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Climate Investment Opportunities in Cities

An IFC Analysis



Creating Markets, Creating Opportunities



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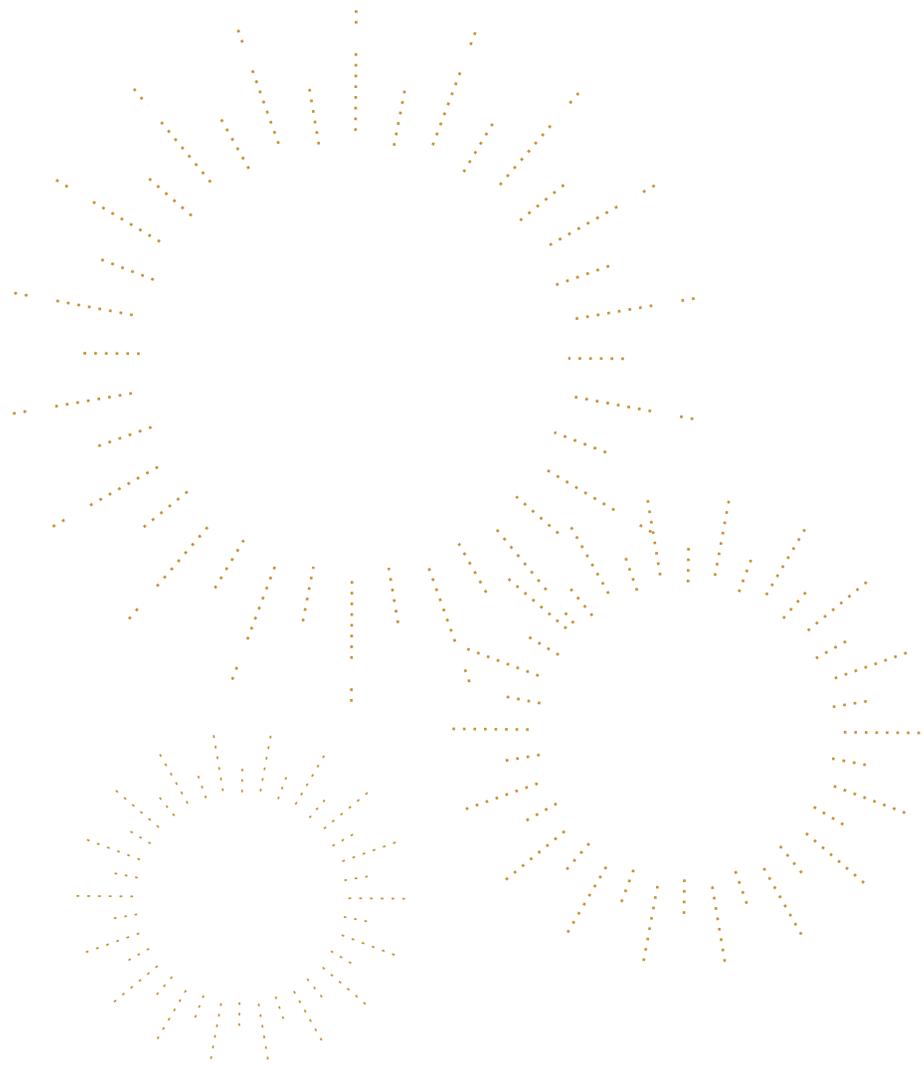
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Executive Summary

Executive Summary



Cities Stand at the Forefront of Climate Action

Our efforts to successfully limit global warming hinge on cities. More than half the global population lives in urban areas and this share will continue to rise over the next 30 years. Crucially, cities consume much of the world's energy and produce more than 70 percent of global carbon emissions.

As a result, the decisions made by city governments can have a direct and immediate impact on people—perhaps more so than national or international policies. Cities' efforts to mitigate the impacts of climate change and build their resilience can have a disproportionate effect because they are densely populated areas with economies of scale and significant potential for climate co-benefits. This is particularly relevant for emerging markets, as about 60 percent of the area expected to be urbanized by 2030 globally remains to be built, and much of this growth will be in these markets.

As cities grapple with meeting the needs of their growing populations and tackling challenges such as housing, air pollution, congestion, and energy access, they have the opportunity to take a green, climate-friendly approach to urbanization and invest in green transport, buildings, and other low-carbon and resilient infrastructure. Cities are recognizing the potential, creating a groundswell in commitments to climate action.

Almost 9,400 cities have committed to over 20,000 actions alongside the private sector to address climate change across a range of sectors, including energy, water, transport, industry, and buildings.

However, cities cannot achieve their climate ambitions alone and must collaborate with all stakeholders, including business and investors, to meet the ambition of the Paris Agreement to limit global warming and build urban climate resilience. City governments play a key role in creating enabling conditions to attract private investment to reduce emissions, manage risks, and build climate resilience. The private sector can play a central role in supporting cities through a combination of innovation, know-how, financing, and new service delivery models, and there is growing interest from the private sector to invest in climate-smart cities.

Urban Climate Resilience

Building urban resilience means improving a city's capacity to survive, adapt, and grow despite chronic and acute risks and shocks, which are often cross-cutting and arise from a variety of sources. Services, people, and systems such as transport, energy, water, and communications are particularly connected in urban areas, which results in a co-dependent system that needs to be made resilient at every link. City planning and infrastructure investments made today will have long-term impacts and shape the direction of urban growth and development for decades.

The first step for cities to develop strategies to build resilience, manage climate risk, and explore climate opportunities is to understand their exposure and sensitivity to different climate impacts. Each city's climate resilience strategy should be uniquely tailored to its specific requirements and characteristics, based on geography, population density, and other local considerations. Cities around the world are at various stages of planning, with 210 cities already having a climate change adaptation plan in place and 111 cities in the process of creating one as of 2016.

Investment in urban infrastructure for developing countries tends to be funded by the public sector, but the sheer scale of the required investment



Photo: © Dominic Chavez / IFC

necessitates the unlocking of private sources of financing. Forward-thinking companies are already seizing opportunities in this space.

Financing Climate-Smart Investments in Cities

Connecting cities with financing is an essential component of building urban 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. However, the investment barriers faced by cities, such as creditworthiness, bankability, and the lack of a viable project pipeline, limit what they can do on their own and pose an obstacle to attracting private finance. Despite these fundamental issues that constrain investment in climate-smart urban infrastructure, cities can narrow this financing gap by taking advantage of a wide range of established mechanisms to access funding, and by deploying new and innovative models of finance and investment tailored to their specific context.



Photo: © Dominic Chavez / World Bank

Cities and companies are structuring multi-purpose, and consequently multi-benefit, interventions that can be monetized more easily than in the past to attract private finance, especially for projects that help build climate resilience. Tapping into institutional investment in resilient infrastructure will be invaluable in helping cities access the finance they need to adapt to climate change. The success of these approaches is contingent on the cities having a long-term vision and commitment to green investment, with a clear pipeline of projects.

Public-private partnerships are a primary mechanism used to finance capital-intensive, sustainable infrastructure. Targeted taxes and incentives can also be used to encourage investment in such infrastructure by favoring density over urban sprawl or low-carbon energy over fossil-fuel sources. Land value capture mechanisms can encourage green infrastructure development while leveraging private finance. Debt financing instruments such as green bonds have great potential to drive climate-smart investment by allowing cities to acquire long-term debt at stable prices. With support from national and international partners, cities are developing dedicated vehicles to enable private green investment.

In addition to these traditional approaches, innovative financial mechanisms to bridge the gap between resilient infrastructure needs and financing such as resilience bonds and climate insurance are already being piloted, particularly in cities in developed countries.

While these financing approaches will largely benefit creditworthy metropolises and megacities, the vast majority of intermediary cities will require sustained and disciplined attention to policies underpinning their creditworthiness, and support to establish solid and stable climate finance ecosystems and integrate climate considerations into development frameworks. Innovative financial and collaborative approaches will be key to preparing bankable projects, developing domestic financial markets, and mobilizing private financing for local investment. A range of initiatives are already attempting to fill these gaps.

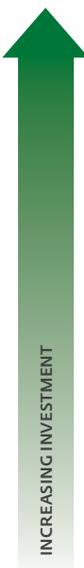
To effectively deliver on the promise of climate-smart cities, it is critical to move from planning to pilots, from pilots to projects, and from projects to partnerships.

Climate Investment Opportunities in Cities

This report focuses on estimating the scale of the investment opportunity associated with fully achieving cities' currently stated sector-specific mitigation goals to 2030. In addition, it synthesizes the current landscape of support relating to investment in climate-smart solutions for cities, mapping over 30 initiatives, most of which are

Investment potential in cities by region and sector to 2030

	East Asia Pacific	South Asia	Europe & Central Asia	Middle East & North Africa	Sub-Saharan Africa	Latin America & Caribbean	Total
Waste	\$82 billion	\$22 billion	\$17 billion	\$28 billion	\$13 billion	\$37 billion	\$200 billion
Renewable energy	\$266 billion	\$141 billion	\$88 billion	\$31 billion	\$89 billion	\$226 billion	\$842 billion
Public transportation	\$135 billion	\$217 billion	\$116 billion	\$281 billion	\$159 billion	\$109 billion	\$1 trillion
Climate-smart water	\$461 billion	\$110 billion	\$64 billion	\$79 billion	\$101 billion	\$228 billion	\$1 trillion
Electric vehicles	\$569 billion	\$214 billion	\$46 billion	\$133 billion	\$344 billion	\$285 billion	\$1.6 trillion
Green buildings	\$16 trillion	\$1.8 trillion	\$881 billion	\$1.1 trillion	\$768 billion	\$4.1 trillion	\$24.7 trillion
TOTAL	\$17.5 trillion	\$2.5 trillion	\$1.2 trillion	\$1.7 trillion	\$1.5 trillion	\$5 trillion	\$29.4 trillion



hosted by international organizations or are financing initiatives that support project preparation and pilots.

IFC estimates a cumulative climate investment opportunity of \$29.4 trillion across six urban sectors in emerging market cities to 2030.

The lion's share of the opportunity is in green buildings (\$24.7 trillion), covering both new constructions and retrofits, as cities race to accommodate their growing populations. Improvements in low-carbon mobility solutions, driven by public transport infrastructure and the expected surge in electric vehicles, account for \$1 trillion and \$1.6 trillion respectively. The availability and management of water resources is a consistent primary concern for cities, presenting

a \$1 trillion opportunity in climate-smart water and wastewater management and infrastructure.

The regional variations in the size of the investment opportunity by sector reflect both the range in the ambitions of targets set by cities and the differing costs for technologies and implementation. Cities across these regions have prioritized sectors for climate-smart investment depending on their size, population, and specific climate, development, and financial considerations. Deep dives into the following six cities reveal some examples of how cities are working to achieve their climate goals, and what the potential climate investment opportunities look like in different contexts:



JAKARTA

Meeting its objective to drastically reduce groundwater extraction and secure access to piped water for its citizens will require an estimated \$3 billion investment in Jakarta's water and wastewater sector. The Indonesian capital's public and electrified transport priorities create an investment opportunity of \$660 million and almost \$7 billion respectively. Increasing the energy-efficiency of its buildings and meeting its Green Building Code requirements contribute to an estimated opportunity of over \$16 billion in the green buildings sector.



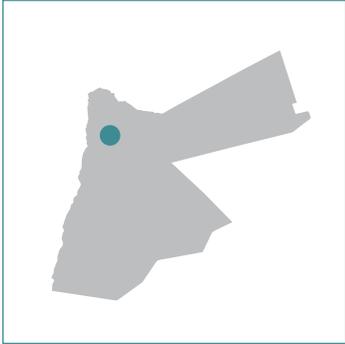
RAJKOT

In India, achieving Rajkot's smart city and affordable housing targets will require almost \$2 billion of investment in green buildings. Implementing the city's Low-Carbon Comprehensive Mobility Plan and electric bus rapid transit system will create investment opportunities of \$520 million and \$700 million in public transport and electric vehicles respectively. Managing its water supply and meeting wastewater and sewerage targets creates a potential investment opportunity of over \$220 million.



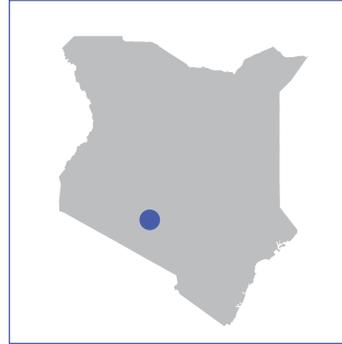
BELGRADE

Belgrade's commitment to sourcing its district heating from renewable energy will create an investment opportunity of \$740 million in the renewable energy sector. Achieving the Serbian city's transit-oriented development plans will require estimated investments of over \$1.2 billion in public transport and almost \$620 million in electric vehicles. Making its buildings more energy-efficient and green will create an investment opportunity of almost \$2 billion.



AMMAN

In Jordan, getting businesses involved in solid waste management is key to realizing Amman's \$385 million investment opportunity in the sector. Recycling the city's groundwater and improving its water infrastructure will contribute to the \$550 million investment opportunity in the water and wastewater sector. Achieving its goal to catalyze a modal shift to public, non-motorized, electrified transportation will require a total investment of almost \$7 billion.



NAIROBI

Nairobi's water demand is expected to more than double by 2035, contributing to the \$360 million investment opportunity in the water and wastewater sector. The Kenyan city expects a sharp rise in housing construction, leading to an investment opportunity of over \$1 billion in greening those buildings. Meeting the city's non-motorized and sustainable transport goals will create an investment opportunity of \$1.6 billion in infrastructure including bike lanes, a bus rapid transit system, and commuter rail, with a further \$5 billion to catalyze city-wide electric vehicle adoption.



MEXICO CITY

Managing Mexico City's large-scale groundwater extraction while ensuring adequate water supply to its residents creates an investment opportunity of almost \$6 billion in the water and wastewater sector. Continuing with the overhaul of its transport sector to reduce air pollution and congestion creates an investment opportunity of \$2 billion in public transport and \$7 billion in electric vehicles. Implementing efficiency standards in the 50,000 new homes expected annually to 2030 will contribute to the \$18 billion investment opportunity in green buildings.



Cities will be at the epicenter of climate action to limit global warming to 1.5°C. By showcasing the role of good public policies and conditions conducive to shaping incentives, attracting private investment, and greening profits, IFC seeks to help catalyze the creation of green, resilient, and technology-based cities of the future, and stands ready to support cities on this vital journey.