demand, the associated carbon footprints could rapidly decline.
14. **Mainstreaming climate-related considerations into upstream urban planning can help achieve transformational impacts both on cities' carbon footprint and on resilience of urban infrastructure and service delivery.** Systematic effort to integrate climate-related considerations into strategic spatial planning can significantly contribute to avoid carbon and climate-vulnerability lock-in for the decades to come, especially in new and rapidly urbanizing areas. It will help cities in communicating big picture beyond individual projects and conveying the overall direction towards low-carbon and climate-resilient urban development. Supporting cities in providing sustainable medium to long-term policy signals and incentives will help align behavior of individual infrastructure systems operators, investors, and consumers. Thus, transformational changes can be achieved in key sectors, including transport, energy, buildings, water, and solid waste management, to move toward low-carbon and resilient options.

¹⁶ IEA (2016).

¹⁷ IPCC, AR5 (2014).

¹⁸ WBG (2018). Cities are also testing grounds for implementation of the SDGs and the Habitat III New Urban Agenda. More specifically, SDG 11 aims to make "cities and human settlements inclusive, safe, resilient and sustainable".

¹⁹ Angel (2016).

2.2. Cities must act now to drive low-carbon and climate-resilient urbanization

15. Cities can contribute significantly to bridging the global emissions gap and strengthening urban resilience to climate-related impacts. Cities account for about 64% of global primary energy use and produce about 70% of energy-related global greenhouse gases.²⁰ These shares are expected to rise as cities grow and urban economic activity expands.²¹ Action in cities could close the emissions gaps by at least 10 percent in 2030 and by approximately 15 percent in later years.²² Given their capacity to innovate and their ability to take lead on local actions, cities can significantly contribute to deliver on the urban decarbonization potential and thereby contribute towards nationally-driven climate-related plans.
16. Further, given their proximity to the communities facing climate-related issues and good understanding of communities' needs and ability to respond, active engagement of municipal governments into the transitioning to longer-term low-emission and climate-resilient pathways can help enhance acceptability and support to climate action from the urban dwellers and private businesses. Cities can directly implement national policies or enhance their effectiveness through independent action.²³ Importantly, cities can also design and implement local policies and have influence over policy levers that national actors may not be able to access such as strategic spatial planning.
17. **Strategic spatial planning is one of the key city-level policy levers that shape urban development choices by informing the prioritization of capital investments.** A strategic spatial plan is a conceptual plan that guides and articulates medium-term strategy (five to 10 years) formulation and implementation. Strategic spatial plans serve as a main guiding policy instrument at the city (and regional) level, providing detailed context and rationale for investments priorities into infrastructure and service delivery. The planning process also establishes relevant policies and standards to guide future development.²⁴ If no plan or policy guidance exists, evaluation of development or investment proposals may raise critical development issues. Some examples of policy reforms informed by plans include policies for land use zoning, control and management of public open spaces and facilities, development of subdivisions and affordable housing, industrial locations, settlement upgrading, non-motorized and public modes of transport, and other related development standards. Development practice is instructive here, as to the importance of participatory planning processes, that do not inadvertently advantage some urban uses and users over others (e.g., developers over community members, including in informal settlements, including female residents, consumers, and vendors²⁵). Here, the institution-building and capacity-development process is as much of a resilience investment as resources invested in hard infrastructure responses.

²⁰ IEA (2013), [Cities Are at The Frontline of The Energy Transition](#). Note: Data refer to 2013.

²¹ Ibid 18.

²² For additional analysis on cities' potential in the fight against climate change, see McKinsey (2017), [A Strategic Approach to Climate Action in Cities—Focused Acceleration](#) and New Climate Institute (2019), [Global Climate Action from Cities, Regions and Businesses](#)

²³ SEI, Bloomberg Philanthropies (2015).

²⁴ Spatial planning has an impact on key drivers of urban GHG emissions, such as spatial arrangements (mix) and patterns of land-use, density and urban design, and spatial configuration of infrastructure (i.e., services and built-up structures like transportation systems, water supply, sanitation and wastewater management, SWM, drainage and flood protection, telecommunication, and power generation and distribution).

²⁵ See cases of inclusive municipal planning in Ahmedabad and Mumbai, India by SEWA and SPARC NGOs, respectively e.g., in Satterthwaite et al 2007 available at https://www.ipcc.ch/apps/njlite/srex/njlite_download.php?id=7196. See also discussion in Bartlett et al. (Chapter 27) available at <http://siteresources.worldbank.org/INTURBANDEVELOPMENT/Resources/336387-1342044185050/8756911-1342044630817/V2Chap27.pdf>.

18. **Capital investment plan that builds on the strategic plan provides a link between the municipality's strategic vision, its spatial plan, and the annual budget.** A capital investment plan describes the city's policies and financial abilities to manage the investment needs associated with its spatial development and built environment, and helps outline the needs to mobilize financing outside the city's budgets. It then identifies and prioritizes specific projects through a ranking system as well as a general schedule, reflecting the budget for that fiscal year and the estimated future capital needs and revenue estimates.
19. Supported by some MDBs and NGOs, many cities have developed robust Climate Action Plans (CAP) or are in the process of developing one, demonstrating a strong commitment to move toward low-emission and climate-resilient pathways. The proposed CIF Program will build on the experience from these plans and the lessons learned to date from their implementation.
20. **The individual characteristics of each city's economy, resource base, and political structure provide different opportunities for dealing with climate change.** Climate action planning tools and instruments can help cities to inform climate-smart urbanization strategies. Participatory scenario analysis tools can be of use in helping to identify a shared vision while setting climate and other constraints as planning parameters.²⁶ These are achieved through the identification and prioritization of opportunities relevant to the city to achieve low-carbon and climate-resilient development and avoid lock-in into urban sprawl and associated long-lived carbon intensive built infrastructure. Yet, despite the opportunities that may be harnessed by avoiding carbon lock-in and strengthening urban climate resilience, many cities have not yet incorporated climate-related considerations into their planning and investment priorities. This important gap needs to be urgently addressed, even more so in rapidly growing and medium-size cities that are facing the strongest barriers and misaligned incentives to act.

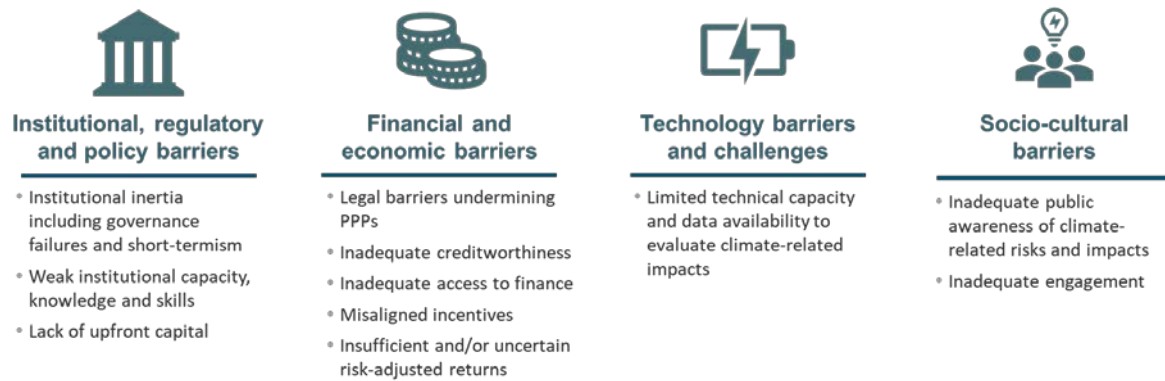
2.3. Financing climate-smart investments in cities

21. **To effectively deliver on the promise of climate-smart cities, it is critical to move from planning to pilots, from pilots to projects, and from projects to partnerships.** To do this, cities often require support to plan, implement and finance their transformative catalytic investments and policy actions.
22. **Connecting cities with financing is an essential component of building urban climate resilience strategies and achieving mitigation targets.** A city's ability to make climate-smart investments, particularly in emerging economies, often relies on the reallocation of existing budgets and the ability to raise revenue and attract resources. Cities in emerging markets alone have the potential to attract more than USD 29.4 trillion in climate-related investments in key sectors (e.g., green buildings, public transportation, electric vehicles, waste, water, and renewable energy) by 2030.²⁷ Private capital can play an important role in filling the financing gap for cities' climate-smart infrastructure.
23. **Cities face many barriers to climate-smart investments such as creditworthiness, bankability, and the lack of a viable project pipeline, which limits what they can do on their own and pose an obstacle to attracting private finance.** Limited governance, technical, financial, and institutional capacities of the municipal governments are key constraints to investment in climate-smart urban infrastructure.

²⁶ Kuriakose et al (2009), [Assessing Vulnerability and Adaptive Capacity to Climate Risks: Methods for Investigation at Local and National Levels](#); Bizikova et al. (2014). [Participatory Scenario Development and Future Visioning in Adaptation Planning: Lessons from experience](#).

²⁷ IFC (2018), [Climate Investment Opportunities in Cities - An IFC Analysis](#).

Figure 3: Overview of key barriers to climate-smart urbanization



a. Institutional, regulatory, and policy barriers include the following:

- Weak institutional capacity and inter-agency coordination at the city and/or national level can lead to a lack of relevant durable (long-term) policies and action plans able to provide signals on targeted urban and market transformation, including to guide private sector investments.
- Limited institutional capacities and processes at the level of municipal governments to ensure stakeholder’s participation and transparency in urban planning.
- Traditional capital investment plans and strategic spatial plans at the urban-level do not integrate climate-related issues and/or do not receive adequate support from the national government.
- Lack of connection between the planning and the mobilized financial package and lack of prioritization in the overall urban planning (competition for financing with other urban agendas) can lead to low levels of enforcement.
- Inadequate enabling environments can limit the ability of the private sector to create efficient alternative investment vehicles, such as public-private partnerships (PPPs), use of private sector capital to support utilities investments, and working with both the public and private financial intermediaries.

b. Financial barriers include the following:

- Decarbonization/emission avoidance or climate-resilient options and measures can be more expensive, posing additional budgetary challenges to cities, in part because these options are less likely to attract private finance.
- Limited resources and the frequent failure of local authorities to appropriate enough resources for needed investments, including due to the limited access to co-financing from MDBs mobilized at the national level, and to allocate spending to those activities that maximize benefits.
- Lack of or low credit rating among cities and other public off-takers²⁸, along with high levels of indebtedment, limits cities’ capacity to attract capital, tap into capital markets or access

²⁸ Credit ratings are usually capped by country credit ratings and thus cities cannot raise long term finance from the market.

financing at affordable terms. This is a key issue in in mid-tier cities and low-income countries.

- Limited financial management capacity of municipal governments (e.g. to build their credit rating or in issuing green or climate-resilient bonds).
- Reliance on grants to support incorporation of climate-resilience and low-carbon considerations at both planning and implementation stage.
- Weak local capital markets and lack of local currency loans.
- Lack of a viable pipeline of commercial investment opportunities, in particular where revenue collection is low, or tariffs are set below cost recovery.

c. **Technical and information barriers** include the following:

- Limited technical capacity and data availability to understand and evaluate climate-related impacts on the built and natural environment leads to a limited ability to reflect these impacts into existing urban planning regulation and in the choice of materials and other design features at the stage of infrastructure design.
- Lack of capacity and know-how to design and structure climate-smart infrastructure, including through ecosystem-based approach to enhancing resilience in urban areas.
- A lack of capacity and resources can lead to slow response to climate disasters.
- Limited technical capacity to appraise, develop and then monitor projects and their performance.
- There also can be a lack of both agency-level skills and public awareness of climate change-related risks and impacts on urban development, opportunities, and costs to improve climate-resilience and reduce the carbon footprint, as well as of the potential associated local co-benefits. And the distributional impacts of these among women and men, different income tiers, and excluded groups including those residing in marginalized (and often homogeneous) socio-spatial settlements, including ethnic migrants, as well as other minorities, or vulnerable persons residing in more dispersed locations (such as people with disabilities).

24. **CIF's business model is particularly well suited to systemically address these barriers by deploying concessional finance to unlock the climate potential of cities in a way that does not create market distortions.** CIF's *Climate-Smart Urbanization Program* proposes to address these challenges by leveraging on the comparative advantage of CIF's business model to help fast track the implementation of climate-smart urban 'upstream' and 'downstream' interventions that significantly contribute to transitioning to low-carbon and climate-resilient urbanization pathways.

3. Concept proposal

25. **CIF's Climate-Smart Urbanization Program aims to support cities in developing countries around the world to accelerate implementation of ambitious and transformative investments and policy actions that significantly contribute to transitioning to low-carbon and climate-resilient urbanization pathways.**
26. These objectives will be achieved in the following ways:

- **Scaling-up support to cities to achieve low-carbon and climate-resilient development patterns through climate-informed urban spatial and investment planning.** Climate-informed planning and decisions help avoid locking-in conventional urban forms, support sustainable infrastructure solutions; and make existing and new cities greener, more compact, transit-oriented, economically inclusive and more climate-resilient.
 - **Supporting financing and implementation of strategic public and private investments that translate plans into climate action** by creating conducive policy and legal enabling environments, bridging information and financial gaps, covering higher up-front costs and risks of low-carbon and resilient infrastructure, enabling effective mobilization of resources at the national level and from international financial institutions, and stimulating markets through long-term, city-level policy signals.
 - **Supporting the use of data-driven, and participatory climate action planning tools that inform cities' decisions and help transition toward long-term, low-carbon and climate-resilient development pathways relevant to the national and local circumstances and capabilities.** The Program will help cities by providing clear and actionable recommendations in key sectors, including energy, transport, buildings, water, and waste systems, and facilitating access to finance for climate mitigation and adaptation actions in an inclusive and participatory manner giving a voice to the urban communities particularly the most vulnerable.
 - **Enabling municipal and/or sub-national entities to attract private sector investments** via capital markets and/or other avenues by supporting the development of financial instruments and investment vehicles that improve urban projects' bankability, enhance cities' creditworthiness, and generate investors' confidence and appetite in municipal investments.
27. **The Climate-Smart Urbanization Program intervention strategy encompasses three main components** which may be undertaken simultaneously, concurrently, or on an as-needed basis depending on the stage of each city's development and its need for support (see Figure 4). The initial components may be undertaken during the investment plan preparation stage, during project preparation stage, or during project implementation. This will ensure that comprehensive but targeted support is provided to cities to cover the key elements of their transformative change, from strategic planning to implementation of investment and policy actions.
28. In cities where sound low-carbon and climate-resilient spatial and capital investment planning is already available and is in line with the global approach outlined in the proposal, the Program entry point may be defined at the phase of implementation of catalytic investments and policy actions. Therefore, the strategic entry points will depend on the readiness and capacities of cities, countries and MDBs (see Figure 4).
29. While the Program will cover a period of up to eight to 10 years, some cities are expected to show results in a shorter time frame. Others may require more support to prepare their investments before implementation.
30. Under the Program's approach, MDBs would assess the state of readiness of existing spatial and investment plans and each city's need for support along the three Program components as described in Figure 4.

31. **Urban interventions supported by the Climate-Smart Urbanization Program will target cities of different sizes and geographical contexts.**²⁹ The Program will be guided by principles such as urban socio-economic sustainable growth, carbon footprint, vulnerability to the impacts of climate change, willingness to change, level of ambition and transformational impacts of the strategically-aligned investment pipeline. To ensure the most efficient deployment of the resources under the Program, the operationalization of the guiding principles will consider the specific operational modalities of each MDB.

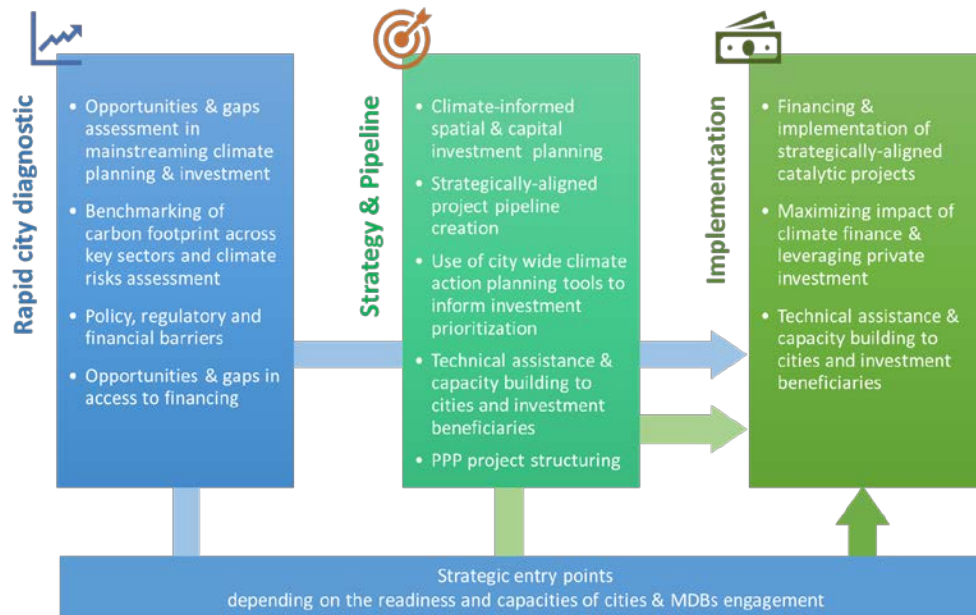
3.1. Component 1: Rapid city diagnostic

32. Component 1 aims to identify and engage with beneficiary cities through a rapid city diagnostic to assess the current situation and projected trend of these cities, their exposure to climate risks, current level of preparedness including in terms of gender-responsive disaster preparedness, and gaps to mainstreaming climate-related considerations into mid-term urban planning and investment pipeline development. The diagnostic will identify existing barriers in the policy, regulatory, planning outreach, and economic incentive structures at the city level, as well as the limitations in access to financing that may prevent effective climate actions and limit private investment into catalytic urban projects. The rapid city diagnostic should build on existing guides and lessons.³⁰
33. In cities that do not have established high-quality climate-informed urban development vision and action plans, the implementation of a rapid diagnostic for a city is expected to be completed within six to 12 months. Cities that have an active engagement in this area, the diagnostic will focus on identifying necessary support to translate the existing commitments into an investable portfolio of catalytic actions and on addressing critical policy gaps and financing barriers that would need to be overcome to accelerate implementation and leverage private investment.
34. The implementation of Component 1 can be accelerated by the creation of a “one-window” pool of technical resources supported by CIF grants that can be quickly and flexibly deployed. It can further reduce the time necessary to initiate the deployment of catalytic investments.

²⁹ The Program is mainly targeting primary and secondary cities with a population ranging between 100 thousand to 4 million, where the transformational impacts of climate-smart urbanization are expected to be the most significant. As such, for cities in the global south, the Program aims to focus on rapidly growing cities. The Program does not target mega cities.

³⁰ This includes, among others, the FAO series supporting nature-based solutions to climate change, edible green infrastructure, urban and peri-urban forestry, and the [US Climate Resilience Toolkit on Urban Canopy Assessment](#).

Figure 4: Proposed Climate-Smart Urbanization Program structure



3.2. Component 2: Preparation of climate-informed strategic spatial planning and other climate action plans and project pipeline development

35. This component consists of preparing climate-informed spatial plans and other climate action planning at the city level, appropriate to context-specific circumstances and needs, gender-responsive, and reflecting the outcomes of the effective stakeholder’s engagement, including necessary interactions at the national level. It also includes multi-year, strategically-linked capital investment plans, with a focus on developing a project pipeline for implementation in Component 3. The proposed plans will benefit from the review and endorsement by an international committee or body to leverage best practices and international experience between participating cities and beyond.
36. Component 2 aims to create an enabling framework and policy environment where cities’ institutions and public and private sectors will gain the knowledge, capacity, and financial resources necessary to embark on strategically-linked and timely low-carbon and climate-resilient interventions. The resulting coordinated strategic vision and investment framework will define the range of priority investments, some of which may be supported by the MDBs. Component 2 will also help to build a joint-MDB consultative platform to facilitate MDBs’ cooperation, enable synergies in supporting policy objectives identified by the city, and achieve impact of climate finance at scale including through innovative financing strategies and approaches.
37. Component 2 also aims to develop or add to a strategically-aligned project pipeline ready for implementation, including through the engagement of both the public and private sector arms of the MDBs, and to support mobilization of financing necessary for the implementation of catalytic projects. The implementation of this phase is expected to take up to one to two years, depending on the level of existing gaps.
38. Component 2 will include, but is not limited to, the following main activities:
 - Providing technical assistance to improve the preparedness of cities in climate adaptation and risk mitigation and to use strategic opportunities to transition toward efficient, low-

carbon urban development patterns through climate-smart planning (e.g., through developing or updating the cities' strategic growth plans, spatial development plans, and capital investment plans).

- Providing technical assistance to cities to use Climate Action Planning instruments and tools to help them and relevant communities make decisions about the future carbon footprint and climate-resilience of their buildings, energy, transport, water and waste systems. Climate Action Planning tools will support cities prioritize multiple carbon-smart actions and investments by evaluating their costs and impacts.
 - Supporting alignment of the cities strategic planning and Climate Action Plans with longer-term country-driven low-emission and climate-resilient strategies at the national/sectoral level (such as Nationally-driven climate related plans or National Adaptation Plans) and facilitating inclusion of city-level project in relevant climate investment plans.
 - Reviewing and enhancing municipal budgeting and financing performance (including to improve creditworthiness).
 - Identifying necessary policy, regulatory and zoning reforms, as well as appropriate financial instruments, to implement priority interventions in view of creating a pipeline of catalytic projects ready for implementation both by the public and private sector.
 - Exploring innovative financial and collaborative approaches to prepare bankable projects, develop domestic financial markets, and mobilize private financing for local investment, including through partnerships³¹ (e.g., by supporting municipal PPPs or bond issuance).
39. Targeted technical assistance and capacity building can also be provided as needed to enhance the capacities of women and other vulnerable groups to participate in the planning process, and for municipal agencies to strengthen their own absorptive capacity to work jointly with such citizens and incorporate their planning preferences. This could be followed by support to accompany the investment beneficiaries to strengthen the demand for catalytic investments and enhance their deployment rate and transformational impact. This latter form of support could be provided in several guises, including but not limited to corporate development programs; tariff restructuring; technical, financial, environmental, social, and gender due diligence; and project implementation and monitoring.

3.3. Component 3: Implementation of catalytic investment projects

40. This component focuses on financing and implementing key catalytic investment projects identified by cities and relevant project pipelines. Priority will be given to strategically-aligned projects or policy interventions that are both ambitious and transformational³² and where concessional climate finance is needed to overcome barriers to meaningfully achieve the Program's objectives.

Potential eligible investments include, but are not limited to, the following:

³¹ The examples of the initiatives already attempting to fill these gaps, please see IFC (2018), [Climate Investment Opportunities in Cities - An IFC Analysis](#).

³² Ambitious interventions bring significant contribution to putting the city on a decarbonization and climate-resilient pathway, for example by transitioning to climate-smart growth models for cities. Transformational interventions are those that reduce barriers to implementation faced by future climate-related programs and projects, for example by showcasing the feasibility of climate-smart investments for crowding in private sector financing and engagements (based on WBG, 2018, *Strategic use of climate finance to maximize climate actions*).

- Shifting towards low-carbon and climate-resilient access in cities by transforming motor-dominated urban corridors into transit-oriented development corridors, integrating transport modes to enhance efficiency, flexibility, and social inclusion (e.g., by considering gender-differentiated, accessible and inclusive transit and modal patterns), and promoting non-motorized mobility.
- Promoting low-carbon mobility, including electrification of public and private transportation (electromobility), traffic demand management, and investment in safe and inclusive public transit.³³
- Enhancing the use of renewable energy sources and increasing energy efficiency for the delivery of energy services within the city, including through due consideration for and outreach to women as energy service consumers and employees (e.g., in the entire energy value chain including in technical roles³⁴, bill collection and sales).
- Enhancing the alignment of spatial and infrastructure planning in a sustainable and climate-informed way to help achieve good density, mixed use, and resilient development when constructing new buildings stock and relevant infrastructure and service provision (i.e., help enhancing coverage and implementation of building codes and energy performance standards).
- Supporting green and resource-efficient improvements in new and existing buildings (e.g., electrification, use of distributed renewable energy solutions, gender-responsive demand-side management, climate-smart procurement practices, green buildings energy performance standards, and market facilitation) and efficient cooling systems and service provision. These include intervening along the entire life cycle of buildings from design to construction and applying new lower-carbon and climate-resilient building materials.
- Reducing the energy footprint of water supply and treatment systems and improving the resilience of water supply for a city.
- Promoting sustainable cooling approaches, including: (i) energy efficient and low global-warming- potential technology solutions (e.g., cool surfaces and mitigation of urban heat island effects; district cooling systems), (ii) reducing the needs for artificial cooling (e.g., energy efficient/ green buildings) and (iii) policies to support access to clean and affordable cooling and thermal comfort.
- Promoting integrated solid waste management and waste to energy solutions, with safeguard and/or livelihood promotion considerations for waste pickers or those women and men who may benefit from new forms of “green jobs” in recycling.
- Green infrastructure design interventions and other nature-based solutions that would improve access to basic services while reducing carbon footprint and enhancing resilience of the city (e.g., wetlands, buffer zones, green roofing, retention ponds, street side swales, rain gardens, and porous pavements).

³³ For example, by promoting use of established good design practices such as improved station lighting; accessible vehicles; economic vendor and construction opportunities for women in the project.

³⁴ Such roles can include renewable energy engineering, energy auditors, and battery and storage technicians.

- Rehabilitating eco-sensitive areas into green public spaces with social, environmental, and economic benefits to urban population, including women, men, girls and boys, and vulnerable groups, including persons with disabilities.
 - Structuring financial vehicles (e.g., green bonds, PPP schemes, equity investment facilities) to channel private sector finance towards the pipeline of low-carbon and climate-resilient investments identified in the cities' planning activities.
41. Component 3 also envisions continuous targeted technical assistance and capacity building to cities and investment beneficiaries, such as described in Component 2. At the implementation stage, such technical assistance and capacity building may focus on timely feedback of achieved performance and potential implementation gaps, as well as facilitating improvements in the investment pipeline to meet the expected outcomes and transformational impacts. Component 3 activities will likely be supported through both traditional and more innovative financing strategies and approaches (see Section 4.3). Boxes 1, 2, 3 and 4 illustrate how World Bank Group-supported interventions in four cities (Dar es Salaam, Tanzania; Kampala, Uganda; Colombo, Sri Lanka; and Izmir, Turkey) have implemented some of the proposed activities.
42. The three components of activities are based on the theory of change that recognizes the need for climate-smart spatial planning, implementation capacity, and access to affordable financing (see Figure 5). Effective planning is foundational for enabling cities to implement capital investment projects that are low-carbon and climate-resilient. It is necessary to reduce the carbon footprint of cities, avoid carbon lock-in for new infrastructure (while reducing the needs and overall cost for infrastructure investments), and build a sustainable future for cities prepared with sufficient and effective climate adaptation and mitigation measures.

3.4. Building on the international initiatives supporting urban climate action

43. **To enhance its effectiveness and transformative impact, CIF's *Climate-Smart Urbanization Program* will build on and complement existing initiatives and partnerships supporting urban climate action.** Cities' climate actions benefit from support from both newly created and more established international initiatives and partnerships, an overview of which is provided in Table 1. These initiatives and partnerships cover a wide range of technical and policy support, and to a lesser extent financing to cities in developing countries or emerging economies, globally or in targeted regions. For each selected initiative/partnership Table 1 illustrates their main types of engagement and related supporting activities (darker and lighter green color respectively).
44. Most urban-focused global climate initiatives focus on technical assistance, capacity building, knowledge creation and experience sharing, policy support and network leveraging to support low-carbon and climate resilience urban actions. The type of support provided to cities, include for example:
- Climate action planning and target setting (e.g., Global Compact of Mayors for Climate and Energy, C40, ICLEI), including in the context of the alignment with internally agreed climate goals (e.g., C40 'Deadline 2020' research initiative);
 - Supporting cities in identifying opportunities and barriers for climate action, including supporting community engagement, institutional capacity building, enhancing regulatory and institutional frameworks and supporting climate market creation;
 - Developing and deploying dedicated tools and approaches that help cities to (i) monitor and report their carbon footprints, (ii) prepare climate actions plans and translate them into

investment pipelines; (iii) estimate impacts of climate actions on GHG emissions and other socio-economic indicators of urban development (including co-benefits); and (iv) screen climate change impacts on cities and facilitate building climate-resilient urban areas; as well provide technical support and capacity building for municipalities, public and private investors to help overcome barriers to climate action, such lack of finance.

45. The Green Climate Fund has supported urban-relevant projects led by its accredited entities with concessional finance for both technical assistance and investment interventions³⁵, on a project by project basis approach. The Global Environmental Facility (GEF-7) through its *Sustainable Cities Impact Program* (USD 156 million) offers grant-based support for integrated spatial planning, technical support, and institutional capacity building that aligns multiple priorities for long-term sustainable growth of cities.³⁶ GEF does not provide resources for large-scale investments.³⁷

Table 1: Selected existing initiatives supporting urban climate action

Initiative	Concessional Finance for investments		Technical assistance			
	Upstream financing for integrated spatial and investment planning	Investment lending at scale	Policy support	Capacity building	Knowledge sharing	Pipeline creation / (including project preparation)
GLOBAL INITIATIVES						
Climate Investment Funds Climate-Smart Urbanization Program						
Green Climate Fund through EBRD's Green Cities implemented program						
GEF-7 Sustainable Cities Impact Program [^]						
C40 Cities Finance Facility / Financing Sustainable Cities Initiative						
UN-Habitat's Cities and Climate Change Initiative (CCCI)						
Cities Climate Finance Leadership Alliance (CCFLA)*						*
ICLEI - Local Governments for Sustainability						
Global Fund for Cities Development (FMDV)						
Leadership for Urban Climate Investment (LUCI)						
Cities Climate Finance Gap Fund						
REGIONAL INITIATIVES						
Cities Development Initiative for Asia (CDIA)						
Global Covenant of Mayors for Climate and Energy						
PRIVATE FINANCE'S INITIATIVES						
Rockefeller 100 Resilient Cities**						

([^]) Including the GEF supported Global Platform for Sustainable Cities which is a forum for knowledge sharing and partnership to achieve urban sustainability.
(^{*}) CCFLA has a project preparation facility aimed at supporting CCFLA members in identifying, coordinating and accelerating existing Project Preparation Facilities. It focuses on enabling implementation, supporting local metropolitan and regional governments and their partners to build capacity and to scale up planning, project preparation and financing of their projects.
(^{**}) The existing 100 Resilient Cities organization concluded on July 31, 2019. On July 8, 2019, The Rockefeller Foundation announced an US\$8 million commitment to continue supporting the work of Chief Resilience Officers and member cities within the 100 Resilience Cities Network.

46. **CIF's Climate-Smart Urbanization Program seeks to fill a gap in the landscape of initiatives by focusing on delivering finance through a programmatic approach which entails supporting comprehensive urban climate action, from upstream policy and planning to large-scale investments that are required to put those plans in motion. CIF's Climate-Smart Urbanization Program is well positioned to deploy this model on a limited number of cities in multiple regions with a view to demonstrating a replicable climate-smart model of urban development that is coordinated, compact, and connected and help cities accelerate toward a low-carbon and climate-resilient growth path.**

³⁵ GCF has supported urban-relevant projects led by its Accredited Entities such as, for example, the EBRD Green Cities Facility (USD 99 million support from GCF) (See GCF [web site](#)) and other national and sub-national financial institutions. Under its draft 2020-2023 strategy, GCF includes low-carbon and climate-resilient cities among its priority areas of action (buildings, cities, industries and appliances results area). For more information, see GCF (2019), [The Strategic Plan for the GCF: 2020–2023](#).

³⁶ USD 156 million is the notional amount of GEF-7 replenishment allocated to the Sustainable Cities Impact Program. See GEF (2018), [Summary of Negotiations of The Seventh Replenishment of The GEF Trust Fund](#).

³⁷ GEF (2018), [Summary of Negotiations of The Seventh Replenishment of The GEF Trust Fund](#).

47. **The added value and the complementarity of CIF's *Climate-Smart Urbanization Program* vis-à-vis all other international initiatives lays in the following key aspects:**

- **Programmatic city-level engagement and participatory approach**—from strategic and spatial planning to implementation and financing of climate action in cities — to align multiple actors' behavior, incentives, policies and capital around a common transformative vision
- **Multi-MDBs coordination and action** to foster strategic partnerships, mobilize institutional and political support and resources toward strategically-linked interventions in a relatively small number of cities, and enable MDBs to go beyond what they would otherwise do in isolation with their own resources alone.
- **The expected scale of predictable and flexible concessional finance for both upstream and downstream interventions.** Concessional finance will be deployed both: (i) *upstream* to support the creation of policy-enabling environment and the preparation of city-level climate-informed strategic investment plans, and (ii) *downstream* investments support to help overcome barriers, close the financing and information gap, and cover higher up-front costs and risks of low-carbon, climate-resilient infrastructure.
- **Innovation in stakeholders' engagement and financing.** CIF's *Climate-Smart Urbanization Program* would seek to:
 - Raise the bar on engagements at the country-level and start piloting approaches – such as those identified as critical zones of opportunity in The Future of Climate Action Map³⁸ such as via Hackathons, local innovation hubs and the use of new communication and geo-spatial tools (see Section 4.4).
 - Support MDBs in the design and implementation of innovative blended finance instruments and strategies that crowd-in private capital at scale to address context-specific needs and accelerate a socially-inclusive transition (see section 4.3).³⁹

48. Other global initiatives such as the UN-Habitat's Cities and Climate Change Initiative, Local Governments for Sustainability (ICLEI), Global Covenant of Mayors for Climate & Energy, Leadership for Urban Climate Investment (LUCI), Climate Finance Leadership Alliance (CCFLA), and 100 Resilient Cities could become important partners of CIF's *Climate-Smart Urbanization Program*. Working together could help foster strategic partnerships through peer-to-peer learning, sharing knowledge and best practices, and identifying solutions that can help cities in developing and implementing their climate action plans and project pipeline. These partnerships will help mobilize sustainable institutional and political support to urban climate action and enable a coordinated and effective mobilization of resources from MDBs, other financial institutions and the private sector into strategically-aligned demand-driven transformational investment portfolios. CIF has recently established partnerships with LUCI and is serving on the steering committee of the CCFLA.

³⁸ *The Future of Climate Action Map* represents one of the outcomes of work that CIF initiated in 2018 in partnership with Institute for the Future and in consultation with a range of experts and executives from academia, design, tech, finance, and media ad-hoc convened to forecast the future of climate action and identify zones of opportunity and potential new actors to engage in climate action. In September 2019, CIF Administrative Unit convened partner MDBs and the World Bank's Technology and Innovation Lab to advance discussions on how to ensure the MDBs stay at the forefront of climate innovation and integrate the identified zones of opportunity in CIF's new programming.

³⁹ Table 2 in section 4 of the program proposal provides specific examples of blended finance structures and approaches that could be explored under the Climate-Smart Urbanization program.

4. Rationale for concessional finance through the Climate Investment Funds

4.1. High priority needs for MDB support through CIF

49. **CIF's business model – country-led, multi-MDB, programmatic and participatory approach and flexible and predictable concessional finance at scale – is particularly well-suited to deliver on the *Climate-Smart Urbanization Program's objectives*.** Both the urgency of urban climate action and the scale of the infrastructure gap, especially in new and rapidly expanding secondary cities, create a need and opportunity for the MDBs to scale up support to cities. This is needed to achieve sustainable development through climate-informed strategic planning and to support strategically-aligned public and private investments that translate plans to implementation. For champion cities that have already developed their climate-informed development strategies and action plans, in line with the main principles of this Program, CIF finance will contribute to the implementation of transformative catalytic investments and policy actions. Channeling climate finance to cities will significantly contribute to achieving cities' climate and sustainable development objectives and create an enabling environment for further raising the ambition of their climate actions.
50. The programmatic approach that has been prioritized by CIF as its primary model of delivery addresses barriers at the planning, structuring, and financing phases to unlock and scale up the implementation of climate-smart infrastructure. The programmatic approach offers a suitable business model to help overcome barriers to mainstreaming climate considerations into strategic and spatial planning, structuring and financing low-carbon and climate-resilient projects and to demonstrate its transformational impacts in new or rapidly urbanizing areas.
51. CIF's business model is particularly well-suited to support the large-scale urban infrastructure investments required to sustainably meet the needs of new and rapidly urbanizing areas. It is urgent not to delay actions on urban planning and long-lived urban infrastructure systems that otherwise would be too costly to decarbonize rapidly and climate proof. These key elements provide a strong rationale for CIF's climate action:
 - **Coordinated engagement of MDBs is needed to successfully support early and smooth urban transformation** by providing support at scale until the tipping point is reached where commercial finance kicks in.
 - **A city-led strategic spatial plan and climate action plan that is gender-responsive and socially inclusive can translate into comprehensive, multi-year strategically-linked capital investment** opportunities offer an appropriate platform to support priority investments, including from the private sector, facilitate MDBs cooperation, and maximize synergies in the use of climate finance toward the aligned policy objectives.
 - **The certainty of available scaled-up resources offered by CIF's programmatic approach can help to increase cities ownership and strengthen implementation** of climate-informed strategic plans. It can help overcome institutional, political, and economy barriers and capital constrains and reduce challenges for cities in mobilizing finance for low-carbon climate-resilient policies and investments that are more expensive or more challenging to implement due to existing barriers.
 - **The CIF's programmatic approach contributes to de-risking of catalytic investments and helps overcome barriers to attract private sector capital at scale into transformative projects.**

- **Demand-driven capital investment portfolios, informed by spatial plans or other strategic planning, aligned with local and national pathways to low-carbon and resilient urbanization,** can allow MDBs to leverage and deepen their support to transformational urban interventions. CIF’s programmatic approach can also leverage the MDBs’ strategic dialogue at the national level to help mobilize necessary institutional and political support to urban climate action and enable effective mobilization of resources (beyond CIF) from MDBs and other financial institutions.
- **The CIF-MDB partnership can facilitate dissemination of global good practice, while tailoring this knowledge to local circumstances.** MDBs can also use their convening power to foster strategic partnerships between governments, donor agencies, civil society, and the private sector.

4.2. Rationale for concessional finance

52. **Concessional climate finance can be key to overcoming barriers and maximizing climate action in cities.** It can promote programmatic city-level engagement—from strategic and spatial planning to implementation and financing— as a useful complement to the national adaptation and mitigation policies and help mobilize public and/or private resources towards cities’ priorities.
53. **Grants will be necessary to provide upfront support to help overcome institutional, knowledge and capacity barriers.** Grants resources can help spearhead the preparation of city-level climate-informed strategic spatial and investment plans thereby inform climate-smart capital allocation decision-making. Overall, the share of grants is estimated to about 5 percent of the total Program budget. The rationale for the use of grants is the strongest for municipal authorities that demonstrate a strong commitment to develop Climate Action Plans and integrate climate considerations into development frameworks and that also typically have the smallest per capita budgets and limited technical or institutional capacities.⁴⁰ In the absence of such support, cities may continue to address pressing development needs, forgoing longer-term benefits from climate-informed, resilient, and compact and connected urban forms.
54. **The degree of concessionality required at the investment stage will depend on the nature and severity of the barriers to be address at the city level.** Concessional climate finance can contribute to covering higher up-front costs and risks for more expensive or more challenging priority interventions and can create a policy-enabling environment conducive to the participation of private sector capital through the appropriate investment vehicles, such as PPPs, the use of private sector capital to support utilities investments, and the engagement of both public and private financial intermediaries. It also can help reduce technical and institutional barriers, bridge financial and information gaps, and stimulate urban transformation by providing clear long-term policy signals.
55. By defining the engagement scope, from strategic and spatial planning to implementation, the Program aims to create a policy-enabling environment where both public and private sectors at the city level will gain the knowledge, capacity, and financial incentives necessary to embark on strategically-linked and timely low-carbon and climate-resilient interventions. Therefore, the Program is expected to have larger, catalytic effects on mitigation and climate resilience building in urban areas, maximizing the leverage of climate finance.
56. Concessionality can also help overcome the barrier related to the myopic behavior of many cities that focus on low-cost, sectoral, short-term solutions and help demonstrate the benefits of a strategic,

⁴⁰ NCE (2018).

longer-term vision and the importance of crowding in private sector investment. Given a relatively long timeframe needed to transform long-life urban infrastructure (or demonstrate impacts on climate-smart choices for new infrastructure), longer-term concessional climate finance would allow MDBs to maintain durable engagement at the city level. Such engagement is needed to reach the tipping point where the targeted barriers to implementation can be overcome and commercial finance can take over.

57. Concessionality will help to de-risk catalytic, first-of-their-kind private sector investments to support low-carbon and climate-resilient cities that may not otherwise be feasible for private investors across numerous sectors. This can help crowd private sector capital into markets where such financing is not currently available.
58. Resources with a concessional component are also expected to unlock opportunities for greater co-benefits (i.e., reduced local pollution and increased livability, connectivity, and productivity of cities). This can contribute to sustain city action and could reduce the need for concessional climate finance in the medium to long term.

4.3. Innovating how concessional finance is delivered on the ground

59. **The CIF-MDBs partnership can build on the lessons learned to date and help further innovate how concessional finance is delivered on the ground.** Over the past ten years CIF has helped MDBs to develop and test new products and learn lessons that were later replicated with their own resources and/or with resources from other partners.⁴¹ CIF has helped MDBs “learn by doing” in relation to blended finance structures.⁴² CIF can continue pushing the boundaries in climate financing and tackle areas previously underserved by traditional financial instruments. It can do so by furthering its programmatic approach so that to promote enhanced system-wide thinking and action and supporting the piloting of innovating financing instruments.
60. **Under the *Climate-Smart Urbanization Program* CIF would seek to support MDBs in the design and implementation of innovative financing strategies to complement more traditional ones.** It would seek to pursue innovation to e.g., accelerate recipient countries’ ability to deliver on their climate and sustainable development targets; tackle barriers to private investments that have not yet been addressed and/or that could be addressed more effectively and efficiently; or mobilize private capital toward areas that have not yet been able to attract commercial capital at all or at scale. Table 2 provides examples of blended finance structures and approaches that are likely to be considered under the *Climate-Smart Urbanization Program*. Innovative insurance or gender-based incentive mechanisms (i.e. financial incentive based on gender outcomes structured so that to help reduce gender gaps) and rent-2-own climate-smart model could also be considered going forward and pursued where applicable.

⁴¹ ITAD et al., (2019), [Final Evaluation Report - Evaluation of Transformational Change in CIF](#).

⁴² ITAD et al., (2019), [Final Evaluation Report - Evaluation of Transformational Change in CIF](#).

Table 2. Examples of innovative blended finance instruments and facilities for Climate-Smart Urbanization

Instrument/Facility	Description	Innovative Features
PAYS - Pay as You Save for Clean Transport To accelerates clean transit in cities	Mechanism by which a utility invests in batteries and charging stations and recovers costs through a charge on the bus service provider's electric bill	<ul style="list-style-type: none"> ▪ Applies a proven model with low-cost, low-risk secure repayment mechanism to overcome major barriers to electric bus procurement in developing countries and achieving scale
Battery Subscription Facility To enable the mass adoption of electric buses	Vehicle investing in batteries for electric buses, and providing them to bus operators on a subscription basis, charging for use on daily or per kilometer rates	<ul style="list-style-type: none"> ▪ Enables third-party led, non-subsidized deployment of electric buses at scale
Distributed Energy for Social Housing To accelerate the deployment of residential distributed solar power for low-income tenants	Third-party ownership and rental model for distributed solar systems in low-income tower houses. Tenants would pay a performance-based rental fee	<ul style="list-style-type: none"> ▪ Enables distributed energy at feasible rates and terms that match the lifetime of solar projects ▪ Only model targeting low-income households
Cities Local Currency Lending Facility To support local currency lending for city-level climate-smart infrastructure projects	Revolving fund structured in multiple local currencies to support local currency lending through <ol style="list-style-type: none"> i. Hedging a long-term currency swap or ii. Extending the terms of an existing swap 	<ul style="list-style-type: none"> ▪ Addresses the persistent mismatch, and associated foreign exchange fluctuation risk, between the currency of capital available for infrastructure projects and the currency of payments for services ▪ Improves on project-by-project hedging because (i) cheaper than on a per transaction basis; (ii) reduces currency risk to the funder; and iv) more suited for entities operating across several LDCs which individually have small absorption capacity. ▪ Can become self-sustainable/address the root causes calling for concessional financing this is because e.g. once several projects would be successfully implemented under the Facility, local lending markets in countries with strong domestic

		banks will likely “learn” and be able to extend long-term financing for follow up projects without concessional support.
High-Risk Cities Lending Facility To provide a range of climate finance solutions for high-risk cities	Lending facility applying a programmatic approach to align multiple financial solutions to address multiple barriers across sectors and actors operating within a city	<ul style="list-style-type: none"> ▪ Provides a one-stop-shop solution to address the multiple-barriers associated with climate-smart investment at the urban level: <ul style="list-style-type: none"> - Technical assistance and specialist consultancy services to improve credit worthiness of the city over time - Innovative risk mitigation instruments to cover e.g. a portion of the first-loss lending to cities without a credit rating and/or currency risk - Incentives for the private sector - Refinancing facility for infrastructure projects with long lifetimes

4.3. Driving innovation in urban climate action

61. Since its establishment CIF has helped push MDBs into more innovative low-carbon technologies and sectors and helped change the way that MDBs do business with regards to climate. As a continuation of these efforts, since 2018 CIF has engaged in a series of foresight-focused initiatives to help ensure that CIF’s new programs are well positioned to address emerging climate challenges and seize ‘zones of opportunity’ (see Figure 6) while helping keep CIF and the MDBs at the forefront of climate innovation.⁴³ The *Climate-Smart Urbanization Program* has been identified as a potentially high-impact platform through which some of the new approaches that emerged from this work can be piloted, including:

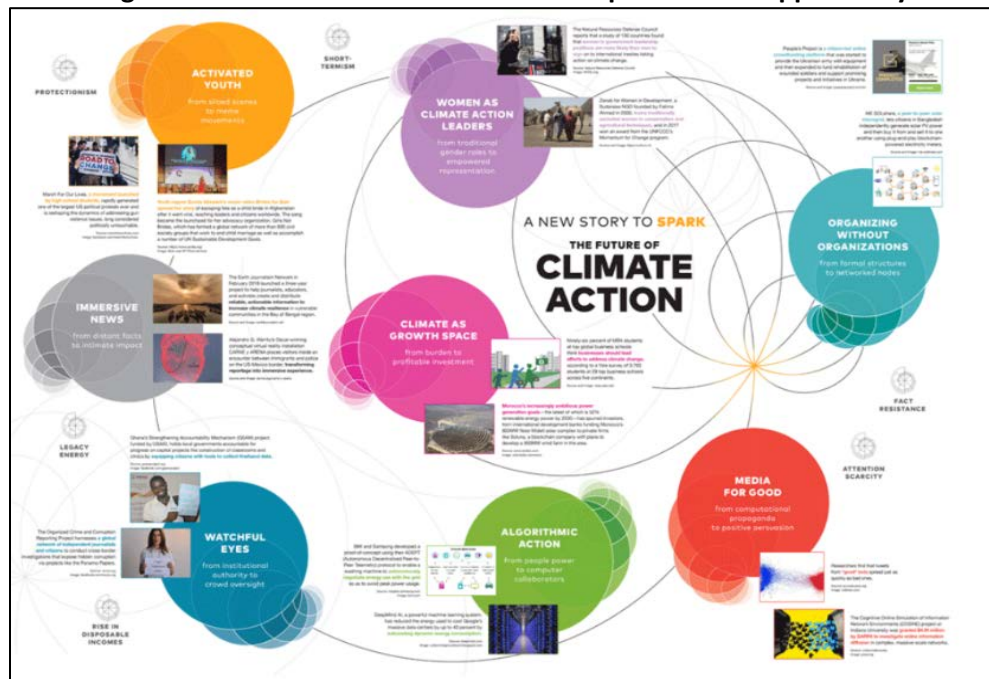
- **Hackathons, local innovation hubs or accelerator/incubator programs**, and other similar methods that have proven to be particularly effective in identifying innovative climate solutions and driving climate action at the local level. These tools could be incorporated at the investment planning phase to ensure that key problems to sustainable urbanization are defined and locally-sourced solutions are considered.
- **Communication tools and art**: recognizing the critical role that news, stories, culture have in generating local buy-in for low-carbon initiatives and changing social norms and behavior, the CIF-MDB partnership can leverage this Program to explore how arts and media can be

⁴³ In 2018, the CIF Administrative Unit partnered with the Institute for the Future to convene a range of experts and executives from academia, design, tech, finance, and media to forecast the future of climate action and identify zones of opportunity and potential new actors over the next decade in the always-evolving realm of climate action. In early 2019 the CIF Administrative Unit worked with the World Bank’s Technology and Innovation Lab and its partner MDBs to see how these insights could help inform and potentially guide future programming under the CIF

incorporated more centrally into the development and delivery of investment plans and programs.

- **The engagement of stakeholders that have not yet been adequately involved** in the shaping or delivery of climate interventions. Youth, circular economists, local entrepreneurs and innovators to e.g. help shape investment plans.
- **“Climate ventures”** providing bespoke financial support to high-risk and high-impact urban-focused technologies, models and approaches with the potential of addressing challenges to urban climate-smart development faster and a greater scale. A 5-10% of the Program funding could be invested towards these ends.⁴⁴

Figure 6. The Future of Climate Action Map – Areas of Opportunity



5. Theory of Change and expected outcomes

62. CIF’s *Climate-Smart Urbanization Program* will demonstrate a new climate-smart model of urban development that is coordinated, compact, and connected. A shift toward more compact urban growth, connected infrastructure, and coordinated governance can not only boost long-term urban productivity and yield environmental and social benefits, but also reduce urban infrastructure capital requirements by more than USD 3 trillion over the next 15 years.⁴⁵
63. CIF’s *Climate-Smart Urbanization Program* will demonstrate how climate-related considerations can be mainstreamed into urban development — from strategic planning to implementation — and the related benefits. Cities will be supported to provide policy signals regarding their climate-smart urbanization priorities, which can guide market transformation and help align behavior of individual infrastructure systems operators, investors, and consumers to these priorities. Cities will curb unplanned, sprawling urban expansion and transition to more efficient compact urban forms for

⁴⁴ See CIF’s Operational Modalities document 2020 for more details.

⁴⁵ The Global Commission on the Economy and Climate (2014).

socioeconomic growth. Cities will benefit from the economic and social opportunities associated with transformational low-carbon and climate-resilient choices by e.g. the following:

- Using mass rapid transit solutions (MTR) and transport-oriented development, including through the deployment of electromobility, to manage expansion and achieve low-carbon connectivity
 - Using spatial planning and urban design to shape district-level neighborhoods and respond to climate development needs, achieving higher energy performance and reduced carbon footprint of the existing and new buildings stock and cooling systems and service provision
 - Facilitating redevelopment and rejuvenation through appropriate urban planning and design guidelines
 - Protecting / enhancing green and natural areas
 - Strengthening the alignment of spatial and infrastructure planning to help achieve “good” density, optimize efficiency, and improve resilience of new housing stock and relevant urban infrastructure and service provision (water supply and treatment, integrated solid waste management). This may include consideration of financial incentives for developers promoting mixed-income housing in order to advance urban social cohesion through improved access to affordable housing and disrupting patterns of segregation by socioeconomic status.⁴⁶
 - Improving access to resilient water resources
 - Implementing climate-resilient waste management systems
64. The urban population in participating cities will benefit from improved access to climate-smart services and improved level of protection, including through the prevention of losses due to adverse climate-related shocks and stressors and through the synergetic benefits for public health (i.e., reduced local air pollution from motorized transport and reduced health impacts due to urban heat extremes) and related productivity gains.
65. The *Climate-Smart Urbanization Program* Theory of Change presented in Figure 7 illustrates how the Program will achieve its intended objective and contribute towards the overarching CIF’s impact of ‘*improved low-carbon and climate-resilient development*’. The results pathways developed for this Program’s Theory of Change are based on the principle that: “*If we diagnose cities’ development context and projected trends, prepare climate-informed and socially inclusive strategic spatial and investment plans and provide adequate financing solutions for conducive enabling environment and catalytic investments projects capable of mobilizing additional public/private capital, then we will be able to demonstrate a scalable and replicable climate-smart model of urban development that is coordinated, compact, and connected and help cities accelerate toward a low-carbon and climate-resilient growth path*”. This will contribute to CIF’s transformative impact.
66. **The expected outcomes of the proposed Program** are as follows:
- Institutional

⁴⁶ This also indirectly reduces climate vulnerability by increasing adaptive capacity overall – see de Sherbinen et al 2007 available at <file:///C:/Users/wb283022/Documents/de%20shebinin%20et%20al%202007%20.pdf>

- **Strengthened policies/regulatory frameworks for climate-smart urbanization:** Governments will be able to provide suitable policies and enabling environment that will minimize trade-off, optimize synergies and increase uptake of climate-smart urban investments through a multi-level approach and support interventions at community, local government and landscape level in the context of wider decentralized governance, that includes the voices of disadvantaged groups, including women, at multiple scales as an input to national and local planning.
- **Knowledge and technical /institutional capacities improved:** Climate-smart urban planning requires expertise and experience including skills in climate risk assessment, consultation with stakeholders, mobilizing resources and promoting innovation. This institutional and capacity development is relevant to achieve long-term transformational impacts and ensure the sustainability of the intervention.

Socio-economic

- **Cities' access to finance and budgeting for climate-smart projects improved.** Public and private investments in climate-smart urban projects are expected to deliver climate resilience and mitigation benefits. The Program would provide a business case, incentives and tools for investing in a multi-level and multi-sectoral approach that promotes mitigation, adaptation and socio-economic development.
- **Urban infrastructure and population protected, and loss prevented from climate-related shocks and stressors:** Enhanced protection of urban infrastructure and population.
- **Fostered innovation:** Enhanced support for early-stage ventures, technologies and business models with high impact potential.

Urban

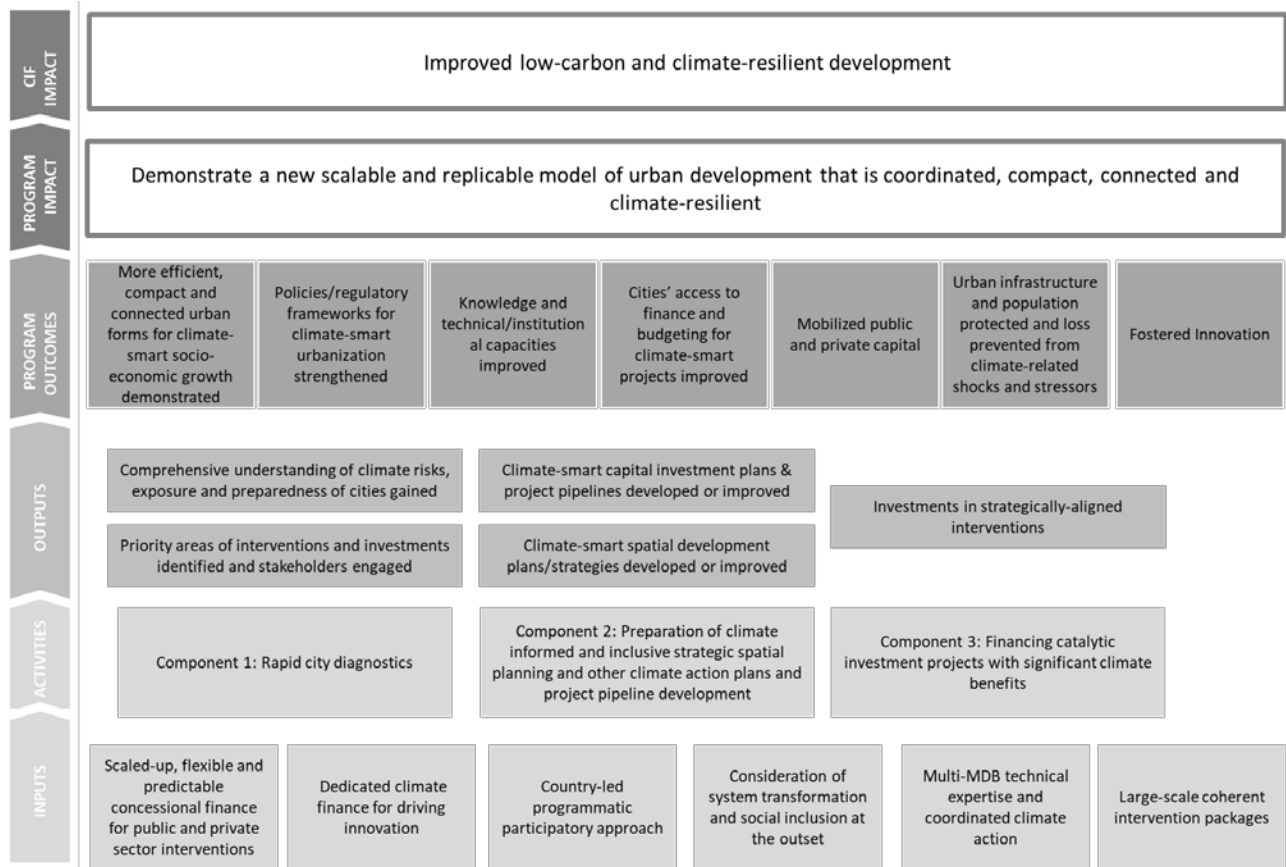
- **More efficient, compact and accessible urban forms for climate-smart socio-economic growth demonstrated:** Enhanced uptake of efficient and climate-resilient urban development models. Through the Program cities can leapfrog traditional approaches and transition to a low-carbon and climate-resilient pathway.

67. The Theory of Change was developed based on the assumptions that there is enough demand and enough interest in the deployment of innovative and/or proven climate technologies across the urban sector; the services and technologies provided through the Program are of good quality, and represent a good return on the investment; confidence in investing in the climate-smart development of cities is stable or increases; the regulatory environment is favorable to the Program and does not worsen; the adequate enabling conditions (such as political commitment) remain over the time of Program implementation or improve.
68. The risks that may have to be taken into consideration include: the choice of Program partners and their ability to deliver; technologies which may not deliver the expected results; lack of interest or engagement from the Program stakeholders; public opinion turning against the solutions promoted by the Program; and any social or environmental damage that may arise from the Program's implementation.

Figure 7. Theory of change for the Climate-Smart Urbanization Program

- Risks to consider:**
- Choice of partners and their ability to deliver
 - Technologies that do not lead to the expected results
 - Lack of interest/engagement from key stakeholders
 - Public opinion turns against climate-smart urban solutions

- Assumptions:**
- There is enough demand and interest among stakeholders
 - Services and technologies supported and deployed are of good quality and provides a good return on investment
 - Confidence in financing climate-smart projects is stable or increases
 - The policy and regulatory environment does not worsen but rather improves thanks to the Program



Annex A – Illustration of Urban climate interventions supported by the World Bank Group.

Box 1: Msimbazi Basin in Dar es Salaam, Tanzania: Transforming urban space and mitigating climate risks through participatory planning

The lower Msimbazi Basin transects the city of Dar es Salaam, Tanzania, including its central business district, critical transport infrastructure, and vulnerable low-income communities. This is a flood risk hotspot in the heart of the city and presents flood management complexities resulting from environmental degradation and erosion, poor infrastructure citing, encroachments of informal communities, climate change impacts, pollution, and competition for scarce land. Technical assistance provided under the World Bank-supported Tanzania Urban Resilience Program facilitated a participatory planning process of urban design to identify flood risk reduction measures in the lower Msimbazi Basin of Dar es Salaam. A participatory charrette process engaged multiple stakeholders in understanding, prioritizing, and designing solutions for these issues. The charrette spanned six months (from January to June 2018), engaging approximate 70 people across government, civil society, and communities, and delivered a comprehensive and integrated strategic development and management framework for land use in the Msimbazi River catchment area and its vicinity. The output includes elements that will support the resilient development of Dar es Salaam as a megacity, including flood protection, environmental rehabilitation, and green city park development.

Following the charrette exercise, experts will be mobilized to conduct a comprehensive flood model analysis as an input for making recommendations for a detailed area plan in the lower basin, as well as a basin-wide strategic management framework for flood risk reduction. The flood model will be the first time the river is scientifically surveyed, modelled, and assessed for flood mitigation options.



Sources: World Bank, 2018. *The Msimbazi Opportunity: Transform the Msimbazi from A Flood Risk Area to An Icon of Urban Resilience in Tanzania*. August 21, 2018, Dar es Salaam
World Bank, 2018. *Msimbazi Basin Flood Mitigation and Participatory Planning Project Concept Note (P161530)*.

Box 2: Kampala, Uganda: Developing a climate-smart capital investment plan for a low-carbon future

Between 2002 and 2010, Uganda's urban population grew by 5.6 percent, almost twice as fast as the rural population. As a result, the capital city Kampala is projected to become a megacity of over 10 million by 2030, and other regional and strategic cities will also see a demographic explosion. With this increasing pool of urban residents, local government authorities have to be able to secure basic social services and facilities for the urban population in a sustainable way. The Kampala Capital City Authority (KCCA) adopted its Strategic Plan 2014-2019 to transform Kampala into an attractive, vibrant, and sustainable world-class city. To implement the plan, it has been necessary to break it down into investment projects.

Capital Investment Plan (CIP) is a policy tool used by local governments to forecast and budget capital projects and acquisitions over a given timeframe. This tool is integral to capital and operating budgets, asset management, long-term plans for development, and financial management of cities. With support from the World Bank, KCCA has developed its first Climate-Smart Capital Investment Plan. During the CIP process, the World Bank helped KCCA plot their desired CIP projects against maps of potential hazards to understand the climate risk implications of investments. The projects were then reviewed and prioritized based on a set of criteria, including climate benefits. As a result, for example, the education directorate removed all proposed schools in the floodplain in the CIP.

A remarkable degree of transparency was made possible through the publication of participant scores, investment proposals, evaluations, and results at each step of the process. Making this information available to the public helped enhance the opportunity for the public to hold decision-makers accountable.



The climate-smart CIP process (left) and the mapping of proposed projects against risk exposures (right) in Kampala

Sources: Whittington, Jan, and Catherine Lynch, 2015. Climate-Informed Decisions: The Capital Investment Plan as a Mechanism for Lowering Carbon Emissions. World Bank Policy Research Working Paper Series No. 7381. World Bank, 2018.

Box 3: Colombo, Sri Lanka: Transforming into a modern, world-class capital through climate-focused urban infrastructure and broader strategic planning

During a 15-hour period in November 2010, nearly 500 millimeters of rain fell on Colombo, the capital city of Sri Lanka, causing unprecedented flooding across the city. Many houses and buildings were destroyed, and the Parliament building was flooded by 1.2 meters of water. The floods caused high economic losses, as the Colombo metropolitan area accounts for about 50 percent of Sri Lanka's GDP. The floods were particularly destructive due to poor design and maintenance of drainage systems, illegal encroachments on flood retention areas, and industrial pollution. The metropolitan area is in a low-lying flood plain and extremely vulnerable to floods.

The occurrence and damage of floods in the area have steadily increased due to a combination of climate and non-climate factors, including rapidly changing climate patterns resulting in frequent and more intense thunderstorms. The metropolitan area has experienced 11 major floods in the last 32 years. Rainfall frequency has almost doubled in Colombo during the past 30 years, while the area's population has increased from 1.7 million in 1981 to 2.5 million in 2010. Storage capacity in the Colombo Water Basin has declined greatly since 2000 as a result of uncontrolled encroachment on landfills and the floodplain by illegal settlements. In the city of Colombo, 68,000 housing units are estimated to be in underserved pockets; most of this housing is in flood-prone areas and subject to the environmental and health risks of floods.

The World Bank Metro Colombo Urban Development Project (MCUDP) was initiated in 2012 to support the national government's aim to reduce flooding in the catchment of the Colombo Water Basin and strengthen the capacity of local authorities in the metropolitan area to rehabilitate, maintain, and improve local infrastructure and services through selected demonstration investments. The project is financing infrastructure, including pumping stations, tunnels, and canals, as well as the reclamation of urban wetlands and public spaces for increased natural drainage.

Climate-focused urban infrastructure within a larger strategic plan is critical. While the MCUDP sub-projects were under construction, Colombo again experienced flooding in 2016 and 2017. The 2016 floods alone affected 300,000 people and displaced 4,900. MCUDP has calculated that Colombo now suffers damage and other losses of nearly USD 45 million per year from floods and heavy rain. The prioritization and phasing of all future metropolitan infrastructure and residential development must be done in coordination to act as a comprehensive network and with flood prevention in mind.



Beddagana Wetlands Park, financed by MCUDP

Source: World Bank, 2012. Metro Colombo Urban Development Project Concept Note (P122735).

Box 4: Izmir, Turkey How to harness private sector solutions to address financing gaps and promote urban resilience

According to the Brookings Institution, in 2015, the city of Izmir was the world's second fastest-growing metropolitan area. With 4 million inhabitants, Izmir is the third largest metropolitan area in Turkey, after Istanbul and Ankara. Due to its buoyant economy, Izmir has attracted a large number of migrants, which has resulted in rapid growth of the city and a number of challenges, including sprawl, congestion, and the risk of polluting fragile ecosystems. These challenges have forced the municipal authorities of Izmir to consider how to expand the provision of urban services such as public transport, and water supply and sanitation.

The Izmir metropolitan municipality (IMM), and its municipal water utility (IZSU), were confronted with the need to raise funds to expand IZSU's services. IZSU needed to expand its concession to serve a considerably larger area, including districts where households disposed of human waste through a septic tank, and water supply facilities were inadequate.

Before its expansion, IZSU had 27 wastewater treatment plants (WWTPs) in the municipality, with the capacity to treat 802,757 cubic meters of wastewater per day. With this capacity, IZSU had achieved its key coverage and environmental objectives. In 2018, IZSU provided almost universal access to water supply, with 97.7 percent of households having a water connection. The utility also provided 87 percent of the population with a sewer connection. IZSU's operations now run on commercial principles, generating an operational surplus every year. Annually, IZSU treats 301 million cubic meters of wastewater, and collects and disposes of 2.02 million tons of solid waste. A study of pollution in Izmir Bay concluded that by 2018, water quality had significantly improved as untreated wastewater was no longer being discharged, and coliforms and other bacteria had been eliminated.

However, greater investments were required by IZSU for three main reasons: first, Urban expansion had led to increases in wastewater discharge and Izmir Bay needed greater protection from municipal water-borne pollution. It is an important tourist destination, with many pristine "blue-flagged" beaches (beaches certified as having high environmental standards), and it is the nesting ground of endangered animals and birds. IZSU was also committed to achieving the standards established by the European Union's Water Framework Directives (WFD). For these reasons, IZSU required financing of an estimated €200 million.

Solution: To help Izmir, the International Finance Corporation (IFC) formed a strategic partnership with IMM and IZSU to implement synergistic and high-impact infrastructure projects that would i) support the large capital outlay needed, and ii) leverage innovative approaches to address emerging challenges.

IFC's engagement opened up opportunities to raise non-sovereign backed financing for "public goods" investment in wastewater treatment and disposal. IFC provided about €48 million on commercial finance terms to support investments in IZSU, which included the construction of a fourth unit of the Cigli and Yeni Foca wastewater treatment plants. The expanded Cigli plant will be able to treat an additional 216,000 cubic meters of wastewater (adding 21 percent to the plant's treatment capacity). The Yeni Foca plant will only have the capacity to treat an additional 10,000 cubic meters of wastewater per day, but it will have significant positive impact on the fragile marine ecosystem surrounding Foca District, an eco-sensitive area which previously was a low-density settlement that relied on on-site sanitation. In addition to providing finance, IFC also provided technical recommendations based on its worldwide experience with private sector solutions for improving the operations of WWTPs, and also reducing the carbon footprint of wastewater treatment plants.

Results: IZSU tested private sector innovations that demonstrate the operationalization of circular economy concepts. At the Cigli Sludge-Drying Facility and the Menderes Treatment Facility, the innovations have enabled sustainable reuse, recovery, and recycling of the waste stream to transform it into a valuable input for Izmir's economic activities. The dried sludge, produced using anaerobic digestion processes and methane capture, has been tested as a fuel for cement factories. The cement produced through burning the sludge to generate power is being used to expand the city's tramway and integrated transport infrastructure, which will contribute to improve urban mobility and access to employment opportunities.

Cigli Wastewater Treatment Plant has significantly reduced its carbon footprint as the sludge produced at its facility is now dried and used as fertilizer for an afforestation program. The Menderes Havza Wastewater Treatment Plant uses solar energy instead of fossil fuel to dry its sludge. IZSU is also exploring the potential for combining organic waste with sludge to produce much larger volumes of renewable energy. Izmir's innovations in wastewater treatment have contributed to the city fulfilling its commitment to the European Union Mayors' Convention of reducing the city's CO₂ emissions by 20 percent and doing so well ahead of the target year of 2020.

At a time when Izmir was simply not able to access commercial finance, the city has been able to build a pipeline of bankable projects and access long-term finance from IFC and commercial lenders. In 2010, 70 percent of the city's debt was funded by sovereign-guaranteed financing, and the municipality depended on transfers from the national government. Now, 70 percent of Izmir's debt is funded by non-sovereign backed financing, at tenors of 12 to 13 years that are not otherwise available for Turkish municipalities in the credit market. Leveraging these new sources of financing has enabled the city to plan a large investment that focuses on key and synergic infrastructure projects to address transport and water management challenges. This has also opened up opportunities for non-sovereign backed financing of pure public goods investment in wastewater treatment and solid waste disposal.

Source: IFC. 2018. Case study on IFC impact and additionality in the City of Izmir. Washington DC: IFC and WRI – Ross Center for Sustainable Cities.