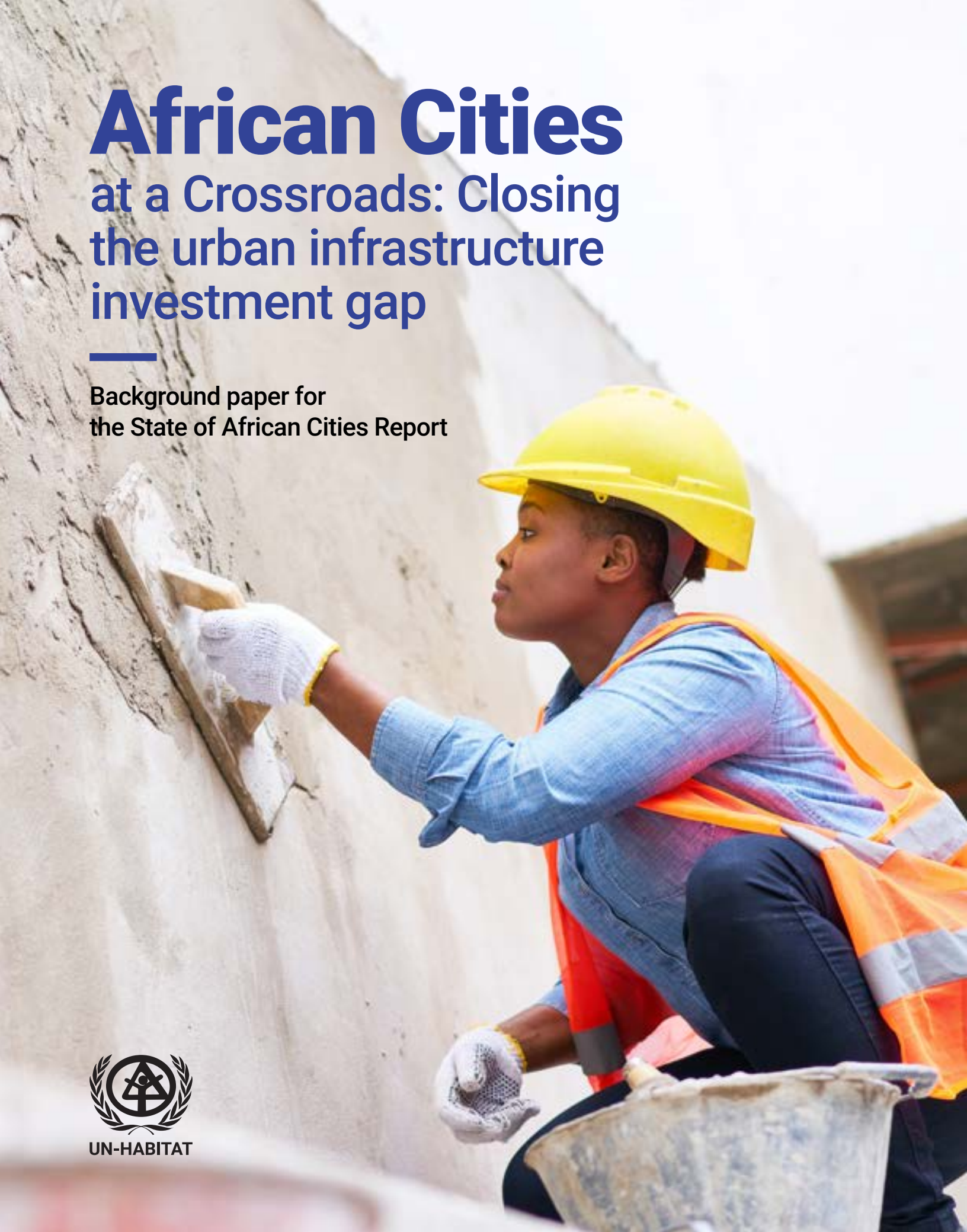
African Cities

at a Crossroads: Closing the urban infrastructure investment gap

Background paper for
the State of African Cities Report



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African Cities at a Crossroads: Closing the Urban Infrastructure Investment Gap
Background paper for the State of African Cities Report

United Nations Human Settlements Programme (UN-Habitat)
P.O.Box 30030, 00100 Nairobi GPO KENYA
Tel: 254 - 020 - 7623120 (Central Office)
infohabitat@unhabitat.org

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Main Report
Authors: Gulelat Kebede and Paterson Gauntner
Design and Layout: Andrew Ondoo

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Introduction: African cities at a crossroads

Urbanization is one of the most powerful megatrends shaping African development in the 21st century, placing the region at a crossroads that will determine development outcomes for decades to come. On the one hand, urbanization represents a major opportunity to connect a growing share of the region's population to better public services, quality education and higher productivity jobs. As Africa's cities are still being built, the region has the chance to leapfrog over the structural constraints faced by early urbanizers by leveraging new technologies and implementing climate-smart development strategies. On the other hand, a scenario characterized by continued underinvestment in African cities would result in deepening urban poverty, a rising number of people living in informal settlements without access to basic services, economic enterprises unable to compete in global markets, and African economies locked in a low-development, high-poverty trap.

Road construction near Malindi, Kenya.
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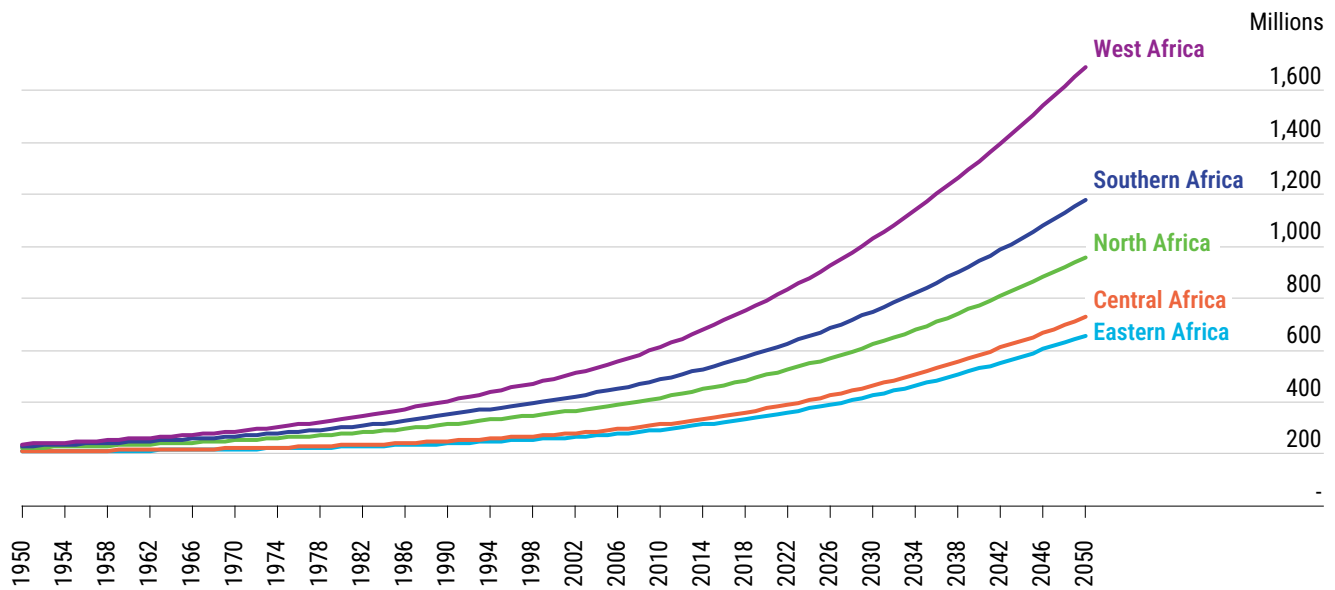
View of the old tannery in Marrakesh, Morocco. © Shutterstock/Alexey Pevnev

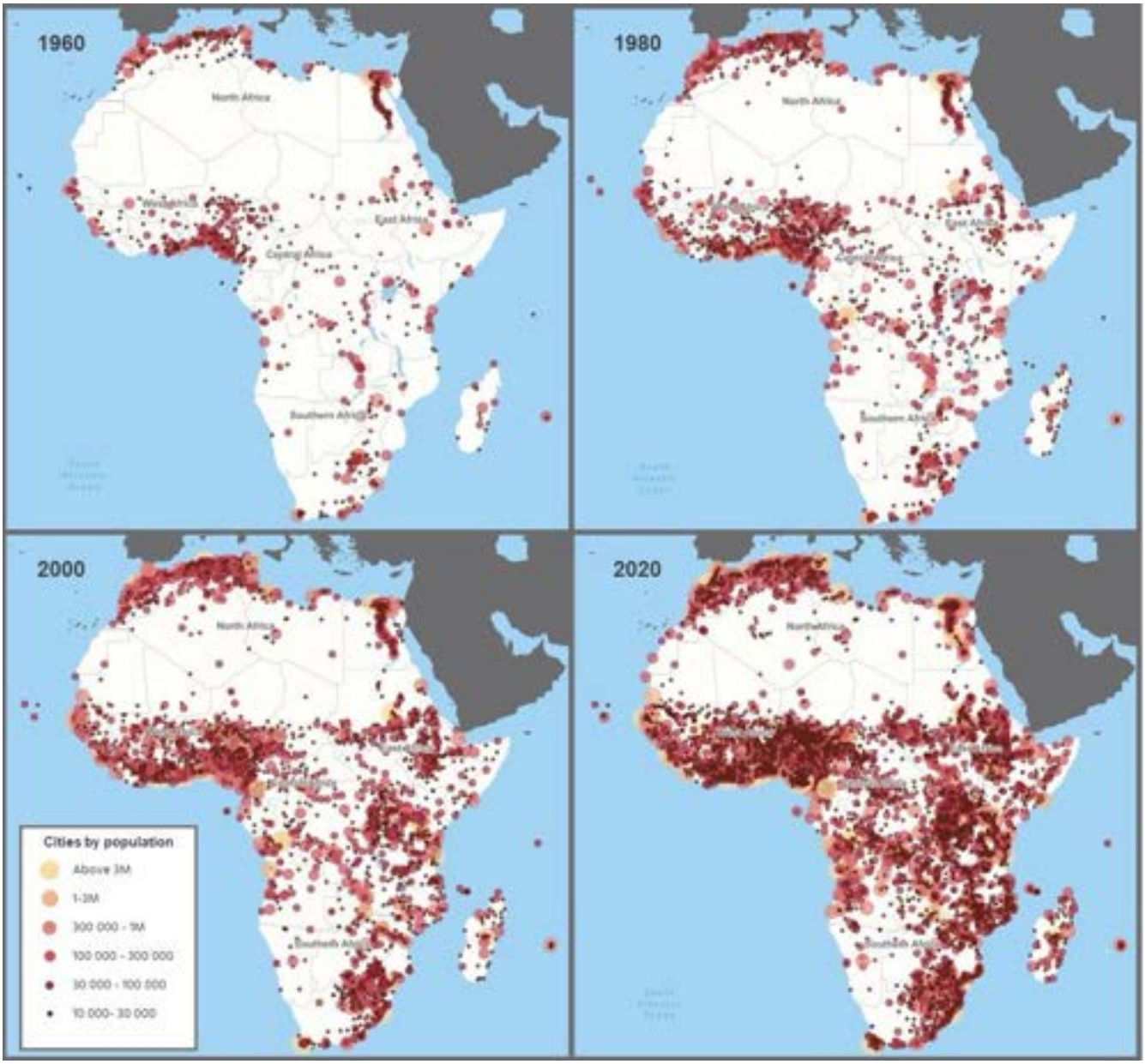
Urbanization is an unstoppable force moving at an increasingly breakneck pace. In the 74 years since 1950, Africa's cities have gained 642 million new residents, and in only one third of that time - the coming 26 years to 2050 - they are projected to gain an additional 814 million people (Figure 1). By official government estimates, Africa is poised to cross the 50% urbanized threshold in 2035 (UNDESA, 2018), but according to analysis based on satellite imagery, the majority of Africa's population has already resided in urban areas since 2015 (SWAC & OECD, 2022; Figure 2). Urbanization can neither be reversed nor ignored. The quantity and quality of infrastructure investments in cities will play a major part in determining whether the urbanization process propels Africa's development forward or traps its people in entrenched poverty. This is the focus of this report.

Figure 1: Urban population of Africa over time by subregion, 1950 to 2050



Data: UNDESA World Urbanization Prospects 2018 Revision

Figure 2: African cities over time



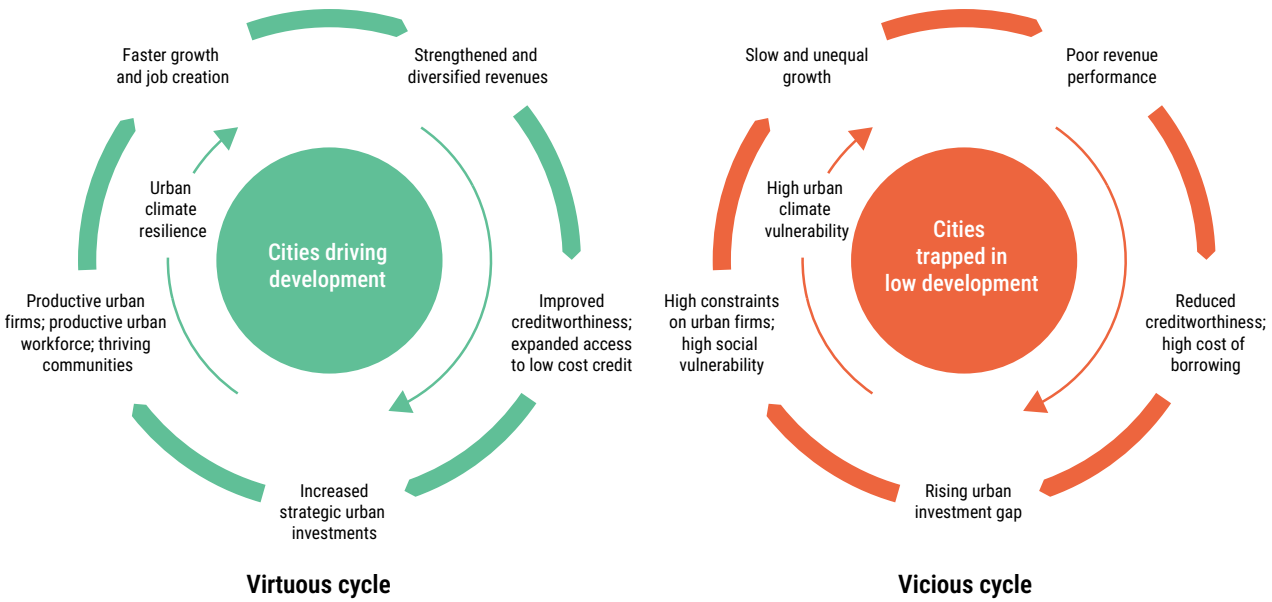
Source: SWAC & OECD, 2022 (Africapolis)

While Africa's future is undoubtedly urban, there are differing versions of that future. One scenario is characterized by a virtuous cycle of investment, development, and revenue generation. Investments in the needs of urban firms and the basic needs of urban populations is key in initiating a virtuous circle of economic growth of cities and countries, fostering industrialization, widening the fiscal base, and broadening prosperity. Improved revenue generation will succeed on the foundation of higher incomes and improved tax morale, driven by a track record of public investment.

As revenues increase, opportunities for accessing credit in the capital markets will expand, reducing the high borrowing costs currently faced by many African economies. This, in turn, will enable further borrowing and investment. Once initial efforts are in place to make investments strategic and revenue administration effective, the cycle becomes self-reinforcing, making investment, development and revenue generation increasingly achievable (Figure 3).

However, there is an alternative version of Africa's urban future- one that more closely mirrors the current reality in many countries. This scenario is characterized by a vicious cycle of underinvestment, stagnated development and revenue shortfalls. The investment gap, which is even more pronounced in cities than at the national level and compounded by ineffective and uncoordinated investments, leads to cities that are less productive, more expensive, less competitive and more unequal than they should be. This results in persistent development deficits and slows economic growth as urban firms, which should be leading growth and job creation, are disadvantaged. Slow and unequal economic growth keeps the revenue base small and narrow, with low tax morale. The outcome is poor revenue performance, leading to poor credit ratings and higher borrowing costs, which further widen the investment gap and deepen the vicious cycle (Figure 3).

Figure 3: African cities at the center of a vicious cycle or virtuous cycle



Images by authors

Transitioning from a vicious cycle of underdevelopment to a virtuous development cycle is not impossible, and investment in Africa's cities will be central to the process. The rest of this report begins by examining the current state of Africa's cities and their role in the region's economic, social and environmental outcomes. The next section takes a closer look at the cost of infrastructure investment in African cities. The following section examines the mechanisms to close the urban investment gap by securing the necessary resources, and the next section discusses the importance and the opportunities for using resources more effectively. The report concludes with a summary of policy recommendations.

Construction work on a four-tier interchange in Pokuase, Ghana.
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The role of cities in Africa's economic, social and environmental outcomes

Africa's cities will be central to achieving development goals

Cities serve as the economic powerhouse of national economies. They offer a productivity premium reflected in higher wages, firm profitability and social wellbeing arising from agglomeration economies, better access to human capital, technology, services and amenities. Despite the structural challenges facing African economies and the rapid pace of urban transition they have experienced, African cities have absorbed over 500 million new urban residents within just three decades since 1990 without a reduction in their average development outcomes. Moreover, they outperform rural areas by almost all economic and social development measures (OECD/UNECA/AfDB, 2022).

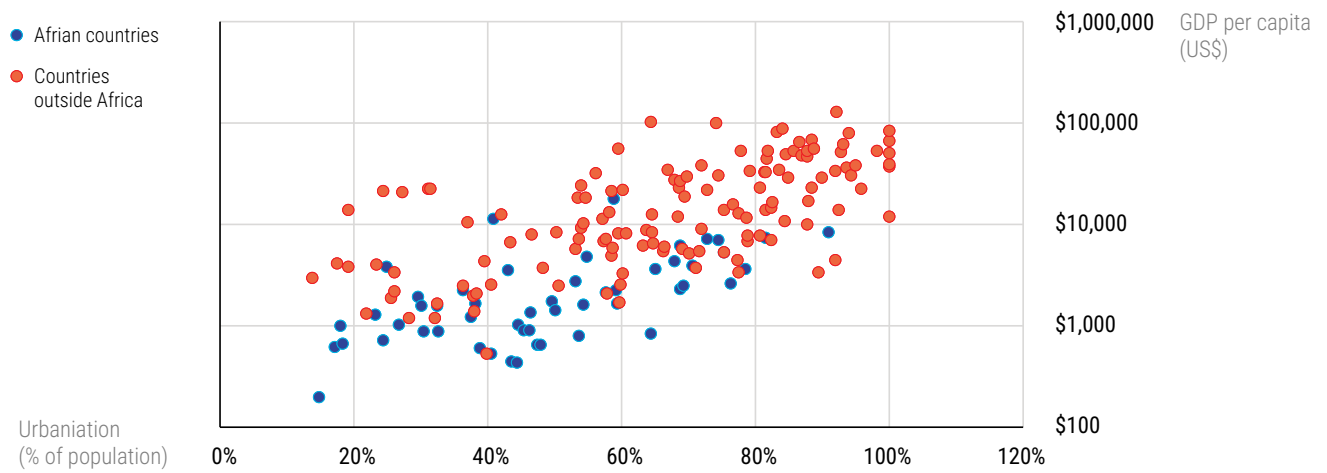
Approximately one third of the region's per capita GDP growth since 2001 can be attributed to the movement of people into cities (OECD/UNECA/AfDB, 2022), and the authors of this report estimate that 70% of the region's GDP is urban, compared with 54% of the region's population, drawing on a definition of urban that classifies cities as contiguous agglomerations of 10,000 people or more.[1]

Africa's continued urbanization presents a major development opportunity. No country over the course of history has developed without urbanizing, and there is a strong correlation between urbanization and GDP (Figure 4). The concentration of firms, services, workers and consumers in cities creates efficiencies and synergies that can catapult economic growth forward. Cities enable economic structural transformation and the movement of firms and workers into higher productivity economic sectors that thrive in dense urban environments.

On average, Africa's urban population has a better quality of life, better access to education, and better health outcomes than their rural counterparts. Networked urban services are made financially possible in dense urban areas, and the per capita costs of piped water, electricity and communications connectivity are all much lower in cities than in rural areas (Fay & Yepes, 2003). Urban hospitals and schools can serve a larger population in a smaller radius. Similarly, climate adaptation infrastructure can be targeted to serve a large share of the population when households are clustered in urban areas.

African cities are positioned to benefit from leapfrogging past the constraints that faced early urbanizers. The low level of development and expected population growth in the near term entail opportunities to steer urban development, resource consumption and infrastructure toward climate-proof, risk-informed, gender-responsive and inclusive outcomes, leveraging emerging good practices and technologies. Scaling up investment in electricity generation to keep pace with urban development for example is a challenge, but provides opportunities to invest in renewables which are cleaner, increasingly more cost effective, and create more jobs (Garrett-Peltier, 2017).

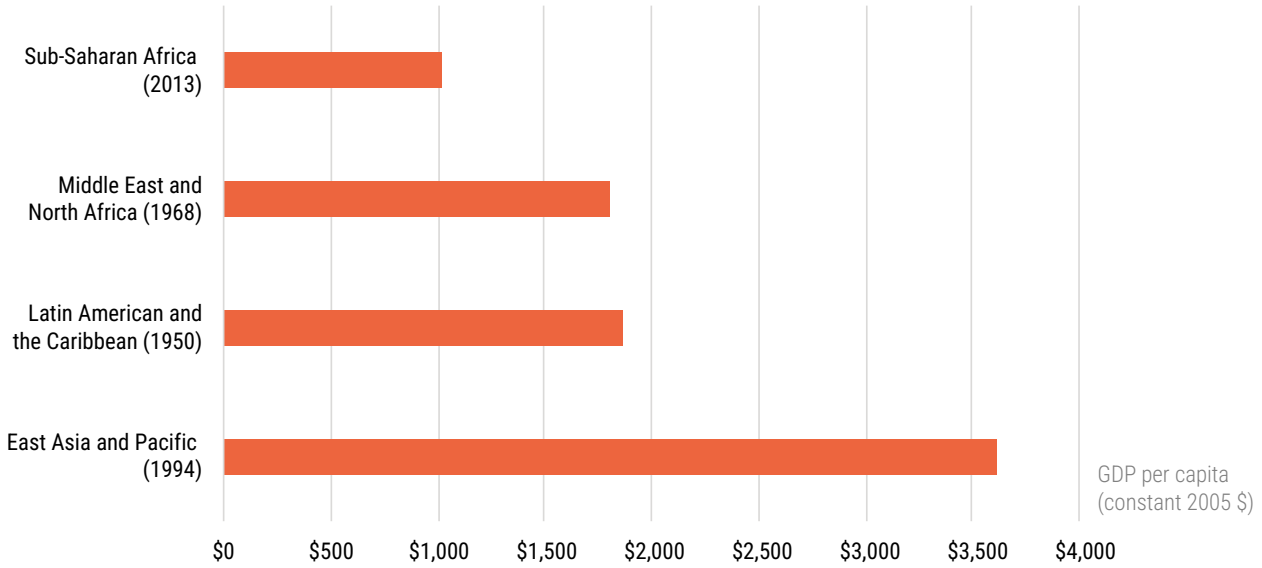
Figure 4: Urbanization and GDP per capita across countries, 2023



Data: World Development Indicators

1 The operational definition of cities and the 54% urbanization level are from the Africapolis database, which estimates Africa was 54% urban as of 2020. Our 70% of GDP estimate assumes that per capita production differentials between locations follow the same pattern as per capita wage differentials. We calculate the urban share of GDP using the wage differentials and employment rates of cities in different size classes and rural areas and the number of people residing in each area. The most recent and best estimate of wage and employment differentials by city size class and rural areas comes from research by OECD, UNECA and AfDB (2022). The population of cities by size class comes from the Africapolis database.

Figure 5: Per capita GDP when urbanization was about 40%, by region



Source: Madden & Gutman, 2020

Due to their inherent advantages for productive firms and service delivery, Africa's cities will play a central role in achieving the African Union's Agenda 2063, as the first of its seven aspirations is "A prosperous Africa based on inclusive growth and sustainable development." Similarly, African urbanization will be critical to achieving the Sustainable Development Goals, particularly goals on an end to poverty (Goal 1), health and wellbeing (Goal 3), quality education (Goal 4), decent work and economic growth (Goal 8), industry and innovation (Goal 9), and of course Goal 11 on human settlements. Africa's cities have the potential to serve as engines of growth, innovation, social progress, and resilience, driving the continent towards a more prosperous and sustainable future.

Unsupported urbanization risks tipping national economies into a low-development trap

Despite the advantages of cities, the prosperity, inclusivity and resilience of African urbanization are not guaranteed. Africa's cities are facing a host of challenges, and gaps in infrastructure investment are key among them.[2]

Africa is urbanizing at a lower income level than other regions have historically (Figure 5), and at a more rapid pace, making it challenging for public investments to keep up. Africa's cities already grapple with widespread informality, high unemployment, shortfalls in public service delivery, concentrations of deep-seated poverty, and high inequality. Climate change and the COVID-19 pandemic have intensified these challenges and brought to sharp focus the urgency of leveraging the potential of cities for economic and social resilience and green transition.

2 Beyond physical infrastructure, Africa's cities are also facing challenges related to institutions, governance, and the wider global economy. While infrastructure is the focus of the present report, it is embedded among other issues that should be addressed as well.

Economic development: weak structural transformation underpinned by urban infrastructure deficits

Africa's cities are underperforming. Although African cities have maintained a productivity premium over their rural counterparts, economic growth has not been as rapid as their potential, especially when compared to countries in other regions. Job growth performance has also been weak. During the 2000-2014 period, for every 1 percentage point of economic growth, employment grew by 0.41 percentage points. This is much lower than the desired 0.7 percentage points, which, with 5% output growth, could create jobs in excess of labor force growth in most African countries (AfDB, 2018).

The underlying issue is weak structural transformation. Despite some transfer of labour to higher productivity sectors and associated economic growth, this progress is offset by the persistently high share of low value-added activities, which are primarily created in the service sector (Tiako, 2024). High productivity urban sectors have often been stagnant, and the share of manufacturing plateaued between 2000 and 2016 (AfDB, 2018). More concerning is that the share of manufacturing actually declined in some African countries during this period (te Velde et al., 2018).

This stagnation stems from several factors, with infrastructure deficiencies being a major contributor. Urban access to electricity, water, sanitation and road infrastructure has fallen short compared to cities in other regions. Underinvestment in African cities compared with those in non-African countries with similar income levels, makes the cost of living in African cities significantly higher, by a margin of 31% (Nakamura et al., 2016). These infrastructure and public services deficiencies hinder firm competitiveness and place a significant burden on residents.

Social development: inequality and urban informal settlements

Africa's strong growth episodes in recent decades had a positive impact on poverty reduction. Even during periods of strong growth, poverty reduction has not been robust. According to a World Bank study, globally, a 1% growth in GDP typically translates to a 2.5% reduction in poverty, as defined by the Bank's $2.15 a day monetary income poverty line. The figure for Africa is half of that. Africa's economic growth has not been as effective at reducing poverty compared with other regions, even after accounting for initial differences. Reigniting and sustaining growth is necessary, but not sufficient. The solution lies in improving basic services, particularly education and health, and investing in essential infrastructure (Wu, et. al. 2024).

In the context of cities, poverty and the uneven impact of growth is nowhere more visible than in urban settlements classified as slums, where access to basic services and infrastructure is dire. A large share (44%) of Africa's urban population lived in slums as of 2020. This figure is down 17 percentage points since 2000, marking major progress; however, due to the increase in urban populations, the absolute number of people residing in Africa's urban slums has actually gone up 60% over the two decades (see Figure 6 for country-level data).[3]

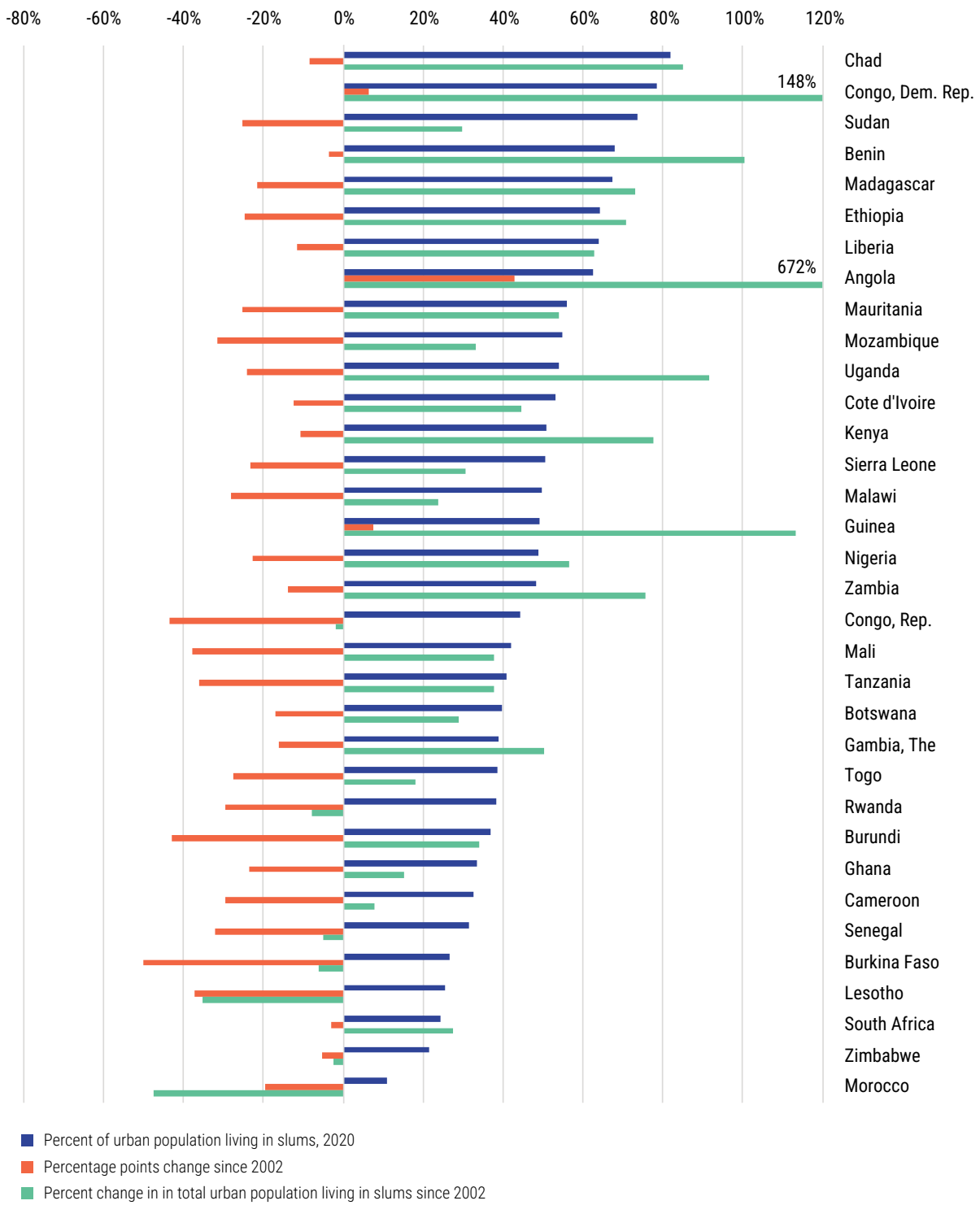
Access to basic urban services has expanded greatly across the region, but gaps remain. Over the last two decades, 296 million urban residents in Africa have been provided with at least basic drinking water services, 200 million have been provided at least basic sanitation services, and 307 million have been connected to electricity. However, many millions in African cities still lack these basic services: 77 million lack water, 255 million lack sanitation and 95 million lack electricity (Figure 7).[4]

Moreover, region-wide figures mask cross-country significant cross-country disparities: While 96% of the region's urban population has electricity, the cross-country average is only 82% as countries with larger urban populations have been more successful in expanding coverage. Further, power outage and interruptions, and load shedding are common practice times in most countries, severely impacting both firms and households.

3 According to data from the World Development Indicators database for the 32 countries with data in 2000 and 2020.

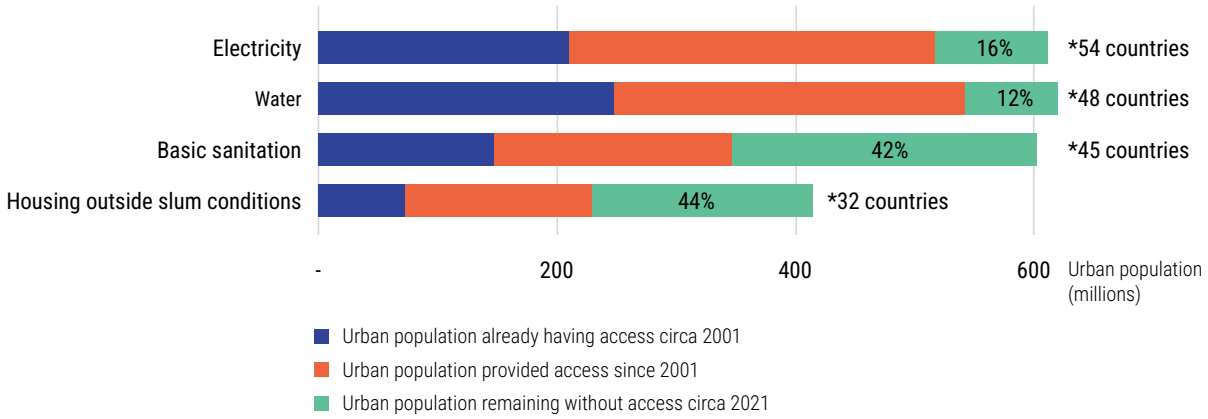
4 Annex A displays this data by African subregion and country.

Figure 6: Urban slum populations by country, 2020, and change since 2002



Data: World Development Indicators

Figure 7: Two decades of expansion of urban basic services and the remaining deficit, African countries



Data: World Development Indicators; electricity data is 2001-2021; water and sanitation data is 2002-2022; slum data is 2000-2020

Progress also varies by subregion. North Africa, followed by Southern Africa are much closer than the rest of the continent to bridging the urban basic infrastructure gap at the aggregate level (see Annex A), but even there, large pockets of poverty and infrastructure gaps exist. Moreover, urban informal settlements are a continuously evolving and dynamic phenomenon linked to the process of urbanization. In the absence of strong institutions, advanced planning to direct and manage urbanization, and investment in urban expansion, informal settlements and slums will continue to be the default absorbers of urban growth.

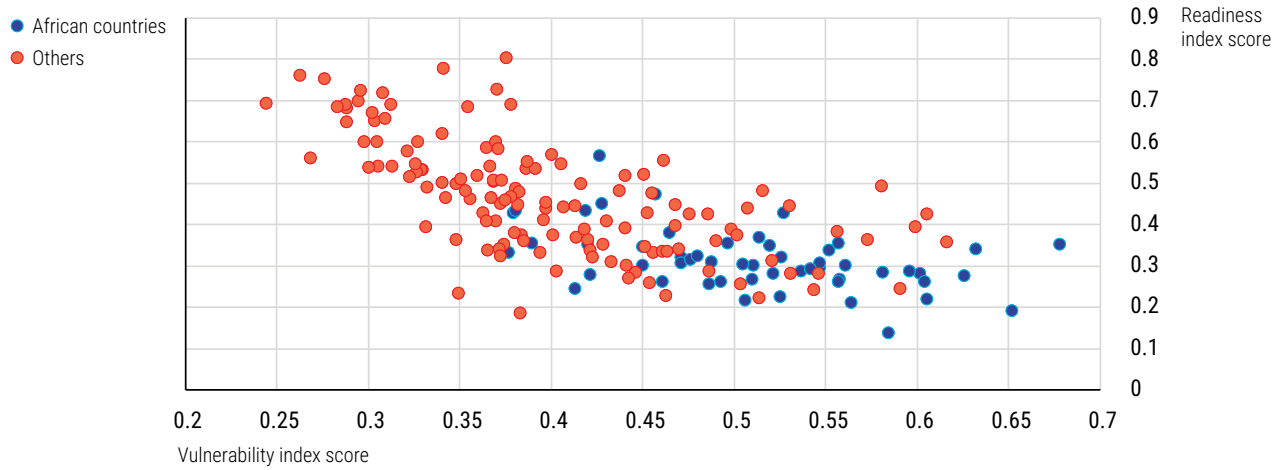
As Figure 6 shows, while most countries decreased the percentage of their urban population living in urban slums over the last two decades, only a few countries decreased the absolute number of people living in these settlements. A key lesson from those countries that have substantially improved the lives of slum dwellers, particularly in North Africa, is that as national income grows, countries gain the economic capacity to address slum conditions. There is an inverse relationship between national GDP and urban slums, but income level alone does not predict the degree of change. Countries with inclusive policies, and higher resource allocation to basic urban services may achieve more than what their GDP per capita might suggest.

The urban slum narrative of African cities is often obscured by the "Africa rising" narrative which emphasizes the shopping malls, the booming real estate market, the thriving IT centers, and new cities represented by the emerging, digitally connected and globalized consumer class. The reality is mixed and characterized by high inequality: the top 10% of income earners in Africa make more than half of the national income, and the top 1% collectively make twice as much as the bottom 50%. Over 90% of income is earned by the top half (World Inequality Database). The urban poor represent the vast majority of the population in Africa's cities and contribute substantially to African economies, but are largely excluded from the benefits of urban growth and development.

Environment: high urban vulnerability and low adaptation readiness

africa contributes a mere 3.8% of global carbon emissions (CDP, 2020) and has the lowest per capita contribution of greenhouse gasses, yet it is expected to suffer the most from climate change. African countries are among the world's most climate vulnerable, while simultaneously being the least prepared for adaptation (Figure 8). According to Verisk Maplecroft's Climate

Figure 8: Climate vulnerability and adaptation readiness by country, 2021



*Data: ND-GAIN**
** ND-GAIN indexes of climate vulnerability and adaptation readiness are compiled based on a number of indicators. The methodology is described here: https://gain.nd.edu/our-work/country-index/methodology/indicators/*

Change Vulnerability Index,[5] 92% of Africa's fastest growing cities are at extreme risk, including 15 national capitals and many of the region's major commercial hubs. The amount of GDP in African countries exposed to extreme risk is estimated to be US$ 1.4 trillion in 2023 and rising rapidly (Verisk Maplecroft, 2018). The Africa Climate Foundation (2023) estimates that climate change could lower African GDP by 2% to 4% by 2040.

The urban poor are the most vulnerable and have fewer resources to cope. Informal settlements are susceptible to climate shocks and disasters, not only because of where they are located, but also due to their limited financial and institutional capacity to anticipate, plan and invest. These settlements are often located on disaster prone areas like steep hillsides or floodplains, where absent or fragile infrastructure coupled with extreme density exposes them to life and property loss, and health risks of water contamination due to heavy flooding and mudslides.

Heat exposure, sea level rise and flooding are some of the biggest climate related threats facing African cities. Urban growth in low-elevation coastal zones is expected to expose between 54 and 62 million additional people to sea level rise between 2000 and 2030. Compared with 2000, the urban land exposed to arid conditions is projected to rise by 700% in Africa by 2030, and urban areas exposed to high-frequency flooding will increase by 2600% across West, Central and Eastern Africa alone (IPCC, 2022).

In the face of increasing severity and occurrence of disasters, investing in resilience is simply a matter of necessity. Natural disasters are already creating a high death toll and economic damage in African cities. Moreover, investing in resilience is good economics, and can reduce damages from climate disasters, cut recovery costs, and increase economic output significantly.

5 Verisk Maplecroft's Climate Change Vulnerability Index is a proprietary dataset that combines 42 indicators across three dimensions: climate-related disasters, human sensitivity in terms of population patterns, natural resources, agriculture and conflicts, and adaptive capacity of the national government.

A tractor in action to lay a pipeline in the Berger area of Lagos, Nigeria. © Shutterstock/Tolu Owoeye

Africa's cities are still early in the growth process, and cities can choose the kind of infrastructure and housing to build, reorienting policies to foster a risk-informed, climate resilient development pattern, and one that drives growth decoupled from negative environmental outcomes (APP, 2015).

Despite the significant economic, social and environmental challenges facing Africa's cities, they are and will remain central to the region's economic, social and environmental progress. It is clear that major investments in infrastructure and services are needed to realize the opportunities presented by urbanization. The African region is at a development turning point, and the successes or shortfalls in urban investments today will determine the future of African development in the years and decades to come.

Enugu's International Conference Center takes shape, as steel beams, concrete pillars, and gleaming glass come together to form a stunning hub of global connection and innovation. © Shutterstock/ Chinedu Chime

Investment needs for Africa's urban future

While it is clear that the need for public investments in African cities is massive, the specifically urban infrastructure investment needs have never before been quantified. [6] There have been many global and region-wide estimates of needed infrastructure investment (Table 1), and they vary widely, with differing targets, geographies, time scales and coverage of infrastructure sectors. The present report seeks to quantify the region-wide urban infrastructure investments required to close existing gaps and leverage urbanization as a driver of inclusive and sustainable development.

6 This report focuses on public infrastructure and public investment needs. Massive private investments will also occur in African cities and can be enabled and guided to support sustainable and inclusive urban development. Private investment is outside the scope of this report but will play a major role in the future of African cities.

Calculating urban investment needs

A picture of Africa's urban infrastructure investment needs can be constructed by integrating prior sector-specific estimates from prior reports and applying a nuanced definition of what is "urban." In order to arrive at an estimate for Africa's investment needs, the authors of this report have selected those prior estimates that use a defensible methodology and calculate the costs of achieving development targets and climate goals (the two degrees warming scenario), listed in Table 2. Estimates with targets based on the status quo, including gaps in public services, were excluded. We then averaged these existing estimates for each sector). To separate out the urban portion of the total investment, we used a combination of the World Bank's bottom-up calculations (Foster & Briceño-Garmendia 2010) and the top down calculation based on GDP (suggested by CCFLA, 2015), given that our estimate of Africa's urban GDP is 70% of the total regional GDP.[7]

Construction site in Durban, South Africa. © Shutterstock

7 See annex B and Table B3 for full methodology

Table 1: Global and regional estimates of required infrastructure investment

Source	Publisher	Time frame	Sectors included	Geography	Investment needed: Annual % of GDP	Investment needed: Annual USD	Percent of total investment need for maintenance	Target
Fay & Yepes (2003) Investing in Infrastructure: What is needed from 2000 to 2010?	World Bank	2005-2010	• Power • Rail • Roads • Telecom (fixed lines and mobile) • Water & sanitation	Sub-Saharan Africa	5.55%	USD25.9M	49%	Satisfy consumer and producer demand based on predicted GDP growth
				Middle East and North Africa	4.48%	USD28.1M	47%	
Foster & Briceño-Garmendia (2010) Africa's Infrastructure: A time for transformation	World Bank	2006-2015	• ICT (mobile and broadband) • Irrigation • Power • Rail, ports, airports Roads • Water & sanitation	Sub-Saharan Africa	15%	USD93B	35%	Achieve the Millenium Development Goals
Dobbs et al. (2013) Infrastructure productivity: How to save $1 trillion a year	McKinsey Global Institute	2013-2030	• Power • Rail, ports, airports • Roads • Telecom • Water	Global	4.1%	USD57T-USD67T	40%	Keep pace with projected GDP growth
WEF (2013) The Green Investment Report: The ways and means to unlock private finance for green growth	World Economic Forum	2010-2030	• Agriculture • Buildings and industry • Forestry • Power • Rail, ports, airports, transport vehicles • Roads • Telecom • Water	Global		USD5.7T		Low carbon 2°C scenario
New Climate Economy (2014) Better Growth Better Climate	New Climate Economy	2015-2030	• Power • Rail, ports, airports • Roads • Telecom • Water & sanitation	Global		USD6.2T		Limit climate change to 2°C
Ruiz-Nuñez & Wei (2015) Infrastructure Investment Demands in Emerging Markets and Developing Economies	World Bank	2014-2020	• Power • Rail • Roads • Telecom (fixed line and mobile) • Water & sanitation	Sub-Saharan Africa	6.2%	USD50.1M	48%	Satisfy consumer and producer demand based on predicted GDP growth
					3.7%	USD47.1M	68%	

Source	Publisher	Time frame	Sectors included	Geography	Investment needed: Annual % of GDP	Investment needed: Annual USD	Percent of total investment need for maintenance	Target
Woetzel, Garemo, Mischke, Kamra & Palter (2017) Bridging Infrastructure Gaps: Has the world made progress?	McKinsey Global Institute	2017-2035	• Power • Rail, ports, airports • Roads • Telecom • Water	Global		USD69.4T		Achieve the SDGs
				Africa		USD2T		
OECD (2017) Investing in Climate, Investing in Growth	OECD	2016-2030	• Power • Rail, ports, airports • Roads • Telecom • Water & sanitation	Global		USD6.9T		Limit climate change to 2°C
AfDB (2018) African Economic Outlook 2018	African Development Bank	2016-2025	• ICT (mobile and fiber) • Power • Rail, ports, airports • Roads • Water & sanitation	Africa		USD130B-USD170B		Mix of development targets
IFC (2018) Climate Investment Opportunities in Cities	International Finance Corporation (World Bank Group)	2018-2030	• Climate-smart water • Electric vehicles • Green buildings • Public transportation • Renewable energy • Waste	Cities: Sub-Saharan Africa		USD125B		"fully achieving cities' currently stated sector-specific mitigation goals to 2030" (p. x)
				Cities: Middle East and North Africa		USD142B		
Rozenberg & Fay (2019) Beyond the Gap: How countries can afford the infrastructure they need while protecting the planet	World Bank	2015-2030	• Flood protection • Irrigation • Power • Public transport • Roads • Water & sanitation	Sub-Saharan Africa	9.2%		22%	Achieve infrastructure-related SDGs and limit climate change to 2° C
				Middle East and North Africa	7.2%			
Schwartz, Fouad, Hansen & Verdier (2020)	IMF	2019-2030	• Electricity • Roads • Water & sanitation	Sub-Saharan Africa	10%			To meet SDG sector targets
				Middle East, North Africa, Afghanistan and Pakistan	4%			

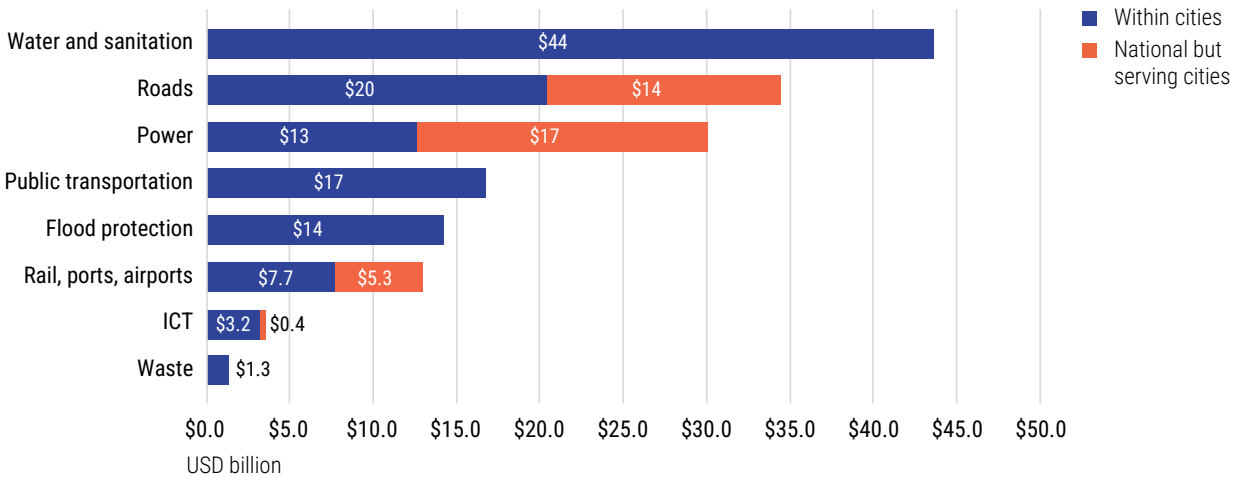
Table by authors

Table 2: Components and sources for estimate of required investments in Africa's urban public infrastructure

Inputs and sources	Not included (recommended for future research)
• Power; roads; water and sanitation: Combined estimates from AfDB (2018), IMF (Schwartz, Fouad, Hansen & Verdier, 2020) and World Bank (Rozenberg & Fay, 2019) • Rail, ports and airports; ICT: AfDB (2018) • Flood protection: World Bank (Rozenberg & Fay, 2019) • Public transportation: Combined estimates from IFC (2018) and World Bank (Rozenberg & Fay, 2019) • Waste disposal: IFC (2018) • GDP data from the IMF's World Economic Outlook Database	• Housing • Increased infrastructure costs associated with slum upgrading • Climate adaptation beyond flood protection • Public space, parks and recreation facilities • Emergency services (police and fire) • Schools and hospitals
Resulting estimate of Africa's urban infrastructure investment needs: 5.34% of regional GDP, totaling an estimated $157 billion for 2025	

Table by authors

Figure 9: Africa's annual urban investment needs



Data source:

The results of our calculations suggest that the estimated annual investment needs for Africa's

cities is 5.34% of regional GDP, totaling an estimated $157 billion for 2025. Of that, 4.08% of GDP (or $120 billion annually based on 2025 GDP) is needed for urban infrastructure located *within* the cities themselves, and 1.26% of GDP ($37 billion annually based on 2025 GDP) is needed for investments in national trunk infrastructure that serve cities, including power generation and transmission to cities, national roads and railways, ports and airports, and fiber backbone (Table 3, Figure 9).

This division between urban infrastructure within cities and national trunk infrastructure follows Foster and Briceño-Garmendia's (2010) classification, which dubs the two types "urban basic" and "productive" infrastructure, respectively. However, it should be noted, as Linn (1982) points out, even what is viewed as basic infrastructure (ex: water used within a city) is consumed in large part by businesses and industry, not merely households. Some authors have suggested categorizing basic infrastructure as that utilized in the final consumption of households, and productive infrastructure as that used as an input to producers (Fay & Yepes, 2003; Ruiz-Nuñez & Wei, 2015). While conceptually appealing, this is difficult to differentiate both statistically and operationally.

Fay and Yepes (2003), as well as Ruiz-Nuñez and Wei (2015), in studies published by the World Bank, conceptually differentiate infrastructure needs into two categories: consumer demand and producer demand. Consumer demand is based on the final consumption needs of households, whereas producer demand is for infrastructure and services used as an input to production. While conceptually appealing, this is challenging to differentiate both statistically and operationally within actual budget figures. Therefore, a location-based categorization is the most useful approach.

Table:3 Africa's annual required urban infrastructure investments, % of GDP

Sector	Within cities	National, but serving cities	Urban total
Power	0.43%	0.59%	1.02%
Rail, ports, airports	0.26%	0.18%	0.44%
Roads	0.70%	0.47%	1.17%
ICT	0.11%	0.01%	0.12%
Water and sanitation	1.49%	–	1.49%
Flood protection	0.48%	–	0.48%
Public transportation	0.57%	–	0.57%
Waste	0.05%	–	0.05%
Total	**4.08%**	**1.26%**	**5.34%**

Table by authors

Based on prior estimates of required infrastructure investment needs, between one third and one half of the required annual spending should go toward maintenance, rehabilitation and replacement of existing assets, although different infrastructure types have different maintenance requirements, and the amount, age, and condition of existing infrastructure differs by county and city.

It is worth noting what is not included in the estimates above, also listed in Table 2. Nearly half of Africa's urban population lives in settlements classified as slums.[8] Unplanned urban expansions and informally settled areas not only lack basic utilities that require infrastructure extensions and upgrades, but can also be challenging to connect to public services based on their unplanned layout, often narrow public rights of way, and land rights complexities.

The added cost of slum upgrading is a major cost not factored into the urban investment estimates above. Housing itself is also not included. While the majority of housing investment in the coming decades will be private, there is a necessary role for major public subsidies in urban housing for the poorest that must be factored into the total cost of sustainable and equitable urbanization.

The above estimates also exclude public space, parks and recreation facilities which are fundamental for cities to offer a basic quality of life, as well as schools, public hospitals, and emergency services such as fire and police. Additionally, while a rough estimate of flood protection is included, additional climate adaptation investments such as shade trees to combat extreme heat, utility upgrades to make systems resilient to extreme weather events, and early warning systems, are not included.

8 In 2020, 49% of the combined urban populations of the 34 African countries with data resided in slums, according to the World Development Indicators database.

These regional-level estimates also mask significant differences between countries. Generally, the lowest income countries will necessitate higher proportions of their GDP to be invested in cities, not only because their total GDP is lower (therefore the same investment costs are already a higher proportion of GDP), but also because gaps in urban services tend to be greater, and urbanization is generally proceeding more rapidly amongst Africa's lower income countries, while those with the highest GDP are already more urbanized. Because the greatest needs are in countries with the fewest resources, they merit special focus and added external support.

Estimating the gap

According to a World Bank estimate of the investments needed to keep pace with GDP growth, emerging markets and developing countries globally have an investment gap of 46% of what is required (Ruiz-Nuñez & Wei, 2015); however, the associated investment needs are conservatively estimated and not calculated to achieve infrastructure-specific development targets. AfDB (2018) estimates the infrastructure financing gap for Africa to be 52-64% of needs. Looking specifically at urban areas, the gap is likely to be even higher. IFC (2018) estimates that only 20% of private investment in infrastructure has gone toward urban infrastructure.

Calculating the gap in investment spending requires metrics of existing spending, which are challenging to compute due to the variety of sources of funds and the commonality of off-budget vehicles (ex: state-owned enterprises and special funds like national road funds). One recent study (Foster, Rana & Gorgulu, 2022) combines data on national budget allocations to infrastructure, donor projects, state-owned enterprises, and public participation in infrastructure to create a full picture of infrastructure spending. Globally for low- and middle-income countries, they find that "Overall, public expenditure on infrastructure in the developing world was found to be low and declining, reaching its lowest levels since 2010 at just below 1% of GDP in 2018." (p. 29). This is lower than previous estimates, partly because high investment countries (India and China) are not included. Unfortunately, these estimates are not disaggregated by region or urban vs. rural investments, but African countries comprise a significant share in the sample. Another study (World Bank, 2017) finds that annual national public spending on infrastructure in sub-Saharan Africa was 2% of GDP during the 2009-2015 period. These estimates are exceedingly low compared to global and regional estimates of required infrastructure investment which range as high as 15% of GDP (Table 1). Future research could shed more light on the gap between needs and expenditures when it comes to urban infrastructure investment.

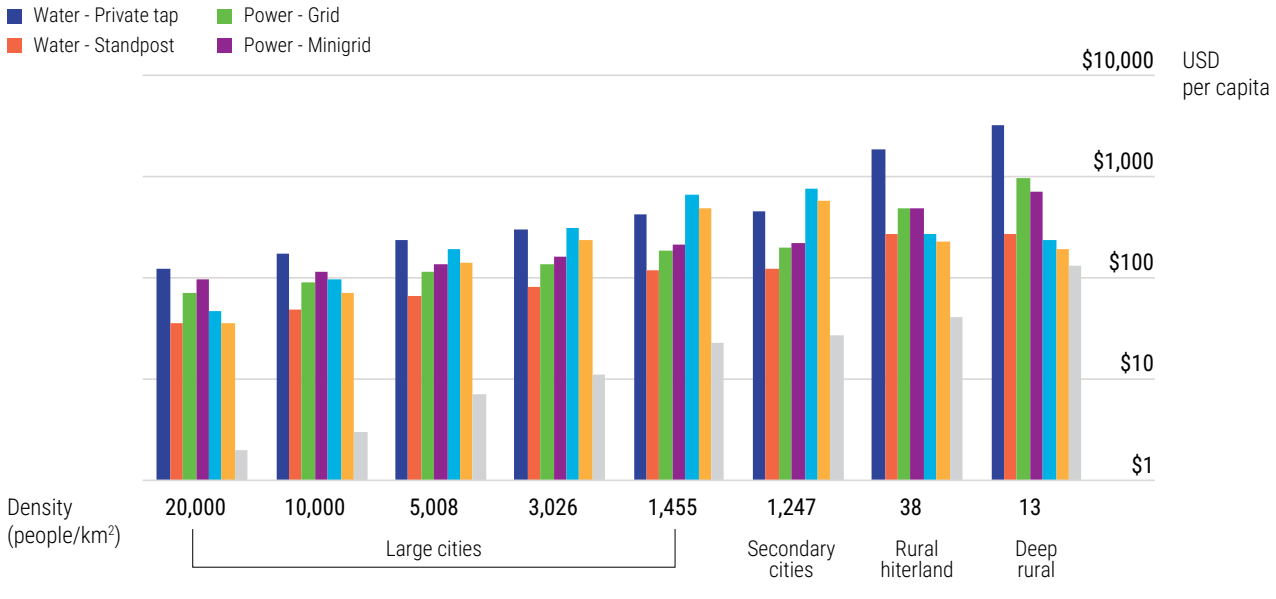
Density is a major cost determinant

While urban infrastructure is costly, reducing the level of urbanization does not reduce the cost of achieving infrastructure and public service access targets. The opposite is the case: if population growth occurs in rural areas, it is much more expensive to achieve the same level of service (Litman, 2023; Litman, 2015). This is because density enables the costs of trunk infrastructure to be spread across more people.

The density of urban development also matters. Density is one of the key determinants of total infrastructure cost (Rozenberg & Fay, 2019). A study of 8600 municipalities in Brazil, Chile, Ecuador and Mexico finds that per capita municipal spending on public services per capita declines as density rises, and reaches its lowest point at a density of about 9,000 inhabitants per sq. km (slightly higher density than Santiago, Chile), thereafter rising again (Libertun de Duren & Guerrero Compeán, 2015). According to the World Bank (Foster & Briceño-Garmendia, 2010), per capita infrastructure costs typically decrease with density and in most sectors are the highest in rural areas (Figure 10).[9]

9 High urban densities without adequate planning and infrastructure investment can of course become problematic, and lead to the overcrowded conditions seen in many African cities. However, the issue at hand is not density per se, but rather underinvestment. Some of the densest cities in the world are the highest in productivity and have the highest quality of life.

Figure 10: Capital cost per capita of infrastructure provision by location density



Data: Foster & Briceño-Garmendia, 2010. Note: Cost figures have not been updated for inflation.

Cities are costly; What is the alternative?

Linn (1982) points out that the quality and quantity of public services demanded in urban areas is higher due to higher incomes, which also often reflects a willingness or ability to pay taxes to pay for those increased services. He notes that rising demand due to rising incomes cannot and should not be avoided by attempting to slow urban population growth: "industrialization, population growth, and increases in per capita income, all of which tend to be concentrated in urban areas, impose a rapidly growing fiscal burden on governments in developing countries. However, there is little reason to suspect that slowing down the urbanization process per se will reduce this burden unless it is accompanied by reduced rates of industrialization or reduced population and income growth" (p. 647). In fact, urban fertility rates are 37% lower than those in rural areas (OECD/UNECA/AfDB, 2022), so urbanization actually reduces the total number of people requiring public services in the long term.

Failure to invest adequately in the basic infrastructure of cities can create costly lock-ins and constrain overall economic productivity and wellbeing for decades and even centuries to come. Spatial development is path-dependent, and disorganized and unplanned layout of cities can be costly and nearly impossible to change. At the same time, economic trajectories also exhibit path-dependency, and under-investment in African cities is trapping them in low-productivity, non-tradeable[10] sectors. This is because poor infrastructure makes production costly, and traded sector firms in poorly serviced cities cannot compete with those in cities with better infrastructure. This becomes a trap because traded sector firms generally benefit from clustering together (i.e. localization economies), and cities with existing clusters of firms become more attractive than lagging cities (Lall, Henderson & Venables, 2017).

10 Tradable sectors are those with products that can be sold outside a given country. They tend to be better for economic growth than non-tradable sectors, because they can tap into outside demand and enable scaling up of production.

Africa Kenya Electrical highway in tropical conditions. © Shutterstock

Finding the resources to finance Africa's urban future

Africa is undergoing a rapid urban transition, and major investments are needed now. So the key question is "where is the money?" The Addis Ababa Action Agenda, adopted in July 2015 provided a financing framework to underpin Africa's socioeconomic development in the post-2015 era. It coincided with the adoption of SDGs (September 2015), the Paris Climate Agreement (December 2015) and the New Urban Agenda (October 2016). Though it reaffirms the commitment of developed countries to official development assistance (ODA), emphasis has also been put on the necessity of African countries to leverage the full potential of domestic finance.

To close the urban investment gap, there is a need to strengthen and optimize tax revenues, improve decentralization and the budgetary performance of subnational governments, and tap into external sources of finance. Cities will play a critical role in all three aspects, which are expanded upon below.

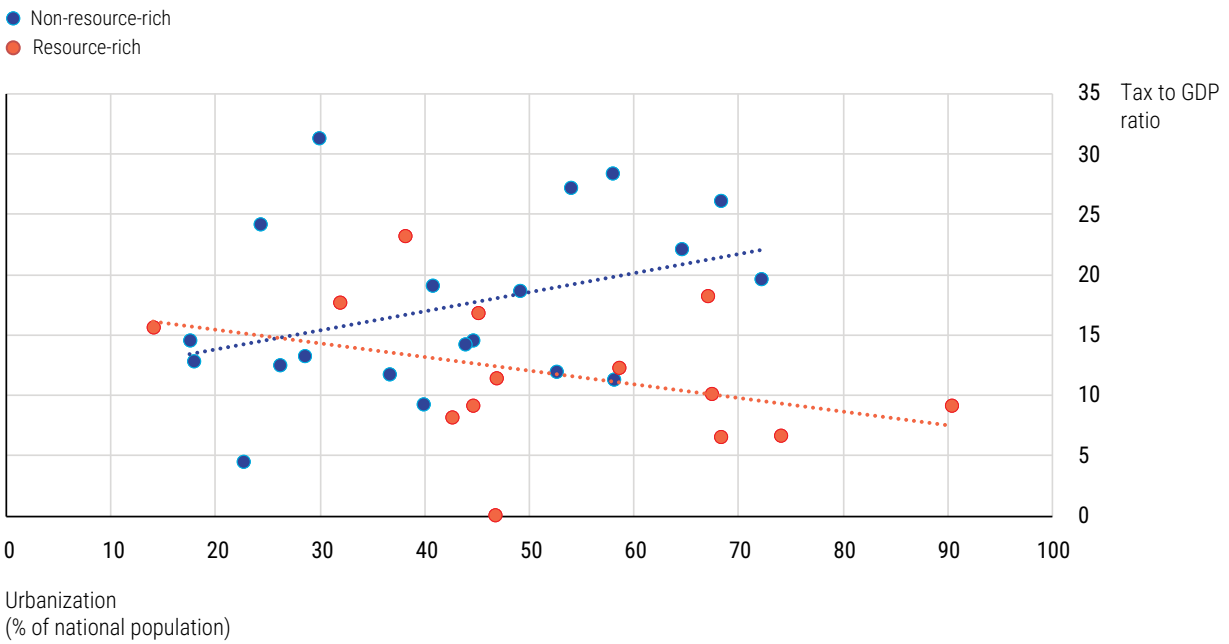
Tax revenues and African cities

Urbanization increases tax potential, but should governments increase taxes?

Urbanized economies tend to have higher tax revenues compared with agrarian economies[11]. One study suggests that for a 1% decrease in the share of the agriculture sector in GDP, there is a 0.4% increase in revenues (Gupta, 2007). In the agricultural sector, limited wage labor and the prevalence of informality and subsistence work make the income tax base difficult to reach. At the same time, transactions are smaller and scattered, making them harder to capture in consumption taxes. Tax revenues tend to increase alongside industrial development and a move away from agriculture (Addison & Levin, 2012). This shift not only increases the tax base but centers it more firmly in cities.

Beyond income taxes, urban areas provide the broadest base for the consumption tax. Africa's consumer class is growing and largely resides in cities. By 2030, Africa's middle class will grow by 66% (Coulibaly, 2019). Unlike the rural population who in many countries predominantly relies on their own produce for subsistence, urban populations tend to purchase their basic necessities, including food. The growing population and concentration of economic activities in cities also increase the value of immobile factors and durable goods like land and housing, key sources of local taxes (Michaels, Rauch & Redding, 2012).

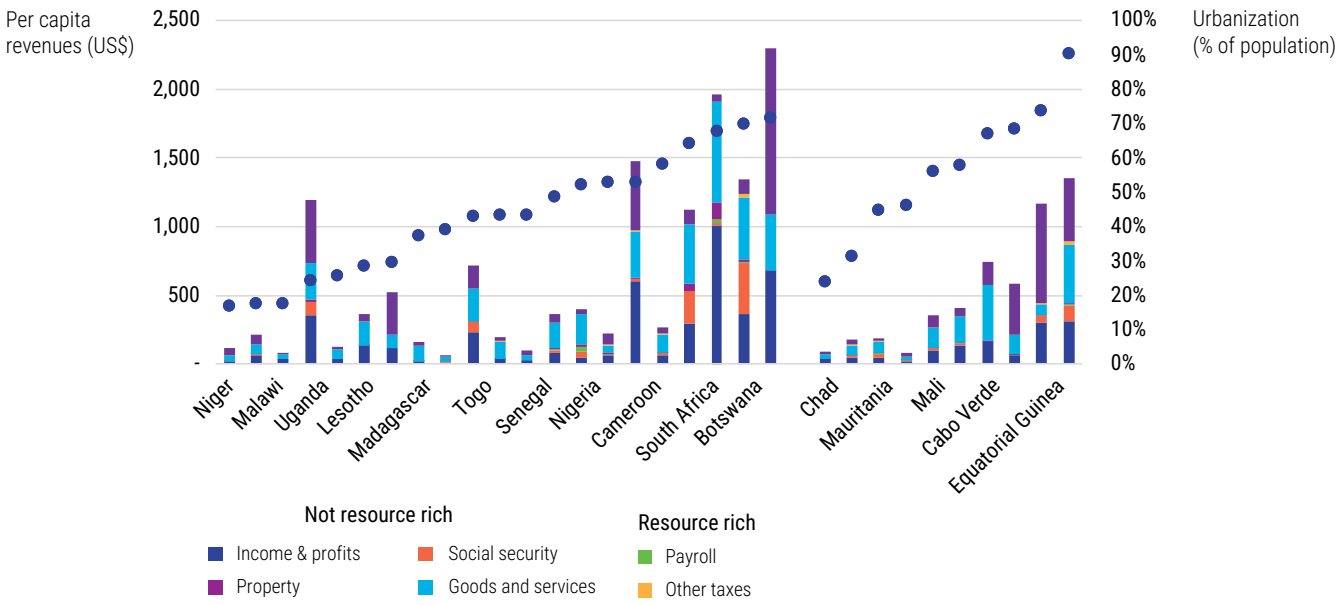
Figure 11: Urbanization and tax-to-GDP ratio across African countries by resource endowment



Data source: World Development Indicators. Tax-to-GDP ratio and urbanization data for 2022, 2021 or 2019 (most recent available).
Resource rich countries are those earning over 10% of GDP in natural resource rents (coal, forest, mineral, natural gas or oil rents) for the preceding 5 years on average.

11 The link between urbanization and taxation is not one of causation though. Countries with the same level of urbanization, and even tax potential, may choose a different taxation regime or effort due to different structural and resource conditions, policy priorities and preferences.

Figure 12: Composition of revenues and urbanization rate, 2021



Data: Revenue data from OECD, ATAF & AUC (2023) Note from source: The figures are for central revenues and include sub-national government tax revenues for Eswatini and Morocco, and state revenues in Nigeria. Sub-national government tax revenues are not available in other countries. Data for resource-rich classification from World Development Indicators. Revenue-rich means more than 10% of GDP in natural resource rents for 2021. Small island states are not shown due to economic structure that differs significantly from the trend.

Urban economic activities also offer a more stable tax base than natural resource rents. Economies characterized by a large share of income from natural resources such as oil or minerals may generate a higher amount of revenue than lower income agriculture-based economies, but revenue streams fluctuate with commodity prices and are vulnerable to external market forces. Reliance on extractive industries, therefore, exposes resource rich countries to risks of external shocks and associated revenue instability. Another risk is the stagnation of tradeable services due to Dutch disease, locking urban economies which should be driving productivity into a pattern of consumption ("consumption cities") and inequality, and thus undermining the urban tax base. As Figure 11 shows, urbanization is associated with a higher tax-to-GDP ratio in Africa, but only in countries that are not resource-rich.

In the long run, as urban economies mature and diversify, direct taxes on income and profits begin to play a larger role than indirect taxes (Andersson, 2017). Countries that rely more on income taxes are likely to perform better in terms of total revenue and tax-to-GDP ratio than those relying on taxing goods and services (Gupta, 2007). More urbanized and diversified economies with a higher share of industry and high productivity service sector jobs, like South Africa, Morocco and Tunisia, command a higher tax-to-GDP ratio, and a more buoyant revenue structure due to the prominent role of direct taxes (Figure 12). But in the majority of cases, personal income and passive capital taxes contribute little, often yielding less than 2% and 1% of GDP in revenue respectively (Mansour & Zolt, 2023), and reflecting the low share of employment in the formal economy. Governments may adopt a minimum threshold, and progressive income tax rates to achieve both revenue and equity objectives. South Africa is one of the most unequal countries in the world, but it is also one of the countries with the most progressive income tax (Box 1).

Box 1: The share of direct taxes grow as countries urbanize and their economies develop: the example of South Africa

South Africa provides an example of the shift toward direct taxes. The country, with a large urban population and urban economic base, raises revenue from the personal income tax and the corporate profit tax as its top two sources. This is in contrast to low-income countries where indirect taxes (mainly VAT) constitute the largest revenue source, and it reflects South Africa's relatively high level of GDP per capita and level of formal employment. Between 2007/08 and 2016/17, personal income tax as a percent of total tax revenues increased from 29.6% to 37.2%, despite the increase in the minimum taxable income threshold from R40,000 in 2007 to R73,650 in 2016 (Business Tech, 2017). As of 2015, personal income tax revenues represented almost three times the average tax-to-GDP ratio for other African economies (OECD, ATAF & AUC, 2017). Over 40% of assessed taxpayers were registered in Gauteng Province, where major urban centres of Pretoria and Johannesburg are located (Business Tech, 2017), demonstrating the power of cities to generate revenues via direct taxes. South Africa's tax regime is also progressive. The annual taxable income threshold for personal income taxes is more than three times the median earnings of self-employed workers in the informal sector (Rogan & Skinner, 2017).

African countries have room to expand tax revenues through improvements in their tax effort, and increased revenues will increasingly come from cities. According to a report based on tax revenue of 30 African countries between 1990 and 2018, the average tax-to-GDP ratio was 16.5% in 2018.[12] The corresponding average for OECD countries and Latin American and Caribbean nations are 34.3% and 23.1% respectively (OECD, 2023).

Africa's tax-to-GDP ratio falls short of the 20% possible[13] with better tax policy and administration (UNECA, 2019) and the 25% threshold required to finance development (AfDB, 2018). Despite some effort to mobilize domestic resources and significant increase in tax revenues in absolute terms in the last 15 years, the overall pattern has not been encouraging. Between 2010 and 2019, Africa's tax-to-GDP ratio declined by 1.8 percentage points from 16.1 to 14.3% (UNECA, 2024a).

Weak tax policy and administration; low tax compliance and enforcement; loopholes for corporate-tax avoidance of all kinds, and individual wealth stashed offshore; and high levels of informal economic activity and of tax evasion are identified as reasons behind the gap between actual tax collection and tax potential.

If all countries achieve Tunisia's tax-to-GDP ratio of 32.5%, there will be an estimated $500 billion more revenue to be collected, a huge sum that automatically closes the funding gap for SDGs on infrastructure investment (AFD, 2023). But that is neither desirable nor feasible, and countries may decide to tax less, rather than more due to growth and equity considerations.

During budgeting in 2021, South Africa withdrew its previously announced tax revenue increase of R40 billion, to ease the economic hardship experienced due to COVID-19 and to facilitate economic recovery (Republic of South Africa, 2021). In 2017, Tanzania reduced the corporate income tax rate for assemblers of vehicles, tractors and fishing boats by 66% for the first five years of operations to encourage

12 The average low tax-to-GDP ratio masks variation between African countries ranging from as low as 7 % in countries like Chad, Democratic Republic of Congo and Ethiopia to 28-33 % in high- and upper-middle-income countries like Seychelles, Namibia and South Africa.

13 Tax potential-the maximum to be collected- depends on economic structure and demography, and tax effort-the extent to which the actual tax collection approaches the potential- is conditioned by the institutional variables, primarily tax policy choices and enforcement capacity which is a function of tax administration and compliance (Langford & Ohlenburg, 2015).

manufacturing growth. In 2018 Kenya reduced the corporate income tax rate for big property developers and for vehicle assemblers by half (ATAF, 2017). Similarly, countries like South Africa, Kenya and Mauritius have reformed personal income taxes not only to maximize revenue, but also to reduce the tax burden on those in lower income bands.

Optimizing tax policy and administration to leverage the opportunities presented by urbanization requires a strategic approach. Some key issues to consider are high inequality, targeting those who can pay, approaches for taxing the large urban informal economy, and methods to tax the rising digital services sector without harming economic growth or the poor. These topics are expanded upon below.

High inequality, targeting those who can pay, and strengthening enforcement

Inequality narrows the tax base. High urban poverty rates are concerning in their own right as well as for the revenue potential of cities, and inequality dampens the impact of growth on poverty. The higher a country's inequality, the narrower the tax base becomes, necessitating higher tax rates to generate the same amount of revenue (Sulla & Zikhali, 2018).

Water pipeline construction on the A1 highway, Botswana. © Shutterstock/Bashi Kikia

As a result of Africa's high inequality, a disproportionate share of tax revenue is derived from a limited number of sources. For example, according to data over a ten-year period (1997-2007), 70% of Burundi's tax revenue originated from 10% of taxpayers, with one brewing company alone contributing 20% of annual budgetary revenues (Girukwigomba, 2010), and in Cameroon, 55% of all corporate taxes in 2013 were paid by ten companies (OECD/ATAF/AUC, 2017). A mere 6% of tax-paying firms generate 78% of receipts region-wide (The Economist, 2020). However, this is due to high inequality and is only part of the narrative. A study on Ethiopia revealed that in spite of a proportionate tax rate, and contrary to policy design objectives, small firms face a higher effective tax burden than larger firms, due to compliance costs and imperfect enforcement (Mascagni, & Mengistu, 2019). The case is similar in most countries.

Both the wealthy and the poor complain of disproportionate tax burdens, but the reality is that even taxes intended to be fair end up falling more heavily on the poor and those already living with a thin financial margin. Some taxes harm the poor more than the others, for example, taxes on both food and fuel impact the poor, but the former harms the poor disproportionately. Fuel taxes or removal of fuel subsidies, while impacting commuters and small businesses, have a wider fiscal and economic impact. By scrapping fuel subsidies, Nigeria plugged a significant hole in the budget and ended an expense that largely benefitted the rich, as the richest 40% of the population consumes 90% of fuel while the poorest 40% consumes only 4%. In 2011, the fuel subsidy was costing Nigeria $8 billion, almost 4 times the national budget for education (Moyo & Songwe, 2012), and ending it freed up resources that could be invested in infrastructure and basic services.

While many lower income countries rely on consumption taxes, if not carefully designed, they can harm the urban poor, and reduce the impact of consumption as an economic driver. Considering the living costs in African cities, which are on average higher than what their GDP levels suggest (Nakamura, 2016), consumption levels at the poverty line are too small to meet basic needs, let alone

Road Contraction, Teshie, Annumantu, Accra, Ghana
© Shutterstock

afford a decent standard of living. In times of economic distress like the current situation in many countries where inflation is high and widespread, even those in the middle class struggle to meet their basic needs. In 2023, the poor in Nigeria had to spend on average 59% of their household income on food (The Economist, 2024a). Consumption taxes therefore should be assessed with consideration of the welfare of the urban poor. However, if taxes are spent on poverty-reducing investments or services, for example on primary education in poor neighbourhoods, they improve their chances of having a pro-poor effect. Therefore, it is important for policymakers to look at the net fiscal incidence of a tax, i.e. who pays and who benefits on both the tax and spending sides of the equation.

Although African governments in the last two to three decades have taken reform measures to raise revenue and have made progress, critics argue poorer citizens generally pay much higher rates than richer ones. The tax regime is regressive for multiple reasons. Foreign companies, especially in the extractive industries, pay little in taxes. And, the richest individuals pay very little in taxes, either moving big sums of money abroad or simply opting for tax delinquency without fear of enforcement. Some estimates suggest Africa loses $238 billion every year due to corruption and illicit financial flows (AfDB, 2024a). Many believe wealthy Africans are grossly under-taxed, and authorities are often focused on registering more and more small businesses for tax purposes, instead of targeting the top 20% (Moore, 2020).

Tax morale, or the willingness to pay taxes, is low and high earners are not an exception. Rich Africans do not generally pay personal income tax (PIT). Data from researchers at Uganda Revenue Authority is particularly illuminating. "Only 5% of company directors in Uganda remitted any PIT. Of the four individuals who paid more than one billion Shillings, only two made any PIT payments. None of the 12 individuals who paid between half a billion and one billion shillings in custom duties paid any PIT. Among a sample of 60 of the top lawyers in the country, 17 paid PIT. Among 71 government officials who owned enormous assets, including hotels, private schools and media houses only one had ever paid PIT. Only 13% of individuals registered as tax payers with the Revenue Authority made any tax payments," (Moore, et al. 2018, p. 133).

Digitalization and the use of technology is one option to improve the performance of tax enforcement, and many African countries are incrementally adopting technology to improve the ease and effectiveness of tax payments. The move to VAT by many African countries is accompanied by the introduction of electronic fiscal devices to enable transactions to be registered automatically and communicated to tax authorities. The impact on tax collection has been positive. Sales and income tax have increased in Ethiopia by 48% and 12% respectively after the introduction of electronic sales registration machines (Mascagni, et. al. 2021). In Rwanda, introducing a similar system increased VAT by an average of 5.4%, with variation across sectors (Zeitlin & Eissa, 2016). Digital tracking and payments can be particularly useful in urban settings, where formal transactions are more common and internet penetration is higher, but care must be taken in situations where the poor are less likely to have access to digital systems.

The movement toward electronic records also reduces opportunities for the rich to evade taxes using side payments. One example comes from a UN-Habitat program that digitalized the property tax records and assessments of local governments in Afghanistan and Somalia. An observed impact was a reduction in side payments and personal arrangements between wealthy landholders and tax collectors. As one government official from Somalia observed, the computerized tax record system "never forgets and forgives." (Gauntner, 2023, p. 61).

Other approaches to improve compliance among the wealthy include withholding taxes on income and profits and contracting with external agencies to assist with enforcement, as they are less susceptible to political pressure. Increasing tax payment transparency can also be used, and some African governments have used "name and shame" campaigns to compel high-profile individuals and businesses to pay their dues through social pressure (Monkam & Moore, 2015). At the international level, countries should engage in the multilateral treaties and initiatives currently underway within the OECD and G20 framework to combat money laundering and to recover stolen assets. The payoff is potentially large: illicit financial flows from sub-Saharan Africa have amounted to an estimated $1.3 trillion between 1980 and 2018, with a peak of $114.5 Billion in 2012 (Signe, Sow & Madden, 2020). However, enforcement of financial regulations and taxes is largely a reflection of political will and political power, and ensuring the rich and powerful pay is always a challenge, even in the world's richest economies.

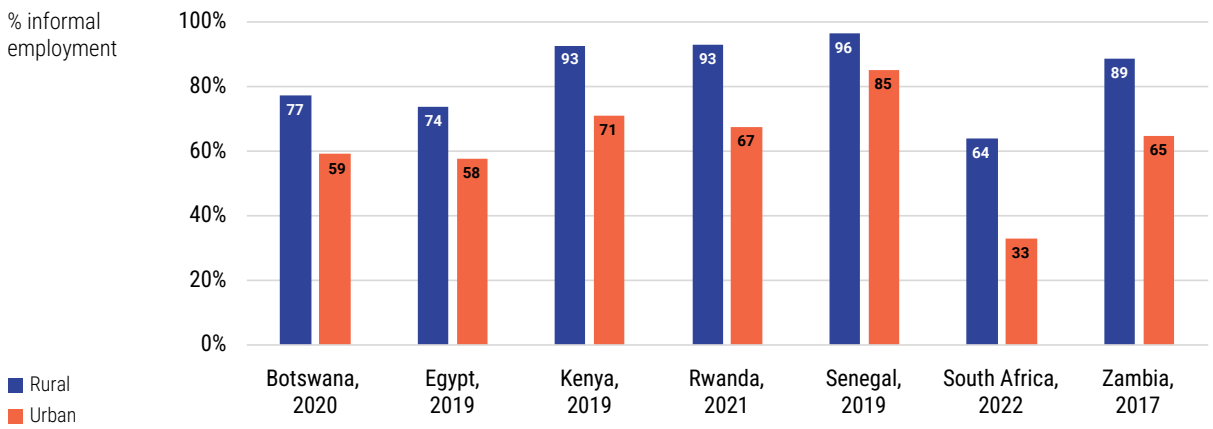
Informality requires a strategic taxation approach

High poverty and informality symptomatic of a lack of formal employment. There is currently a disconnect between workforce growth and job creation. Every year, 20 million young people enter Africa's labour market, and the chance of getting a formal sector job is small and diminishing (Kappel, 2021). Regional economic growth in the last 15 years has been largely job poor, with a 1% increase in economic growth associated with employment growth of only 0.4%. Total employment grew at 1.8% per year, while the labour force grew by 3% (AfDB, 2018).

Although cities offer a larger share of formal sector jobs, in most African countries, such employment still accounts for less than half of total urban employment (Figure 13), and the informal sector is the default means of livelihood for the majority. For cities region-wide, the share of informal work in total employment is estimated at 81%. This share reaches 92% and 96% when looking specifically at women and youth, respectively (Guven & Karlen, 2020). By some estimates informal activities generate about 76% of value added outside of agricultural activities (Chen & Beard, 2018) and account for about 50% of GDP (Mpofu, 2021).

The informal sector is a dominant part of the economy, but challenging to bring under the tax net, as the sector is diverse, informal enterprises are highly mobile and change frequently, and the financial record-keeping of informal firms and workers is often scant. While informal activities account for 34% to 61% of GDP in most African countries, tax revenues from informal activities account for only 1.8% to 6% of total tax revenue (Mpofu, 2021). The majority of firms and individual informal operators are below taxable thresholds, and workers are what ILO refers to as "working poor," engaged in low pay, low skill, low productivity activities like market trade, street vending, and waste collecting. These workers are struggling to survive and cannot manage the added burden of taxation.

Figure 13: Informal employment rates in rural and urban areas, selected countries



Data: ILO

However, the informal economy is not homogeneous. According to a model developed by researchers at the World Bank (Perry et al., 2007), there are three types of informal agents; workers with insufficient human capital to get formal jobs, microenterprises with limited potential to grow or facing barriers to enter larger markets, and larger firms who may be avoiding taxation and regulations but may be better able to pay.

Tax authorities striving to bring the informal sector into the tax net use various approaches, focusing on those that are simple and cost-effective to implement and enabling a reasonably high revenue to cost ratio. Approaches include tax farming (using private agents to collect taxes), fiscal decentralization (using local authorities to collect taxes), and involving informal sector associations to facilitate self-compliance (Dube & Casale, 2016). Use of ICT to facilitate identification, registration and collection is also among the tools being increasingly deployed.

Tax instruments themselves have also been adapted to better reach the informal sector. Many African countries including Ghana, Tanzania, Zambia and Zimbabwe have adopted presumptive taxes, which employ simplified metrics of the tax base, such as stock turnover, assets, number of employees, floor area or simply a fee for operating in order to allow taxpayers and collectors to more easily estimate tax liabilities, even in the absence of detailed accounts. In Ethiopia, mid-sized firms are required to pay a presumptive tax on income as well as a 2% tax on turnover, in lieu of VAT. Ghana applies a flat rate turnover tax of 3% for small firms replacing the standard VAT, while micro businesses operate under a stamp tax regime, where they pay a fixed tax per quarter.

Another option is to assign tax collection to companies purchasing informal goods and services. For example, taxes can be collected by tax-compliant firms, such as construction companies, transacting with informal contractors or suppliers. Burkina Faso requires all businesses to withhold taxes on transactions with traders who are not tax-registered. Sierra Leone uses similar taxes, requiring tenants to withhold tax on rent payments to landlords (Joshi, Prichard & Heady, 2012).

The focus of informal sector tax implementation has largely been on simplification and enforcement. This is understandable from the perspective of tax authorities, but is inadequate without sufficient consideration of equity and efficiency implications, and the long-term growth and transformation of the sector.

Aerial view Phakalane industrial and commercial area with modern warehouses in Gaborone, Botswana. © Shutterstock/Lucian Coman

There is often a tradeoff between simplicity and equity in the tax code, and a one-size fits all approach will necessarily burden the smallest and most vulnerable enterprises disproportionately. Care should be taken not to saddle the working poor with taxes beyond their means.

While it is neither advisable nor cost effective to target the many small and informal sector enterprises that are small and economically vulnerable, the informal economy is heterogeneous, and it is possible to calibrate tax policies to the ability and activities of different segments of the sector, enforcing taxes among larger informal firms. Collecting good data is fundamental to differentiate and design and implement fair and efficient tax policies. National policies should also leave enough scope for subnational authorities to contextualize tax policy to their own situations where subnational government capacity is good enough.

Critically, it is fundamental to pair taxation with support to informal enterprises. Simplifying and supporting the payment process is one step. For example, Gambia introduced a series of measures including the establishment of decentralized tax offices, tax tribunals and tax clinics to help prepare tax returns, along with implementing an education and awareness campaign (Joshi, Prichard & Heady, 2014; Prichard, 2015). In Bolivia, Indonesia, and Sri Lanka formalization of informal sector firms through registration with tax authorities increased profitability, and in Mexico, it also positively impacted their size and survival rate, because formalization expanded their access to credit, training, and participation in business associations (Joshi, Prichard & Heady, 2012).

Another necessary area of support is pairing tax payments with improved public goods and services that enhance the productivity of the informal economy. Many informal enterprises pay multiple levies to municipalities in licenses and fees (e.g., market fees, rentals), as well as to market cooperatives, but they lack even the most basic services, like water, and are forced to procure these from private sources at exorbitant prices. They also fall victim to criminal syndicates and slumlords (Resnick, 2021). These businesses receive little or nothing in return for their tax money compared to actors in the formal sector (Rogan, 2022). Remedying these gaps will not only improve tax morale and tax compliance, but can help the sector grow and compete, expanding the tax base.

Support to the informal sector should be part of a broader economic strategy that creates formal sector jobs, strengthens the links between formal and informal firms, and assists informal enterprises to get on firm enough footing to graduate to the formal sector. Investments in public infrastructure and services will be part of the recipe for success, and engagement with informal economy associations and policy customization at the local or subnational government level can be components that make policies more targeted and effective (see Box 2).

Box 2: Supporting the informal economy pays off: The case of eThekwini, South Africa

eThekwini Metropolitan Municipality is one example of support to the informal sector and progressive formalization. The city provides ongoing support to small and informal enterprises through its Business Support, Tourism, and Market Unit (Robbins & Quazi, 2015). Municipal service departments have also engaged informal operators, creating a path to formal participation in basic urban services. For example, the Solid Waste Department has created programmes for working with informal waste pickers and recyclers, developing buy-back schemes and resulting in $10-15 million in savings due to landfill diversion (Godfrey, Strydom & Phukubye, 2016). Informal traders are also engaged in dialogue around municipal projects. For example, when the city pursued urban renewal of Warwick Junction, a large transport interchange connecting several markets, a participatory process included traders, minibus taxi operators and local organizations, and resulted in upgrades in infrastructure to provide protection from the elements and storage facilities for traders. Traders were eventually able to sell more goods and generate higher profits owing to this intervention, increasing their contribution to VAT and fees for use of space.

Taxing the digital economy

Africa's growing cities are home to the emerging digital economy, which provides a rapidly rising yet challenging-to-tax component of urban and national economies. The digital economy consists of online platforms such as Google, Facebook and Amazon, platform-enabled services such as Uber and Airbnb, the trade in electronic transmissions, such as the online delivery of software, music, e-books, films and video games, and mobile technology and applications, including money transfer, borrowing and saving services (IBA, 2021).

Though starting from a low base, Africa has seen some of the fastest growth in the digital economy globally (UNCTAD, 2019), thanks to rapid expansions in infrastructure and connectivity.

The share of e-commerce in Africa's retail trade is accounts for 7% in South Africa and Nigeria, and 4% in Egypt and Kenya, and these figures are steadily increasing with the spending power of the urban consumer class (Statista, 2024). For example, Naivas supermarket and Killmall are local Kenyan companies that offer online retail services similar to Amazon and Jumia in Nigeria. Jumia was valued at $1 billion in 2016 and was the first African company to issue an IPO in the US market.

Rising connectivity is also laying the foundation for a growing gig economy. For example, Lynk in Kenya matches thousands of jobs with workers each month in categories of activities ranging from plumbing and electrical work to yoga lessons and hair care. Based on data in a sample of seven countries (South Africa, Kenya, Rwanda, Uganda, Tanzania, Ghana, and Nigeria) an estimated 4.8 million workers in Africa derive income from digital platforms (Smit, et. al. 2019). BFA/Mastercard Foundation (2019) estimates up to 80 million people will be employed in sub-Saharan Africa in digital labor by 2030. There were already close to 300 active digital platforms as of 2017, employing nearly five million workers, including Uber which is estimated to have 60,000 registered drivers (Mourdoukoutas, 2017).

The digital economy is a major source of economic dynamism for African cities, yet it is diffuse and borderless, posing a challenge to tax. A working paper by the International Centre for Tax and Development which examined services provided by Amazon, Uber and Google in six African countries emphasized attribution of profit as the main problem. In many cases, even when the companies (Uber for example) have registered local subsidiaries with physical offices, these subsidiaries are administrative outpost offices with no ownership of any intellectual property rights and do not receive any revenue from users of the Uber application. Therefore, substantial revenues are flowing to foreign affiliates subject to low taxation (Ndajiwo, 2020).

Taxation of the digital economy is evolving. The Inclusive Framework (IF) launched in January 2019 under the OECD/G20 has proposed solutions that seek to achieve a fairer distribution of profits and taxing rights among jurisdictions, and a global minimum corporate tax rate of at least 15%. The African Tax Administration Forum (ATAF), an African network that aims to improve tax systems in Africa, has welcomed the solutions with some reservations regarding the profit reallocations and the level of the global minimum corporate tax rate. As the global discussions on international taxation reform continue, several countries have put in place unilateral measures to deal with some of the tax challenges of the digital economy. Several African countries have expanded the scope of indirect taxes to cover digital services, but to date, only a few have introduced some form of direct digital services tax (DST) on non-residents with no local physical presence (IBA, 2021). Specific examples include the following:

- Since 1 January 2021, Kenya has been levying a 1.5% tax on income accruing through a 'digital marketplace', defined as a platform that enables the direct interaction between buyers and sellers of goods and services digitally.

- In January 2019, Zimbabwe introduced a 5% tax on entities whose annual gross income exceeds $500,000 and are providing satellite broadcasting services of television or radio programs, as well as e-commerce operators delivering goods or services to persons residing in Zimbabwe.

- Nigeria introduced a 30% corporate income tax on companies with significant economic presence (earning NGN25 million or more) on the taxable earnings from digital services including electronic commerce, electronic data storage, online adverts, participative network platforms and online payments.

Experts caution that digital taxes should not be regressive. They should not disenfranchise the poor, or those in the informal sector who need the internet the most. In some countries that implemented digital taxes, there was a noticeable drop in internet and ICT service usage, resulting in reduced revenue. For example, in 2018, Uganda imposed a 1% excise duty on mobile money transactions and a social media tax, which led to a sharp decline in internet subscriptions. Many users switched to using virtual private networks (VPNs) to access social media, causing the government to fall short of its expected revenue (IBA, 2021). Much of the gig economy is still in its infancy, and many freelancers are earning little. With 120,000 registered freelancers on Upwork, Africa's share is less than that of the Philippines, partly because of high broadband costs (Anwar & Graham, 2022), and only about 6% of workers from Africa registered on Upwork have yet to earn from it (Anwar & Graham, 2020).

Digital taxes are most effective when levied on the income of the digital services firm, and not on the use of digital services that promote business transactions and economic activities. Taxing the service, rather than the providing firm, if not carefully designed, can function as growth tax, and can therefore be counterproductive. In the case of mobile money transactions for example, excise taxes, if not optimized, encourage people to move back to the cash economy, reversing hard won gains in financial inclusion, while only producing minimal tax revenues. A study that looked at the excise tax on mobile money in Kenya concluded, "the contribution of mobile money-related taxes is less than 1% of total tax revenue, a negligible contribution to Kenya's total tax income, at high economic costs. These lessons are not just relevant for Kenya but also for other countries in Africa with such tax propositions" (Ndung'u, 2019, p. 1). Kenya has progressively revised taxes on the digital economy (Box 3). A contrasting example comes from Benin, which eliminated the telephone consumption tax of 4.4%, removed the $0.12 per second surcharge on incoming international telephone calls, and reduced annual fees on wireless beams by 80%. The result in terms of investment, jobs, GDP growth and tax revenue was substantial (Igue, Alinsato & Agadjihouédé, 2021).

Digitalization and the use of technology is one option to improve the performance of tax enforcement, and many African countries are incrementally adopting technology to improve the ease and effectiveness of tax payments.

The move to VAT by many African countries is accompanied by the introduction of electronic fiscal devices to enable transactions to be registered automatically and communicated to tax authorities. The impact on tax collection has been positive. Sales and income tax have increased in Ethiopia by 48% and 12% respectively after the introduction of electronic sales registration machines (Mascagni, et. al. 2021). In Rwanda, introducing a similar system increased VAT by an average of 5.4%, with variation across sectors (Zeitlin & Eissa, 2016). Digital tracking and payments can be particularly useful in urban settings, where formal transactions are more common and internet penetration is higher, but care must be taken in situations where the poor are less likely to have access to digital systems.

The movement toward electronic records also reduces opportunities for the rich to evade taxes using side payments. One example comes from a UN-Habitat program that digitalized the property tax records and assessments of local governments in Afghanistan and Somalia. An observed impact was a reduction in side payments and personal arrangements between wealthy land holders and tax collectors. As one government official from Somalia observed, the computerized tax record system "never forgets and forgives." (Gauntner, 2023, p. 61).

Other approaches to improve compliance among the wealthy include withholding taxes on income and profits and contracting with external agencies to assist with enforcement, as they are less susceptible to political pressure. Increasing tax payment transparency can also be used, and some African governments have used "name and shame" campaigns to compel high-profile individuals and businesses to pay their dues through social pressure (Monkam & Moore, 2015). At the international level, countries should engage in the multilateral treaties and initiatives currently underway within the OECD and G20 framework to combat money laundering and to recover stolen assets. The payoff is potentially large: illicit financial flows from sub-Saharan Africa have amounted to an estimated $1.3 trillion between 1980 and 2018, with a peak of $114.5 Billion in 2012 (Signe, Sow & Madden, 2020). However, enforcement of financial regulations and taxes is largely a reflection of political will and political power, and ensuring the rich and powerful pay is always a challenge, even in the world's richest economies.

Box 3: Monetizing the digital economy: lessons from Kenya

Kenya has been among the pioneers in promoting the digital economy for its long-term growth and development. Its high internet penetration rate (96%), and innovative mobile payment solutions like M-PESA have given it a competitive edge. Its digital economy is growing fast. Online shopping leaped from 9% in 2017 to 16% in 2021, putting it third in the continent after Mauritius and Tunisia (UNCTAD, 2023a). The government is pursuing strategic interventions to foster continued digital growth and competitiveness. In e-commerce for example, the government launched a set of strategies in 2023, based on an e-trade readiness assessment which identified regulatory barriers, the high cost of digital payment transactions in specific areas due to uneven network coverage among regions, data privacy, and dispute resolution and enforcement mechanisms as key issues. Kenya is the first African country to do such an assessment and will have lessons to share for the rest of the continent (Ndajiwo, 2020). In addition, the government has been experimenting with taxing the digital economy, replacing an excise tax on mobile airtime and transactions with a digital services tax on the gross transaction value of services. There have been recent efforts to replace the Digital Service Tax (DST) with Significant Economic Presence (SEP) tax, which targets the profit of a nonresident person who earns income from the provision of services through a digital marketplace in Kenya, and introduce a withholding tax of 5 and 20% for resident and nonresidents, respectively (EY, 2024), a strategic move along the tax value chain.

Strengthening subnational revenues

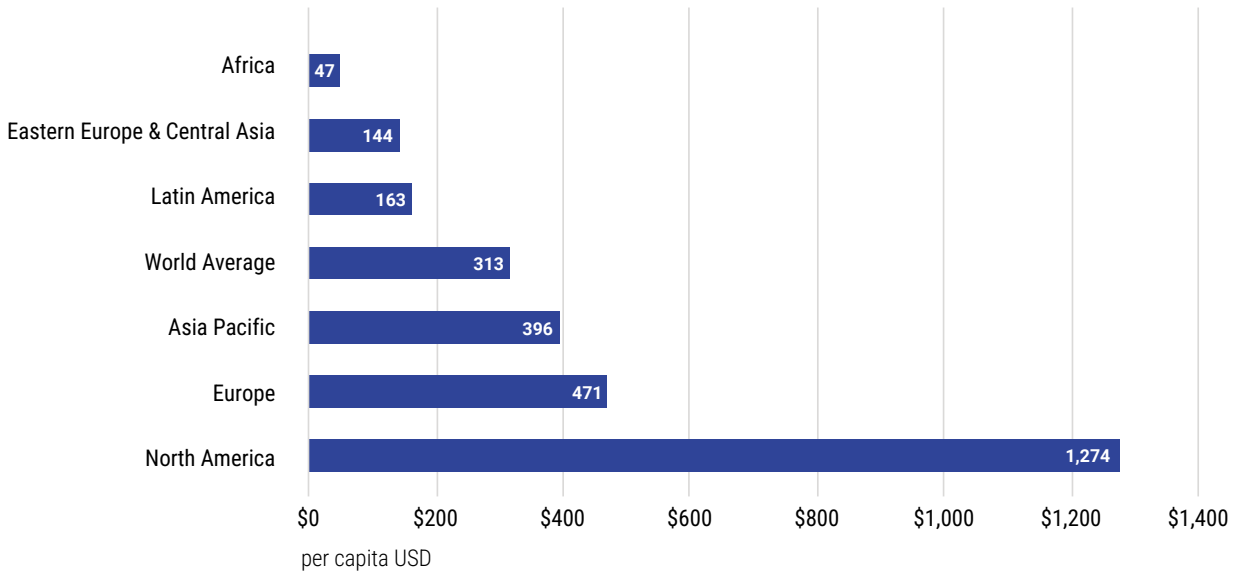
Advancing decentralization

African cities generate 70% of regional GDP and hold the largest share of revenue potential. At the same time, they require significant investments to capitalize on their power to drive economic growth and avoid falling into a poverty trap. Local governments are the closest public authorities to the people and firms within cities. This proximity brings knowledge about taxpayer needs, the ability to better target the revenue base, and closer accountability to the stakeholders they serve. The proximity of local and subnational governments to the cities they serve is the main argument in favor of fiscal decentralization (Bahl & Bird, 2008; Davoodi & Zou, 1998). Indeed, through the Addis Ababa Action Agenda (AAAA), world leaders recognized the importance of subnational domestic resource mobilization and committed to "strive to support local governments in their efforts to mobilize revenues as appropriate" (AAAA, 2015 p. 16).

African countries have made some progress in fiscal decentralization, but there is a long way to go, and the unbalanced transfer of high expenditure mandates and low revenue potential is making the urban infrastructure deficit worsen each year. At $180, the average per capita annual spending of subnational governments in lower-middle income countries in Africa is one third of the corresponding figure for non-African lower-middle income countries (OECD/UCLG, 2019).

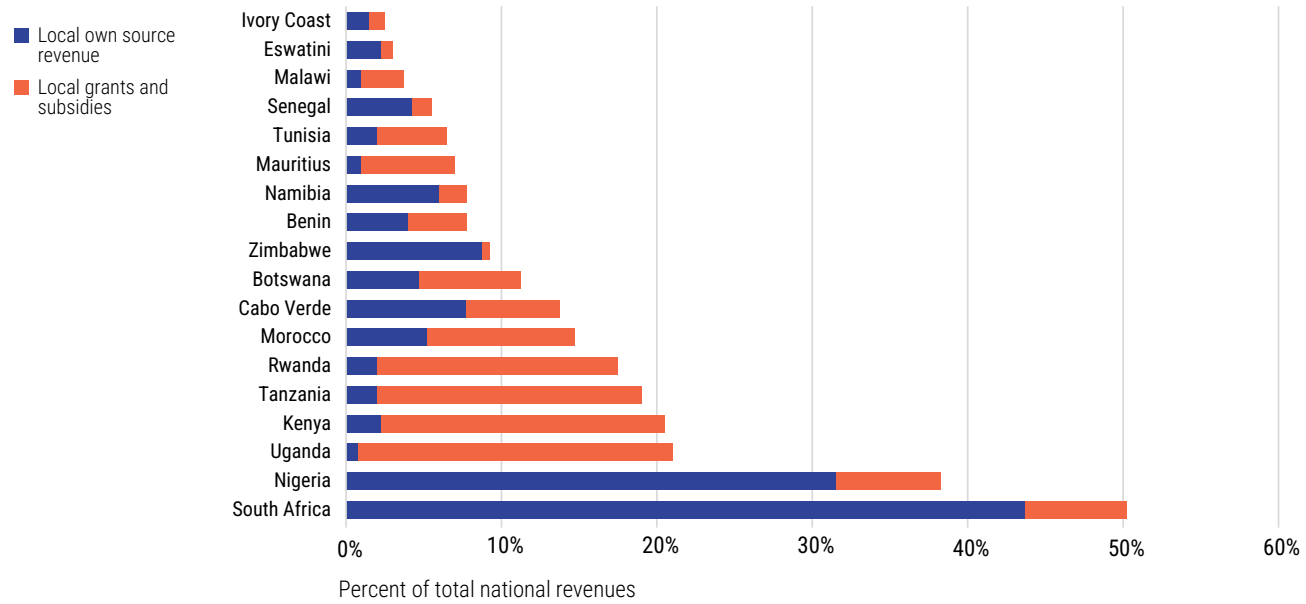
The shares in total government revenue and public investment of subnational authorities in Africa are 16% and 19% respectively. The corresponding global averages are 25% and 37%. "This translates into annual per capita investment spending by subnational governments in Africa of $47, compared to a global average of $313. African local governments thus have high investment needs, but exceptionally low fiscal capacity to make these investments" (OECD/UNECA/AfDB, 2022, p. 154; Figure 14). The low representation of local governments in total public capital expenditures reduces the ability of urban firms, which should be driving the economy, to get their infrastructure needs met by the local governments that should be responsive to them.

Figure 14: Average subnational government public investment per capita by region, 2016



Source: OECD, UNECA & AfDB, 2022

Figure 15: Local government revenues as a percent of total revenues



Data: SNG-WOFI database

The own-source revenues of subnational governments are low in Africa, and lower than in other regions. Cities heavily rely on central transfers which amount to about 58% of subnational authorities' total revenues (OECD/UNECA/AfDB, 2022). Although transfers have advantages of their own such as fiscal equalization between poor and rich cities and stability when embedded in a strong institutional framework, they are often earmarked (restricted to specific uses), irregular and poorly linked to incentives for endogenous economic development. Local governments in most African countries raise less than 5% of total public revenues, and even when transfers are accounted for, local revenues are largely well under a fifth of public revenues (Figure 15).

In order to realize the potential that subnational governments have in raising revenues, they must be empowered by central governments through fiscal decentralization policies. A well designed system of fiscal decentralization assigns expenditure responsibilities closer to the people based on the principle of subsidiarity, or the idea that decisions should be made at the level of government that can be held responsible for outcomes.

It offers the autonomy to sub-national governments to levy, and in many cases to collect their own revenues. The efficiency benefits of a well-designed system of decentralization lies in the ability of local governments to raise their own source revenues. But even with autonomous capacity to raise own source revenues, vertical and horizontal fiscal imbalance is a hard reality, and the need to improve and increase national transfers will not be eliminated. The per capita own source revenues of African local, regional and district governments are too small to support well-functioning cities that can drive the desired economic transformation. A well-established decentralized system therefore aligns the assignment of expenditure responsibilities with revenue raising autonomy and capacity, coupled with adequate transfer of resources.

A critical ingredient in raising subnational taxes is visible service delivery. People tend to pay taxes when satisfied with services, and this is particularly true at the local level. The revenue potential of African cities can be therefore better leveraged when taxes result in better service provision.

In the ideal situation where decentralization is accompanied by transparency and accountability to taxpayers, service provision is expected to match with local preferences (see for example, the case of Lagos, Box 4). Indeed, research carried out in Tanzania revealed that the majority is willing to pay more taxes if the resources visibly improve public services (Fjeldstad, 2006). This can trigger a virtuous cycle at the subnational level, where service provision builds trust, which improves revenue compliance, strengthening revenues and further enabling service provision (Estevao, 2024).

Box 4: Components of successful subnational tax reform: The experience of Lagos

In the early 2000s the State of Lagos undertook a major overhaul of the state taxation system to increase tax revenues. A financing squeeze faced by the state government was the immediate driver. The oil revenue the State received was inadequate, to the extent that in 2002, it could not even cover its personnel costs. Borrowing was not an option, due to a lack of creditworthiness. Yet, Lagos had a high level of tax potential: a diversified economy, a critical mass of salaried people in formal businesses and a thriving real estate sector.

The challenges in infrastructure, housing, transport and urban crime were perceived as threats to the competitiveness and sustainability of Lagos, exacerbated over the years by the swelling population growth. The elected state leadership led by Governor Tinubu (the current president of Nigeria and governor of Lagos from 1999-2007) , and later by his successor Governor Fashola (2007-2015), had the political and professional motivation to reverse the deteriorating urban conditions and restore public and investor confidence. The political and business elite envisioned making Lagos a world class city. The results were remarkable. In constant 2012 prices, tax revenue increased from around $310 million in 2003 to about $746 million in 2007, and to roughly $1.2 billion in 2011. Audits increased markedly, from 1,500 in 2006, to 4,000 in 2008, and to over 6,000 in 2011. Tax compliance among large companies jumped to 80%, up from about 30–40% in 2005.

The results followed a reform of tax administration. In 2000, the state government outsourced tax collection to a private company which transformed the payment system to bank transfers and electronic receipts, thus shifting away from cash-based payments, and closing opportunities for fraud. However, the turning point in the management overhaul was the 2005 reconstitution of the Internal Revenue Board and its transformation into Lagos State Internal Revenue Service (LIRS), a competent institution backed by adequate resources.

Tax enforcement actions were accompanied by public outreach strategies and engagement with stakeholders including business and community leaders, informal market associations, transport unions, and sellers of parking. The government used the tax dollars to boost investments in roads, waste collection, urban security and water and sanitation projects, and introduced high capacity city buses and a BRT system. Annual capital expenditures rose from about $600 million in 2006 to $1.7 billion in 2011. The visible improvement in urban service provision helped make the case for tax payment compelling, increasing quasi-voluntary compliance. The Lagos experience offers a lesson: political will to reform combined with the overhaul of tax administration and visible expenditures on improved urban services are among the key conditions that underlie a successful subnational revenue reform. (Gramont, 2015).

Fiscal decentralization and its architecture are complex, highly political and contextual. There is no one-size-fits-all rule, but there are basic principles governing revenue and expenditure allocations to local and subnational governments. Fiscal federalism suggests that good local taxes are those that are easy to administer locally, are levied on local residents only, do not create competition between governments, either horizontally or vertically, and avoid distorting markets significantly by impacting prices or supply. In addition, local taxes should also ideally be aligned with administrative responsibility for services and be sufficient to cover them (Bahl & Bird, 2008). Land-based taxes and fees for services tend to be most successfully levied at the subnational level, but all expansions of fiscal decentralization should be paired with efforts to expand subnational capacity in order for subnational governments to exercise their responsibilities effectively. These topics are covered below.

Improving fees for service

One of the clearest ways to link revenues to service delivery is in the form of user charges and fees for service, and these typically represent a major source of local revenue. The main economic rationale for service charges is not to produce general fund revenue, but rather to pay for the cost of delivery of the specific public service in question. Fees can be paid for a host of basic services critical to the operation of a city, including electricity and water provision, disposal of sewage, household waste removal, street vending fees, market fees, parking fees, slaughter taxes, transit dues and bus terminal fees. When well-designed, such charges link citizens' willingness to pay with cities' ability to supply services, thereby creating an incentive to produce urban services at a competitive price. Service charges can promote accountability and make service providers more responsive to local preferences and needs (UNECA, 2019).

However, many poor urban households may not be able to pay the true cost of service delivery, and will be left under-serviced or unserviced if subsidies are not in place. Consequently, balancing subsidies to the poorest with cost recovery is imperative.[14] South African cities, for example, are legally mandated to freely supply the minimum 'lifeline' amount of 6,000 liters of water and 50 KW of electricity per month to all households (Fjeldstad, 2006). Public-private partnerships (PPPs) are often used to improve efficiency and expand access, but tariffs may be unaffordable for the poor.[15] Achieving both efficiency and equity requires an effective regulatory environment, governance structure and capacity to plan and manage projects and risks associated with them. Often the needs of poor households and workers are overlooked during the project design and contractual phase, resulting in some savings for the municipality, but leaving the poor worse off.

Industrial Valve Manufacturing and Assembly Factory Facility in Johannesburg, South Africa. © Shutterstock

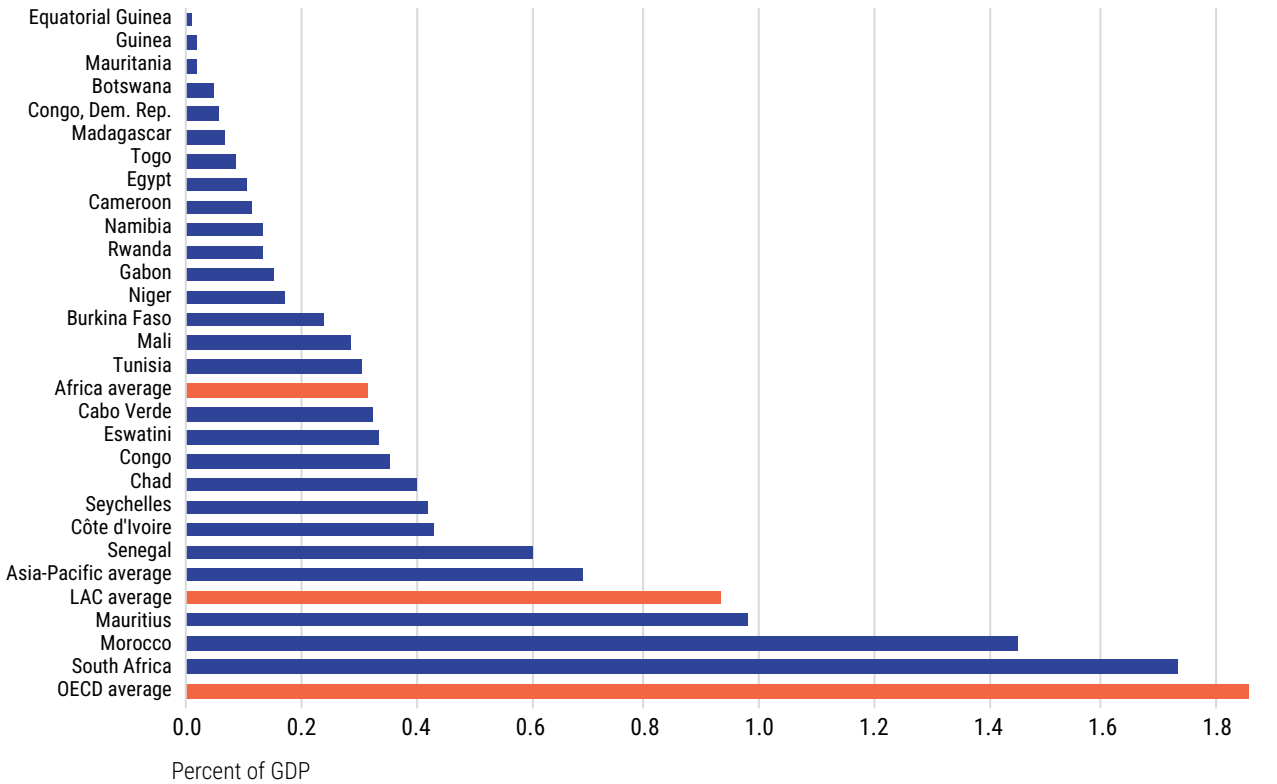
14 Ten percent of income is generally regarded as the maximum amount a household should be asked to pay for basic urban service utilities (Cavill, 2009).

15 UN-Habitat advocates for a version of PPP that includes public engagement and input from communities, civil society and academia - "public, private and people partnerships," or 4P - in order to ensure more inclusive outcomes (Zhang & Khor, 2023).

It is estimated that low- and middle-income countries spend between 1.5 and 2% of GDP subsidizing water and sanitation services. However, they are often poorly targeted, and contrary to the intention, subsidies may be largely benefiting the rich, or implicitly covering costs of inefficiency, rather than expanding access for the poor. A World Bank study that looked at subsidies in water and sanitation in 10 low- and-middle income countries concluded that only 6% of subsidies reached the poorest 20% of households, while on average, 56% of subsidies benefited the richest 20%. This is because subsidies are often poorly designed or targeted, for example, subsidies often target networked services, yet poor households largely do not live in neighborhoods with networked services, and even when they do, they may not be connected to the network. Another reason is that the poor live with more people per household and share their water with neighbors who lack access to the network. Poor households thus end up consuming as much or more than the rich, and end up paying the higher unit rate meant for those who are assumed to consume more due to greater means (Andres, et. al. 2019).

The benefits of ensuring equitable service delivery are much higher than the cost of subsidies, because the provision of water and sanitation to the poor involve positive externalities in the form of societal economic and health benefits. For example, controlling infectious diseases is in everyone's best interest, not just the interest of the poor. Poorly designed subsidies are wasteful, distortionary and unsustainable, and they have high opportunity costs, particularly true for cash-strapped low-income countries who should be directing those resources toward investment needs rather than subsidies for the rich.[16]

Figure 16: Property tax as a percentage of GDP, 2021



Source: OECD, ATAF & AUC, 2023

16 Smart technology, such as remote sensing and street view data, can assist in subsidy targeting (Andres et al., 2019), similarly to the way these systems can be used for valuation of property based on building quality.

Enhancing land-based revenue and property tax

Land-based revenue tools have strong applicability for local governments and rapidly growing cities, but are significantly underutilized in African cities. The property tax, the most commonly used form of land-based tool, raises the equivalent of 0.3% of GDP in African countries on average, compared with 0.7% of GDP in countries in Latin America and the Caribbean and 1.9% in OECD countries (Figure 16).

Revenue from land, especially in the form of property taxes and land leases, is a fundamental local-level revenue tool from the perspective of economic theory. Whereas taxes on movable assets are often best administered nationally to avoid distortions arising from impacts on supply, horizontal competition leading to a race to the bottom, or taxes being born by nonresidents, land is immovable and can be taxed without the risk of it departing the municipality (Berrisford, Cirolia & Palmer, 2018; Walters, 2016). Taxes on land also have economically beneficial properties because the value of land is a reflection of the amenities and services benefiting the land, including infrastructure such as roads, transit stations and parks, in addition to the quality of the local economy, safety and security, or zoning regulations that protect the parcel from conflicting land uses. All of these factors impact the value of land and stem more from efforts by the local government than those by the individual holder of the land. Therefore, economists argue that taxes on land values can serve as a 'benefit tax', or payments for a wide range of local public benefits (Walters, 2016).[17]

Land value capture holds significant potential for funding urbanization, especially as cities expand and grow economically, raising demand for serviced urban space. As Lall, Henderson and Venables (2017, p.30) posit, "Rapid growth drives swift increases in land prices and creates large revenue opportunities.

Land-based financing has funded large leaps in the scale of urban investment in France, Japan, and the United States." China is another example of rapid urban development and economic growth supported by land-based revenues. As of 2012, land leases accounted for 46.7% of public revenues. This income has been used by local governments to fuel urban infrastructure development, accommodating a rapidly urbanizing population and fueling rapid economic growth. Urban infrastructure provision increases the value of urban land, creating a virtuous cycle whereby investments generate revenues, although this has not been without social disruption to those residing on China's urbanizing land (World Bank, 2014).

There are a number of land-based revenue tools available to policymakers. The most common is the annually assessed property tax. In countries where urban land is seen as the ultimate property of the state, such as in Ethiopia, Mozambique and Tanzania, land leases rather than property taxes are more common. Both tools can raise a steady stream of revenues on an annual basis, even when administration is far from perfect (Box 5). Other instruments to capture rising land values include those assessed at the time of property development (developer exactions, impact fees and sale of development rights), assessed at the time of property transfer or sale (transfer taxes, land value increment or capital gains taxes, and stamp duties), or assessed at the time of public improvements and upgrades in infrastructure (betterment levies, special assessments, and tax increment financing). Each instrument has benefits and drawbacks to consider, and they vary in their revenue potential, impact on vulnerable populations, and administrative requirements.[18]

17 Importantly, this is distinguished from the value of improvements or buildings on the land, which reflect the personal investments of the owner rather than public investments.

18 For a full discussion of each instrument's administrative requirements, benefits and drawbacks, see GLTN's Leveraging Land: Land-based finance for local governments - A reader (Walters, 2016).

In general, the three major administrative challenges that inhibit the effective use of land and property taxes are weak property registration systems, the complexity of property valuation, and political unpopularity. There are good practices that can help manage all three challenges. GIS technology and automation hold major promise for identification of properties, valuation and tax assessment, and have been used successfully in African cities, even in low-income countries such as Somalia and Sierra Leone (see Box 6). The political constraints are often the most challenging, since major landholders are also likely to have political and lobbying power.

The hardworking women in the textile factory in the capital city Addis Ababa, Ethiopia. © Shutterstock/ Pinar Alver

Considering the interests of the political elite in evading land taxes, it is critical that land value instruments are designed with an eye to the impacts on the poor and the resulting redistributive effects. Although land taxes should be progressive, as they are taxes on wealth rather than transactions, the rich are better at skirting their tax assessment, either by contesting the valuation of their land or simply by nonpayment accompanied by a lack of meaningful enforcement. In addition, the timing of taxes impacts the poor as they may be more able to pay at the time of property sale when there is an influx of cash than at the time of an annual property assessment. For example, in Bogotá, Colombia, low-income households were willing to pay a betterment levy to fund public services, because payments were not assessed until the time of sale of their plot, which helped them avoid cash flow difficulties. Not only did they benefit from the improved services, but also felt that decision makers were paying attention to their financial needs (Smolka & Biderman, 2011).

Another consideration is whether land-based taxes increase the inequality between neighborhoods. In Latin America, where land value capture is more extensively used, land-based instruments are most successful in raising revenues in high income areas with high-end large-scale projects. This dynamic often ends up increasing inequality due to restrictions that the funds can only be spent in the same area where they were raised (Smolka & Biderman, 2011). A similar dynamic can be observed in Africa, where one of the most common types of land value capture tools utilized is developer exactions. These are typically in-kind developer contributions (for example, upgraded roads, drainage or lighting) driven by the specific needs of developers for the neighborhoods surrounding their own projects built for the rich and upper-middle class, rather than an intention to improve the city as a whole or expand services to the poor (Berrisford, Cirolia & Palmer, 2018). Therefore, as with all revenue tools, land-based instruments are more likely to positively impact social equity if they are explicitly designed to do so and not expected to be pro-poor by default.

Box 5: Land lease revenue potential in Bahir Dar, Ethiopia

Bahir Dar, one of Ethiopia's secondary cities with an estimated metro population of 360,000 in 2015, has utilized the land lease system to raise a significant proportion of the city budget and fund capital expenditures, in spite of a number of challenges and high untapped potential.

In Ethiopia, land is nationally owned, and local governments have the right to collect annual land lease payments. In the decade following the most recent revision of land lease legislation in 2011, Bahir Dar increased land lease revenue tenfold, with land leases raising a high of US$6.8 million in 2019/20 and accounting for about 50-60% of the city's local revenues over the period. Federal land leasing policies dictate that 90% of these revenues must be allocated toward infrastructure investments, and they are an apt source to meet the urban infrastructure needs of the rapidly growing urban population.

However, Bahir Dar's land lease revenue has not reached its full potential. This is due in part to administrative challenges: poor coordination between the land administration and revenue offices, a weak system for collection and follow-up, a poorly managed cadastre system, difficulties identifying ratepayers, and shortfalls in staff capacity have contributed to large amounts of lease payments in arrears.

Moreover, the city lacks a mechanism to adjust lease rates to reflect market conditions, leading to a mismatch between the value of the land and lease rates. According to the 2011 land lease law, public tender that allocates land leases to the highest bidder should be the mechanism for allocation and transfer of land rights, but in reality, over 90% is actually transferred via administrative allotment in Bahir Dar. While this is often for valid social and economic purposes (ex: housing cooperatives, charitable organizations, manufacturing industries, etc.), allocation has been done at a low benchmark price, which has not been updated since 2014.

The majority (89%) of land in Bahir Dar is still held under an outdated permit system established during the Marxist Derg regime with land rights grandfathered into the current landholding system. Land is classified into five value categories, and even land in the highest-value category is charged nominal fees under the permit system —less than $0.01 per square meter annually. In contrast, the highest-value category of land under the modern lease system pays 350 birr (about $18) per square meter annually, but this is still far below market prices. In 2019/2020, the average bid price for land allocated by public tender in Bahir Dar exceeded 39,000 birr (nearly $1,000) per square meter, highlighting the large gap between lease prices and market demand. Low lease prices do not necessarily keep land affordable: much is leased for speculation purposes or for sublease on formal or informal secondary markets at much higher rates.

In addition, the formal land allocation process struggles to meet demand, hindered by administrative bottlenecks. The expropriation process, in particular, is fraught with difficulty. Compensation levels are too low to adequately address the hardship caused by eviction, but still too high for the government to pursue large-scale land expropriation. Restrained expropriation is not necessarily a bad thing; large-scale expropriations have caused social and political unrest in Addis Ababa, where many low-income families were displaced for the sake of urban improvements.

Reforms to tap into the massive added potential of land-lease revenues must carefully balance the needs of increased funding for expanded infrastructure and the abilities of the urban poor to pay, as 31% of the city's population faces absolute poverty. Reforms should keep in mind that land is not only a powerful source of revenue, but fundamental to the urban social fabric and housing affordability. (Muluneh & Amsalu, 2022; Yimam, Lind & Alemu, 2022).

Box 6: Property tax reform in Freetown, Sierra Leone

In 2019, the city of Freetown, Sierra Leone underwent an overhaul of its property tax administration system. At the start, only half of all properties were registered, and a decision was made to build a fiscal cadastre for tax purposes rather than undertaking the complex legal process updating official property registrations. Over a period of a few months, the city sent out teams of enumerators to areas of the city mapped using freely available Google satellite imagery. They used mobile devices to confirm property locations and record GIS coordinates, as well as recording property characteristics that would be used for valuation (ex: building structure material). They also asked the residents questions about whether the property was rented and who the owner was (Prichard, 2023).

A points-based valuation system was developed using the recorded characteristics of properties and their locations. To do this, a sample of 1-2% of properties was given to expert valuers to estimate the market value. The sample was used to construct a model to estimate property values based on property characteristics, and this was translated into an easily understandable points-based valuation system that associated the assessed value of each property with points awarded based on visible characteristics (Prichard, 2022).

Based on property values and the results of the enumeration, tax bills were printed and sent out. They included a picture of the property, the coordinates of the location and the address, ensuring the bills could be linked to the property even without knowing the legal owner. If the owner's name was known, it was included on the bill, and if not, the bills were simply addressed to "the owner."

As a result of the enumeration and points-based valuation exercise, within only a few months, the city was able to map and register more than 100,000 properties. This doubled the number of registered properties, quintupled the revenue potential due to updated valuations, and tripped actual revenue collection. Bills that were addressed to an unknown owner or incorrect owner triggered the actual owners to come forward in many instances to update the fiscal cadastre, helping to create a record that will be useful to the city in the event of an expansion or update of the legal property registration system (Prichard, 2023).

Beyond the technical aspects of the project, the political aspects were important as well. First the reform team got the permission of the central government to use a points-based valuation method rather than individual property valuation, presenting evidence that the method would have an acceptable level of accuracy. Next, the team secured the buy-in of the city valuation department. This was sensitive as the department could have rejected the new process based on a potential loss of status and control due to increased valuation transparency. The reform team made it clear that staff expertise was still valued and assured them that they would continue to have leadership in the process, as well as the potential for salary increases linked to the performance of a successful implementation. The third level of support was from the general public. Public outreach was done and the new valuation system explained. Due to the perceived fairness and transparency of the new system, a survey indicated that 70% of respondents supported the reform (Wilson, 2022).

Strengthening subnational capacity for impactful budgeting and implementation

The growth of Africa's towns and cities has outpaced the capacity of subnational authorities to plan, manage and invest in them. The twin problems of insufficient resources and insufficient capacity are having a disastrous impact on urban outcomes, undermining the role of cities as drivers of national and African regional development. National policies, legislation, and institutional arrangements often do not provide enough support, instead centralizing authority, competence, and resources. Even when subnational authorities are legally mandated to engage in planning, they lack the necessary organizational structures, knowledge, budgets, and staff to participate meaningfully and deliver effectively. Apart from those in South Africa, few municipalities are able to implement local economic development plans or design climate risk-informed projects. And by and large, outside major cities, there is limited capacity to plan and implement infrastructure projects or to negotiate and create PPPs.

Poor prioritization and coordination of capital investment resources, combined with inefficiencies in project preparation and management results in ineffective and wasted resources. Even when capital resources become available, subnational governments will often use them to upgrade municipal offices or fund pet projects rather than addressing key infrastructure bottlenecks to growth. The largest and most impactful investment projects are often left to higher levels of government to fund, but are not well coordinated to address local needs nor aligned with local-level investments.

Good project development and planning starts with assessment and prioritization, which involves analytic skills, and capacity to engage stakeholders in a consultation process. Early-stage preparation and pre-feasibility analysis is crucial in ascertaining viability and alignment with broader policy priorities and if available, with a strategic investment plan or subnational development plan. Many projects get stuck in the planning stage because subnational authorities largely lack the capacity to undertake these processes either on their own or by contracting outside sources. The subsequent stages of project preparation-feasibility and project design, resource mobilization and contracting and implementation are even more skill- and capacity-intensive. Subnational governments typically lack in-house expertise to carry out feasibility studies, develop detailed plans, or structure project financing. At a minimum, they should have the capacity to generate and prioritize project ideas, and the capability to purchase, contract, or coordinate with higher level governments for the professional services to implement them.

To fill capacity gaps, capacity development programs can be designed based on needs assessments and alignment with subnational mandates and plans, including national development planning cycles and local planning initiatives, such as local climate adaptation planning, local economic development planning, and urban land use planning. The support of higher-level governments is critical, and training can be accompanied by allocation of funds. For example, funds transfers for catalytic projects can serve as anchors for capacity development in project planning and implementation.

Raw Coffee Bean sorting and processing in a factory in Addis Ababa, Ethiopia.
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Among multiple smaller governments with limited staff and expertise, pooled capacity can be the solution. This can come in the form of a local government association at a regional level, supported by a small secretariat, which can help organize training, procure professional services as needed, and facilitate cooperation between municipalities to implement joint development projects. Alternatively, national governments can establish a facility where scarce project development and financing expertise, as well as seed money for projects, is pooled and accessed by cities and municipalities under competitive conditions.

Borrowing and other sources of external finance

Borrowing will necessarily be a part of closing the public infrastructure gap facing African cities, and already plays a major role in extending the region's infrastructure. Bilateral and multilateral creditors hold over half of external public and publicly guaranteed debt, while private creditors hold 44% as of 2021, up from 30% in 2010 (UNCTAD, 2023b). More finance is available if African governments can prepare investment-ready projects, with an estimated $100 trillion of private institutional investor funds globally in search of investments with adequately low risk and high yields (AfDB, 2018), although it should be noted that the cost of borrowing from development finance institutions, when available, is typically much lower than on private markets.

However, many countries on the continent are already debt distressed. Between 2010 and 2022, debt doubled in the region, and went from 21% to 39% of regional GDP. During this time period, debt service payments increased from 3.5% of GDP about 6% of GDP, absorbing about 11.3% of government revenue in Africa (AfDB, 2024b). Between 2010 and 2022, the number of African countries where interest payments comprise over 10% of revenue has risen from 9 to 20 (UNCTAD, 2023b).

The ability of African governments to access adequate amounts of credit at reasonable rates is tied to the overall economic performance and challenges facing the region's countries and cities.

The region's growth remains sluggish, hindered by conflicts, climate shocks, and global economic uncertainties (Haas, et al, 2023). In the context of a slowing global economy and tighter financing conditions, Africa is facing what the IMF calls the "big funding squeeze" (Selassie, 2023). In the absence of better mechanisms for debt-distressed countries in Africa, more governments will struggle to service their obligations and limit their ability to invest in providing the necessary development needs of their countries.

Africa's debt ratio to GDP is not excessively high compared to global averages, but a growing share (almost three fourths) of the debt is commercial, largely external, issued in foreign currency, and expensive. Compared to the concessionary rates of IFIs like the World Bank, Africa pays up to five times more in interest when borrowing from the global capital market. During the COVID-19 pandemic, downgrades by at least one of the big three credit rating agencies affected "over 56% of rated African countries, surpassing the global average of 31.8%. These downgrades were accompanied by a flood of negative reviews of African countries' ratings outlooks, which damaged investor confidence, further stoking the rise in borrowing costs" (AfDB, 2024b).

The current global financial architecture is misaligned with Africa's urban development, making debt restructuring complex, protracted, and costly. The system favors developed countries, as evidenced by Africa receiving only $33 billion of the $650 billion in IMF Special Drawing Rights and $89.5 billion of the $17 trillion in COVID-19 fiscal measures. Additionally, the fragmented global climate finance system has hindered resource flows for Africa's green transition, with the continent mobilizing only $29.5 billion in climate finance in 2019/20, far short of its needs (AfDB, 2024a).

The risk perception and credit downgrading is costing Africa hugely. Calculating the loss is difficult, but according to one estimate, the impact of subjective risk perceptions have cost African countries over $75 billion in excessive interest payments and foregone lending, a loss far greater than the entire volume of official development assistance (ODA) to Africa in 2021 (Gilpin, et. al. 2024).

The IMF's Africa director underscored Africa's difficulties in collect the returns from investment as a key part of the debt problem: "Countries have been doing a decent job of directing development spending to the right areas but have been less successful in collecting the returns on this investment through their tax systems" (Selassie, 2023). African cities will play a central role in linking investment spending to high economic returns, and linking high economic returns to increased revenues.

There is a need to advocate for better global support for African investments, as countries simultaneously improve their investing and revenue practices. This advocacy will entail increasing the investment available through international financial institutions, which often comes at discounted rates and is paired with capacity building support. Already the UN Secretary General in 2023 asked countries to increase support of multilateral development banks which need new capital and instruments (Zhang & Khor, 2023). It will also build on the efforts of African leaders who are contesting high risk premiums as unfair and not reflecting the true value of Africa's resources and economic assets on its balance sheet (Akufo-Addo, Ruto & Hichilema, 2024).

Complementary to improving conditions in international debt markets, African countries should also further develop domestic credit markets. South Korea serves as example (Box 7), having channeled finance strategically into growth-driving urban economic sectors to kick-start rapid development. Credit markets still serve to finance public investments in South Korea; for example, the country has leveraged more than half of National Pension Service investments through the national bond market (The Economist, 2024b). By contrast, inadequate African credit markets are an impediment to the region's infrastructure finance. The continent has U.S. $2.3 trillion worth of investment funds, pension funds, and sovereign wealth funds that are locked overseas (AfDB, 2023a). If Africa had a deeper capital market, it could tap into these resources to close the urban investment gap and finance economic transformation.

In the African context, where per capita incomes are often low, the capital market is even more critical to pool small savings into bigger investments and catalyze capital formation. As incomes grow, and a bigger share of the population participates in the capital market, not only will it be possible to meet the demand for investment capital, but also to offer opportunities for the larger population to participate in economic growth and prosperity.

Box 7: Incrementally developing a domestic capital market: The case of South Korea

One of the factors behind South Korea's remarkable success in industrialization is its ability to establish a well-regulated domestic capital market which channels savings into national champions such as Samsung and Hyundai. This has been a long process. Mahler Walter of the IMF highlights the salient features of its evolution since the 1960s through the 1990s (Mahler, 1990). Korea's domestic capital market took decades to develop. Rapid growth began in the early 1960s, but until 1972 corporate bonds did not exist. The Korea Stock Exchange (KSE), which existed since 1956 was at first predominately a market for government bonds.

For a long time, family and informal money brokers were the source of finance for small businesses. Credit allocation by the government was a key instrument of financing corporations through commercial banks. Personal financial savings were channeled mainly into bank time deposits and the informal money market. Between 1968 and 1972, the government took a host of measures to promote the development of the capital market. These included a significant reduction of tax rates for publicly held corporations, and tax exemption of dividends except for large stockholders, interest income, and capital gains from corporate bonds as well as from corporate shares. At the same time, a high tax rate was imposed on capital gains from real estate to discourage speculative investment there.

Further, in order to stimulate demand for stocks, the public companies were directed to issue new shares at below-market prices and to pay dividends similar to bank time-deposit interest rates. The government had used the threat of restrictions on access to credit from government-owned financial institutions as the main lever to positively influence the response of corporations to its policies. The government also introduced bank guarantees for corporate bonds beginning in 1972. In response, the stock market expanded significantly between 1971 and 1978. Still, the Korean security market had periods of ups (1984-88) and downs (1978-83), before the government moved to permit foreign portfolio investment in domestic securities, and Korean firms to raise equity funds in external markets.

As the level of this participation increases, the need for the state to rely on foreign borrowings for development will be lessened. From this perspective, if successful, the African Exchanges Linkage Project—a pan-African experiment aimed at unifying seven regional stock markets—could be transformative. "A well-regulated deep financial market is like a well-lubricated combustion engine. It may not be perfect, but once it fires up it can get capital from where it is available to where it is required without much friction" (Jain, 2024, p. 28).

Municipal bonds

Municipal bonds are a crucial yet underutilized tool for addressing the significant urban investment gaps in African cities, and the vast majority of Africa's city governments do not have access to external finance. The reasons include the absence of necessary legal provisions, a lack of creditworthiness, and the inability to attract investors. Even in cases where the legal system permits local government borrowing, rules tend to be unclear and challenging to navigate (Löffler & Haas, 2023). There are currently no African municipalities outside of Nigeria and South Africa with the ability to issue bonds.

Municipal credit ratings are rare for developing economies (World Bank, 2013a), and even rarer in Africa. The ability of cities to pay back their debt is determined on the basis of their cash flow or assets that can be collateralized against the debt, but the majority of African cities lack adequate revenue streams. Revenues are either too small or the discrepancy between what is projected and collected is significant. Municipal credit ratings are also dependent on ratings at the national government level. Generally, bonds issued by African governments are perceived as high risk and require hefty interest payments, but there is variation between countries.

The process of achieving municipal creditworthiness can take years. Dakar, for example, underwent a Public Expenditure and Financial Accountability (PEFA) assessment in 2008, spent the next six years, with technical assistance from Public-Private Infrastructure Advisory Facility (PPIAF), revamping its planning and financial management capacity, before finally obtaining a credit rating (Paice, 2016; Box 8). Additionally, the first credit rating may not come with the desired results. A number of cities and municipalities in South Africa have obtained credit ratings, but most of them do not rank at investment grade (Löffler & Haas, 2023). For this reason, cities may want to start with a "shadow rating"[19] where the process and results initially remain internal, and can be combined with targeted capacity development in areas like financial management and project development. Support from external partners is useful; for example, the World Bank offers credit rating academies to city leaders to develop a customized preliminary action plan of specific institutional reforms, capacity building, and other actions that will improve their creditworthiness using a self-assessment tool.

Credit ratings pave the way for municipal bond issuance, which can be used to raise funds to finance either specific investments such as a water treatment facility or power plant, or a multi-project investment package. The return on investment is crucial for both types. Investors in the bond market are interested to know whether the bond issuers, in this case municipal governments "have been evaluated as managing their operations and finances well, that report their financial positions accurately, and that have stable operating surpluses, i.e. revenues that are consistently more than operational spending requirements" (Matt, 2020, p. 112).

19 A shadow rating is issued in an unofficial manner and not publicly disclosed or announced. It helps the bond issuer to know their fiscal health and state, and prepare themselves to improve, or serve them as a step towards an official credit rating.

For single project bonds, payments will be made from the revenue flow of the specific project, for example water tariffs in the case of a treatment facility. For a bond that bundles multiple projects, payments are drawn from all municipal taxes, fees, tariffs or other sources that comprise a general account. Regulations on the revenue threshold may, however, be too restrictive making bond issuance unappealing or unviable. Despite a remarkable 89% growth of revenues in just five years (between the 2010/11 and 2015/2016 fiscal years), the Kampala Capital City Authority found the bond option too unattractive to raise funds due to the low threshold amount permissible to borrow[20] and the high fixed transaction costs of bond issuance relative to the fees associated with a bank loan (Gorelick, 2018). Within restrictive contexts and where interest rates are unappealing, cities can improve the terms of bonds by introducing credit enhancement tools. As highlighted in Box 8, one of the attraction points of the municipal bond that the city of Dakar planned to issue in 2014, was a 50% guarantee of the principal amount of the obligation by the United States Agency for International Development (ICED, 2017; Paice, 2016).

For most African cities, municipal bond issuance is a long term prospect, and there are many hurdles to overcome. Even in places where clear rules and regulations are in place to issue a municipal bond, the cost of doing so is considerable. Cities need to hire transaction advisers to help structure the bond, obtain a credit rating from a reputable rating agency, cover the fees and expenses of the underwriter, and, where required, pay for a guarantor (Haas, 2023). First tier cities may slowly inch towards bond issuance just as Dakar did, by focusing on improving their capacity to plan and manage their finances, to prepare sound, climate-smart, bankable projects and attract private investment (Zhang & Khor, 2023). But for the majority of cities and municipalities, the requisite expertise and financing is prohibitive. A pragmatic approach which some African countries have already adopted is establishing an intermediary financing organization that pools resources and scarce expertise, and facilitates access to borrowing. Intermediary institutions can be owned by the government, the private sector, development partners, or a special purpose vehicle that combines these entities (Box 9).

Box 8: Municipal Bonds: Dakar and South African Municipalities

Dakar is one city that in recent years experimented with municipal bond issuance. Building on a credit history demonstrated through successful repayment of loans obtained since 2008 from the French Development Agency (€10 million for street lights), the West African Development Bank ($17.56 million for rehabilitation of roads) and from the Islamic Bank of Senegal (approximately $3.74 million for the installation of traffic lights at the city's busiest intersections), the city in 2011 embarked on issuing a municipal bond to raise funds to establish a new marketplace, with stalls and kiosks offered for rent at subsidized rates to offer a wider range of opportunities to the city's street vendors.

The bond, which was due for launch in 2014, was canceled at the last minute by the central government. Nonetheless, the preparations that Dakar underwent provide lessons for other cities aspiring to tap into the capital market. As part of its preparation, Dakar improved its revenue streams and financial management system, and undertook a rating by a local rating agency, funded through a grant from the Bill and Melinda Gates Foundation. The city secured a 50% principal guarantee from the Development Credit Authority of the United States Agency for International Development, making the bond appealing to the international market, including institutional investors who pledged to buy 72% of the total (Gorelick, 2018).

South Africa stands out as the only country in sub-Saharan Africa that protects the right of municipalities to borrow in the constitution. The relevant act permits municipalities to issue bonds against their revenue streams or assets, as a long term debt instrument to invest in infrastructure, or to refinance it. The City of Johannesburg has utilized this right and has a long history of municipal bonds going back to the apartheid era. In the post-apartheid period, the city issued its first two bonds in 2004, with a total value of R2 billion (approx. $308 million). The debt amounted to slightly less than 50% of the city's revenues. It was oversubscribed three times above the supply at the primary issuance. A second bond was accompanied by a credit enhancing guarantee from the International Finance Corporation (IFC) and Development Bank of Southern Africa (DBSA), obtained for 40% of the value of the bond and helping the City to raise the funds at a favorable rate and terms. Investor appetite for municipal bonds issued by cities in South Africa remains strong as demonstrated by the successful issuance of green bonds by the cities of Johannesburg and Cape Town in 2014 and 2017 respectively (Gorelick, 2018).

20 According to government regulation, the bond value should not exceed 10% of local revenues, which meant only $2.4 million.

Box 9: Financial intermediaries in Southern Africa and Morocco

Southern Africa: Established in 1983 to raise funds for economic and social infrastructure, Development Bank of Southern Africa (DBSA) has since then transformed itself into a development finance institution with expanded geographic scope covering the Southern Africa region. Using its creditworthiness and balance sheet, it raises capital, and supports the municipal debt market in South Africa and neighboring countries. In the case of metros and creditworthy cities, this involves improving secondary market liquidity and enhancing the expansion of private finance for municipal infrastructure investment. In the case of under-resourced municipalities that are not creditworthy, DBSA provides development subsidies in the form of grants and other non-lending instruments for investment in basic infrastructure, but also in municipal planning and project development capacities (Löffler & Haas, 2023).

Morocco: One of the oldest subnational development banks, Funds De' Equipement Communal (FEC) is a municipal lending arm of *La Caisse de Dépôt et de Gestion* (CDG – the Deposit and Management Fund), a national institution managing public funds, savings and deposits, including national insurance and pension schemes, mutual societies and cooperatives. Since 2015 FEC lends to municipalities for mid to long term projects prioritized within their annual budgets on their developmental merits, and provided they meet the cost recovery criteria or are backed by municipal revenue streams that can guarantee repayment. FEC's capital base include public subsidies from CDG, as well as rediscounts from the Moroccan Central Bank and borrowing that FEC can raise on national and international markets, guaranteed by the government or on the merit of its creditworthiness derived from CDG (Löffler & Haas, 2023).

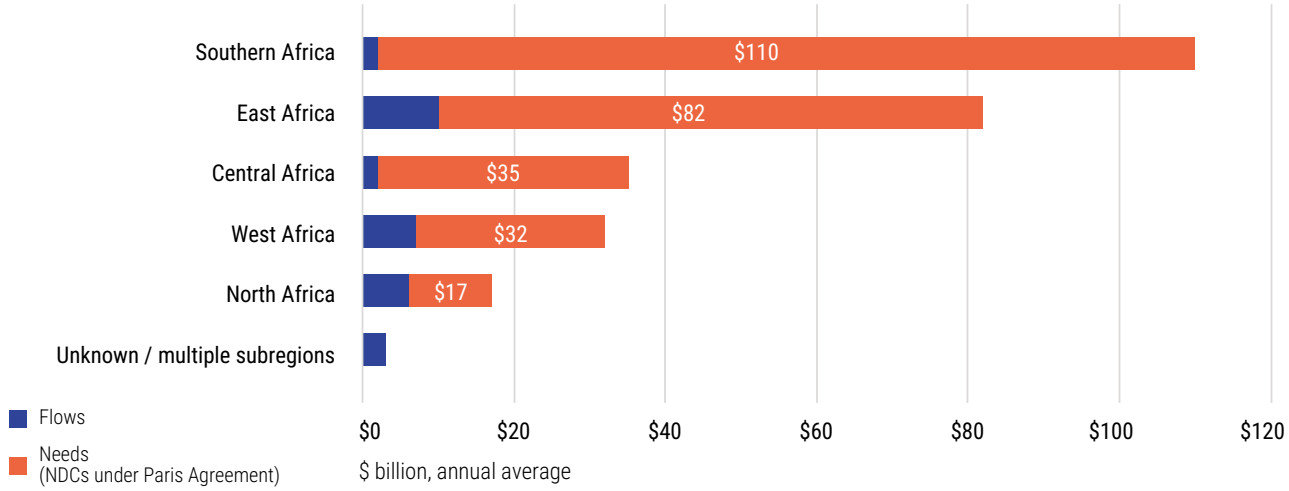
Climate finance

Africa contributes the least of global regions to carbon emissions while being the most vulnerable to the impacts of climate changes. In 2021-2022, Africa received only 20% of global adaptation finance flows ($13 billion), compared to 45% for East Asia and the Pacific, despite being the most affected and vulnerable region. If the current trend continues, Africa will mobilize only $195 billion for adaptation by 2035, far short of its estimated needs of $1.6 trillion.

In 2019-2020, Africa mobilized only $29.5 billion of climate finance, representing 4.5% of total global climate finance flows, which is insufficient to meet the continent's annual climate financing needs of $242.4 billion to implement its Nationally Determined Contributions (NDCs) by 2030 (Figure 17; AfDB, 2024b). In spite of these gaps there are some positive moves, including the establishment of global finance mechanisms such as the Global Environmental Facility (GEF) and the Global Climate Fund (GCF) and Climate Finance (Buchner et al., 2021). However, Africa has yet to benefit from these mechanisms and investments (Ijjasz-Vasquez, et. al. 2024).

A major climate-related financial opportunity arises from the region's endowment of natural capital, which can both raise investment resources and contribute to the green energy transition directly. Africa is endowed with sizable reserves of the world's critical energy transition minerals: 55% of cobalt, 47.65% of manganese, 21.6% of natural graphite, 5.9% of copper, and 5.6% of nickel globally (UNCTAD, 2024). According to estimates by the IMF, global revenues in 2023 dollars from the extraction of just four key minerals—copper, nickel, cobalt, and lithium—are estimated to total $16 trillion in the next two and half decades, with sub-Saharan Africa's share accounting for 10% of these accumulated revenues, corresponding to an increase in the region's GDP by 12%. Investing in processing capacity to reap added value, and regional cooperation and integration under the provisions of the African Continental Free Trade Agreement will potentially increase the revenue significantly. Raw bauxite, for instance, fetches a modest $65 per ton, but when processed to produce aluminum, the result sells for $2,335 per ton (Chen, Laws & Valckx, 2024).

Figure 17: Climate finance flows and needs in Africa, 2020-2030 annual average



Source: Climate Policy Initiative, 2022. The largest sources of climate finance are loans from multilateral and bilateral development finance institutions, but grants also account for a large share (30%).

Natural resources have in the past had negative impacts on Africa's cities, crowding out more job-rich exports and resulting in urbanization accompanied by high inequality and few export sector jobs.[21] However, if the revenues from natural resources can be harnessed to close urban infrastructure gaps and remove productivity bottlenecks in African cities, they can contribute to economic development rather than further deepening poverty and inequality. Mechanisms to link resource rents to growth-driving investments will be necessary. For example, Botswana has set up a sovereign wealth fund (the Pula Fund, established in 1994) to direct wealth from diamonds and other nonrenewable resources into investments that will benefit future generations even after nonrenewable resources are exhausted. Pula Fund spending is based on the country's National Development Plan, and one study finds that between 1983/84 and 2014/15, 97% of mineral revenues were spent on capital investments (rather than recurrent spending), such as electricity and water (AfDB, 2016).

In addition, Africa can rely on its rich sources of renewable energy to drive its urban growth and structural transformation. The region has more than 60% of the most viable green energy resources available globally, including solar (10TW), hydropower (35GW), wind (110GW) and geothermal (15GW) resources (IEA, 2022). To the extent that African countries are late urbanizing and late developers, they have fewer stranded carbon-based assets and infrastructure systems to dislodge or retrofit, making leapfrogging to a more climate smart development pattern a viable prospect. With the exception of hydro power, the contribution of renewables - solar, wind, geothermal – to the energy mix is currently marginal, with Africa accounting for less than 3% of the world's installed renewables (IRENA, 2021). Although many African countries are dependent on fossil fuel for their economy and revenues, they can make an incremental shift as they install the capacity needed to feed their growing urban economies. As an additional benefit, renewables can create close to three times as many jobs as fossil fuels for the same amount of spending (Garrett-Peltier, 2017).

21 See Gollin, Jedwab & Vollrath (2014) for a description of the consumption cities that can arise from natural resources-led growth.

Box 10: Green Bonds

For projects that provide environmental benefits, such as green and sustainable energy projects, green bonds are a financing option. Green bonds are similar to other bonds but with potential for widening the investment pool by attracting environmentally responsible investors. When AfDB issued its $500 million green bond in 2013, environmentally responsible investors bought 84%, whereas for AfDB's typical benchmark bonds, central banks and other official bodies tend to account for 75% of subscriptions (Duru & Nyong, 2016). Cape Town and Johannesburg have both issued municipal green bonds, using the proceeds for investments in water, sanitation, energy, solid waste management and transport. Since 2013 the global green bond market has shown a 300-fold increase, but Africa's share remains a fraction. Between 2007-2019 Africa issued just 11 green bonds and raised $2 billion compared to Asia-Pacific and Latin America, who respectively issued 222 and 24 green bonds and raised $120 billion and $7 billion (Holtz, & Heitzig, 2021).

Another financial opportunity is for Africa to generate resources by stepping up its participation in the global carbon market. As the world approaches the date for net zero targets, the demand for carbon credits will outstrip the supply. With proper regulations and related capacities, Africa could exploit this market by leveraging its natural or ecological capital, by expanding access to clean energy, and by investing in green agriculture, and generating new income. The Africa Carbon Markets Initiative (ACMI) which was launched during COP27 can be instrumental in realizing this goal.

The initiative aims to produce 300 million carbon credits annually and to mobilize up to $100 billion per annum (ACMI, 2022). Access to climate finance can help fund investments in adaptation and the development of urban areas in more resilient patterns.

Harnessing remittances

Remittance flows to Africa are sizable. In 2019 remittance flows to sub-Saharan Africa alone were recorded to be $48 billion, about half of which is accounted for by Nigeria. The true figure is likely to be much higher. Smaller, poorer and fragile countries tend to be more dependent on remittances. For example, in 2023, remittances accounted for 35% of South Sudan's GDP.

Some African countries are attempting to facilitate the flow of remittances into investments using diaspora bonds and other capital market vehicles. As of February 2023, Ethiopia, Ghana, Kenya and Nigeria have issued diaspora bonds (Box 11). Though the success of these initial bonds was limited, many more countries are considering tapping into the opportunity. In July 2024, Kenya launched a digital platform dubbed DhowCSD (Central Securities Depository) to facilitate remittance flows into the Kenyan Securities via the central Bank of Kenya. The platform eased the process and radically reduced the turnaround time needed to set up an account (from 14 days to minutes) resulting in the entry of 7,000 new investors into government debt securities (The

Local African Worker in the Accra, GhanaConstruction. © Shutterstock

Box 11: Diaspora Bonds

Diaspora bonds are issued to nationals who have left their country of origin and are typically residing in higher income countries. They tap into a powerful financial flow already occurring in the form of remittances, which globally amounted to $430 billion in 2016, more than three times the volume of global aid (AfDB, 2018). The idea behind diaspora bonds is that "citizens of developing and emerging countries living abroad often have an interest in supporting their homeland, and are often prepared to forgo the returns. Unlike purely commercial investors, they do not immediately withdraw their funds if economic difficulties arise," (AfDB, 2018, p. 116). Besides being willing to accept lower returns (i.e. the "patriotic discount"), diaspora investors are typically less concerned with currency risk (Ketkar & Ratha, 2011).

Israel and India have each raised billions of dollars of financing through diaspora bonds. In the case of Israel, the diaspora bond has a long and successful history, and the government rewards the diaspora bond holders with a premium over the market rate during economically good years, to compensate for their willingness to bear a discount during years of distress, operating in a way akin to a countercyclical policy (Mitu, et al., 2024). In Africa, Ethiopia, Ghana, Kenya and Nigeria have recently issued diaspora bonds, and other countries are expected to follow (Akkoyunlu & Stern, 2018).

East African, 2023). Such a move by remittance holders at a time when Kenya was experiencing capital flight, and a currency decline arguably signals the role of some non-market and socially conscious attributes of remittances that governments may tap into for financing infrastructure and development (Ketkar & Ratha, 2011).

Remittances might be lucrative and easy to tax, but this has to be carefully considered against potential risks, and short- and long-term net benefits to the economy. In the short term, levies increase tax revenue; however, if transfer costs are expensive already, additional levies could be punitive and encourage senders to shift to using informal channels instead, reducing the capacity of the financial sector to pool and leverage them for economic growth and development.

Improving project preparation

Investors and IFIs agree that a lack of investment-ready projects is more of a constraint on finance in Africa than a lack of interested investors. According to McKinsey there is appetite for investment in Africa, and estimates that there is as much as $550 billion in assets looking for investment opportunities in Africa. Though there is no shortage of pipeline projects, few pass the feasibility stage to close financing. McKinsey characterizes the situation as 'Africa's infrastructure paradox" (Lakmeeharan et al., 2020). Private finance is concentrated in sectors and countries with more 'bankable' opportunities (Tyson, 2018). That means that countries early in the urbanization and structural transformation process, thus perhaps most in need of investments and have the potential for high returns, are the most constrained by the project preparation phase.

Installation of a new oil pipeline in a rural area in sub-Saharan Africa in Doba, Chad. © Shutterstock

Matching risk and return is not always easy. Some suggest governments should withdraw from commercially viable low risk projects and allocate public resources into essential but under-funded sectors like water and sanitation, and thus avoid crowding out the private sector. Public-private partnerships (PPPs) are suggested as good alternatives to implementing service provision projects.[22] But designing and implementing PPPs is not as simple as they sound. In infrastructure projects, PPPs often lock public authorities into long term contracts, and the original conditions are frequently subject to change requests from private partners. Investments are sunk costs that cannot be reversed. Managing changes, or adjustments for example in tariffs, is a complex business with implications for public finance, efficiency and equity. Fiscal risks that seemed negligible or tolerable could become binding over time. "Although private finance can alleviate public investment needs..., it cannot in itself reduce the funding gap—meaning that the private partner brings in the financing of the project but under the expectation that the project will be funded, over time, by users and/or taxpayers" (Mastumoto, et. al. 2021, p. 5)

The average preparation period is five to ten years. Added to the time for construction, large infrastructure projects often take ten to twenty years to become operational and generate revenue (te Velde et al., 2015). Project development can also be costly, estimated to generally be 1-10% of total project costs, which is billions of dollars when multiplied across projects (Oberholzer et al. 2018). However, in Africa this is estimated at closer to 10-12% of project costs (Chaponda, Nikore & Chennells, 2014). Given the estimated urban infrastructure funding need of $157 billion annually in the region, project preparation could total $16-$19 billion per year, well above the resources available. Execution capacity is also lacking. Budget execution ratios in low-income countries are 64% for roads and 39% for power, compared to 99% and 82% respectively in middle income countries (Foster, Rana & Gorgulu, 2022). International, regional and national project preparation facilities can help close gaps in capacity and mobilize much needed investments in urban infrastructure (Box 12).

22 In addition, community-based approaches as well as integration and formalization of existing informal service provision are alternative service delivery models already being used in African cities, and typically do not involve major capital investments in infrastructure (Bajpai, Stratton-Short & Adelekan, 2022).

Box 12: The role of designated agencies in project preparation

A designated agency with the ability to hire and retain highly skilled staff is needed to support project preparation as well as implementation. Where external agencies and IFIs can provide technical assistance, staff with local expertise and institutional knowledge are preferred, even during periods of administrative turnover. This is imperative at the national level, and also important at the subnational level as cities struggle to invest in their economies. One example is South Africa's PPP unit, which has factored into the country's success with PPPs (Sanni & Hashim, 2014). A different example, at the local level, is the Local Development Corporations in Morocco's largest cities, which implement planning and transportation projects over the long-term, overseeing multiple projects. Although publicly funded, these corporations are technically private, which comes with the benefits of procedural flexibility, more attractive remuneration for high quality long-term staff, and insulation from political volatility (UNECA, 2017a).

External project preparation facilities (PPFs) can also play a critical role in project financing, especially where individual countries are lacking the expertise and resources to successfully formulate projects. (Foster, Rana & Gorgulu, 2022). The Asian and Caribbean examples of PPFs suggest that they are particularly important in rapidly urbanizing environments as many focus exclusively on cities (Oberholzer et al., 2018). With regard to Africa, one survey identified 56 PPFs operating in the region and found that in 2017, $800 million was devoted to project preparation across 19 survey responding countries (DBSA & SDIP, 2018). The survey findings conclude that project preparation support could be expanded, especially during the earlier stages of project preparation, adding to the calls for scaling up and expanding project preparation facilities (Tyson, 2018).

Rural telecommunications tower near the village of Gabane in Botswana, Africa. © Shutterstock/Bashi Kikia

Spending better to optimize urban investments

Investing more efficiently and more effectively

Part of closing the infrastructure investment gap will come down to investing more effectively. This is particularly critical given the current shortfall in investment financing. A vast amount of infrastructure investment is lost due to inefficiencies, wasting precious resources. The IMF estimates that between one third and half of public investment in developing countries is wasted due to poorly targeted and inefficient allocation (Schwartz et al., 2020). Similarly, McKinsey (Dobbs et al., 2013) finds that globally, productivity improvement in the infrastructure sector can reduce required spending by 40%, which amounts to $1 trillion a year. These savings would come from improving project prioritization, optimizing portfolios and streamlining delivery.

Looking specifically at Africa, the World Bank estimates that approximately 2.7% of regional GDP is lost annually in sub-Saharan Africa due to infrastructure spending inefficiencies (Foster & Briceño-Garmendia, 2010). Another estimate suggests that the potential increase of efficiency in public investment for sub-Saharan Africa is in the range of 20-54% of spending (Barhoumi, et al., 2018).

The ability of governments to invest effectively and efficiently is related to the investment climate and the aspects of good governance that impact the government's ability to raise funds and implement projects. UN-Habitat (Zhang & Khor, 2023) has identified four components of the investment climate needed to finance sustainable urban development: the legal and regulatory environment, the institutional environment, the investment and credit environment, and the fiscal environment (Box 13). Strengthening governance in these four areas can set the stage for more effective urban infrastructure investment.

Beyond technical efficiency (doing things right), there are also enormous potential savings from allocative efficiency (doing the right things). For example, investing early in energy efficiency and renewable energy, increasing the utilization rate of rail and urban public transport and densifying cities help reduce infrastructure costs significantly while improving development outcomes (Rozenberg & Fay, 2019). In addition, risks are created by sectoral development decisions, and risk-informed investment can generate major savings in the long term (SADC, 2023).

There are a variety of innovative approaches for delivery of infrastructure and public services that can increase the benefits of investment. These include leveraging the latest technology, drawing upon nature-basd and circular economy solutions (particularly in water, sanitation and waste management), implementing solutions with advanced consideration of gender inclusion and disaster risk management, and implementing infrastructure and services in a labour-intensive way to expand job creation (Bajpai, Stratton-Short & Adelekan, 2022).

Prioritizing investments with high rates of return

Prioritization of limited resources is critical. Fiscal space is constrained and shrinking, due to growing debt burdens. Part of effective infrastructure prioritization will therefore be investing in the infrastructure assets that will generate high economic returns. This is not only imperative to achieve growth targets, but is essential to kick-start the virtuous cycle of investment, growth and revenue generation.

Some estimates (Calderón, 2009) suggest that if all African countries were to catch up with Mauritius (the leader in infrastructure stock and quality), the rate of economic growth would increase by 2.2 percentage points on average, but with variations between countries. Similarly, if African countries were to catch up with a group of seven East-Asian economies with a high growth rate, then they would increase their growth rates by an average of 2.6 percentage points per year. These payoffs differ by region, with North Africa requiring less investment to catch up but with lower gains, with Central Africa acquiring the higher financial benefits.

Box 13: Four components of the public investment climate

- **Legal and regulatory environment:** The framework of laws, regulations and policies that govern public investments, including the investments of subnational governments
- **Institutional environment:** The structure and effectiveness of the public institutions responsible for managing and overseeing public investments, including the capacity of government agencies, and their transparency and accountability in managing public resources
- **Investment and credit environment:** The financial conditions and access to credit for public investment projects, including creditworthiness and credit ratings, and the confidence of potential investors
- **Fiscal environment:** The government's ability to manage its revenue and expenditures in support of public investments, including taxes, budget management, debt management and public spending

(Categories from Zhang & Khor, 2023)

Bitcoin and crypto server farm under construction in Addis Ababa, Ethiopia. © Shutterstock

There are few studies that conclusively show which infrastructure subsectors are likely to generate the highest economic returns (Vagliaindi & Gorgulu, 2021), and it should be noted that global average rates of return foudn in studies do not necessarily apply to specific countries or cities, and that the return on specific infrastructure investments depend on gaps, opportunities and economic context. That said, some evidence, points to potentially high returns in the power sector, particularly electricity-generating capacity, (AfDB, 2018), and closing the gap in electricity prices (World Bank, 2017). Additionally, evidence shows that improving power reliability raises firm productivity (Foster, Vagliasindi & Gorgulu, 2022), and green infrastructure in the power sector has a positive impact on job creation (Vagliaindi & Gorgulu, 2021).

Studies also show that digital infrastructure that expands internet coverage improves firm productivity, employment and welfare (Foster et al., 2023), in addition to having benefits for long-run economic growth (Vagliaindi & Gorgulu, 2021). There is some debate as to the economic returns for water and sanitation projects, but a study on sub-Saharan Africa has indicated there are positive returns (Estache, Speciale & Veredas 2005). Investments in highway infrastructure consistently have positive returns for the manufacturing sector, even in developed countries where transportation is generally less of a barrier (Baird, 2005). And transport more broadly, including highways, public transportation, railways and ports have been shown to have positive development impacts (Foster et al., 2023). Looking more narrowly at cities themselves, it is clear that underinvestment, poor planning and poor management has made Africa's cities congested, polluted, and inefficient (Lall, Henderson & Venables, 2017). Traffic congestion in Nairobi, Kenya, for example, costs the economy nearly $1 billion in lost productivity annually (Bloomberg, 2019). That figure for Cairo, Egypt is $2.5 billion (World Bank, 2013b).[23]

23 While the compendium of research and global good practices suggest that African cities would benefit from added internal connectivity and infrastructure that supports pedestrian trips (which still comprise a large share of travel, for example 70% of commutes in Ugandan cities; Grover, Lall and Timmis, 2021), as well as mass transit which is more cost effective, equitable and environmentally friendly, many African cities are attempting to solve their rising congestion problems primarily with ring roads and highways for private motorized transport.

As cities expand, early investments in a connected street grid can lay the groundwork for a more sustainable urban development pattern in the long run. Establishing settlements without a basic layout and street network will make service provision 12 times more expensive later (Campbell, 2018). Cities are built on the backbone of streets, and while land use may change over time, the street grid typically remains close to its original form, playing a major role in economic performance in the long term.

Looking beyond infrastructure investments, it is clear that human capital investments are also necessary and have some of the highest rates of return. The skillset of the labor force is one of the top constraints on industrial competitiveness (Page, 2012). In cities like Tunis, Tunisia, Nairobi, Kenya, Ouagadougou, Burkina Faso and Abidjan, Cote d'Ivoire, more than a third of firms identify an inadequately educated workforce as a major constraint. In Mwanza, Tanzania, Bamako, Mali, and Pointe Noire, Congo, this rises to over half of firms, and every country that has succeeded in sustained high growth in the post-war period has invested significantly in schooling and human capital (The Commission on Growth and Development, 2008, p. 37). One empirical model finds that improvements in education accounted for nearly half of all productivity growth in developing countries during the two decades between 1994 and 2014, and contributed more than infrastructure, innovation, institutions or market efficiency (Kim & Loyaza, 2019). Therefore, it is likely that the rate of return on investment in education is higher than any type of hard infrastructure, and that is particularly true for girls' and women's education (Psacharopoulos & Patrinos, 2018).

However, investment in different subsectors are complementary. The returns on putting 100% of investment into electricity, or digital infrastructure or education alone will almost certainly be lower than combining investment in different subsectors and release the binding constraints on firms that can lead growth. In other words, each type of infrastructure, on its own, has rapidly diminishing returns (Canning and Bennathan, 2000). An investment strategy that coordinates various sector investments in specific locations can leverage urban opportunities far better than siloed infrastructure investments. One example comes from South Korea. Although the country's rapid industrialization has been attributed to multiple factors ranging from its export orientation to developing human capital and domestic capital market, the role of the state in coordinating investment was critical and should not be overlooked (Lim 2011). Rates of return on infrastructure investment also depend on the private investment that follows. The best returns come when infrastructure is targeted to serve growth-driving firms, particularly those that can create large numbers of productive jobs.

Beyond targeting the right mix of sector investments, countries must also target the right locations of investments. Different cities serve different social and economic functions. The largest cities are typically the most productive and home to the most innovative and growth-driving firms. However, midsized cities tend to have lower land and labour costs, and for this reason are often preferred by large land-intensive and labour-intensive manufacturing firms. Smaller cities provide urban services that often benefit the surrounding rural economy, and can provide valuable forward and backward linkages to agricultural activities. They also tend to excel at uplifting their residents out of poverty. Urban investments should be spatially targeted to match the overall economic strategy, and should include supporting economic linkages between cities and with the rural economy. Importantly, countries should avoid misguided strategies to shift population growth away from large cities by reducing investment in them. Larger cities are needed to drive economic growth, and the larger they growth the more productive they can be,[24] unless growth is not supported with adequate investment. Underinvestment in the largest cities will undermine national economic performance.

24 Due to the productive benefits of dense markets and clustered economic activities which are referred to as agglomeration economies (OECD/UNECA/AfDB, 2022; UNECAb, 2017).

Prioritizing investments that close human development gaps

In spite of the importance of returns on investment for triggering a virtuous investment and development cycle, a successful investment strategy cannot solely prioritize the assets with the highest rates of return. Alleviating poverty and closing painful development gaps must also be part of priority setting, as should investment in education and infrastructure that supports access to jobs and financial and economic inclusion to reduce inequality.

In addition to the inherent merit of human development, meeting the basic needs of the population is critical to ensuring their continued buy-in the chosen development strategy. The extent to which the population is asked to defer social spending for the sake of economic investments will rely upon their level of trust in the fiscal contract. Short term sacrifices in the interest of long term gains require that the public has faith that public money is being spent effectively and in the broader national interest. Recent events in Kenya demonstrate this (Box 14).

Box 14: The fiscal contract requires the public's buy in: Lessons from Kenya

Kenya's public debt has been mounting in recent years. Drawing on its "frontier market" advantage and global liquidity, it leveraged debt financing to implement its ambitious development projects. In the last decade (between 2014 and 2024) its public debt-to-GDP ratio almost doubled from 41% to a projected 78% in 2024 (Muhleisen, 2024). But as the global economic and financial conditions change, Kenya, like many other developing countries, faces economic headwinds, and has struggled to pay its debt. COVID-19 and drought aggravated the situation. In consultation with the IMF, starting in 2021, the country started implementing a multi-year fiscal consolidation program which involved raising tax revenues and controlling spending. The program helped Kenya to improve the primary fiscal deficit and the trade balance, unwound much of shilling's decline vis-à-vis the US dollar, and unlocked some concessional multilateral financing, including from the World Bank. But, the public protest against a further tax increase which was proposed in the 2024 financial bill disrupted the IMF-sponsored program and put the country in a difficult position.

As President Ruto explained to the nation, the tax increase was necessary to avoid default, and spare the economy from sliding backwards and losing its hard won achievements. However, the public, especially youth, did not seem to be willing to adhere to this plan. With a higher interest rate, a growing share of the tax revenues will go to pay interest payments, leaving little for social spending. This is a huge concern for the people, especially the poor who will be most impacted by the austerity.

In addition, the public protests against the financial bill appear to have invoked legitimate questions about the social returns of the flagship projects financed through public debt and about "who benefited from the loans that ordinary Kenyans now have to repay" (Muhleisen, 2024). The Kenyan government is in a financial squeeze and has a genuine need for more tax revenues to pay its debt. But the people also have genuine questions and concerns. Constructive conversation that links debt, taxes and spending in a framework of trust and accountability is necessary to build consensus on social sacrifices of today for the economic returns of tomorrow.

While social spending does not necessarily generate the same level of economic returns that investments in an economic growth strategy do, it typically does have economic and financial dividends in the long term. Within cities, upgrading the urban informal sector and decreasing urban poverty is critical for growing the economy and broadening the often very narrow tax base of African countries. A sensible strategy would therefore be to identify the specific bottlenecks facing firms, and coordinate investments through inclusive growth strategies to tackle urban barriers to economic growth, while ensuring that as many people as possible are benefiting from that growth, which can then be translated to improved revenues.

Making investment strategic, transparent and coordinated

Finding the right balance of productive investments in different infrastructure subsectors and managing the tradeoffs between meeting the basic needs of households and investing in the infrastructure with the highest rates of returns requires analysis, strategic foresight, and a transparent dialogue with citizens. And, because resources are limited, a strategic approach must coordinate various investments in space, time and purpose to have a meaningful impact and kick-start the virtuous cycle of investment and development.

Large scale road construction works perfomed by a Chinese contractor. The Chinese government is investing hugely in the East African infrastructure sector in Kampala, Uganda. © Shutterstock/Robin Nieuwenkamp

High returns on infrastructure investment are available when investment is paired with supportive policies that target the same economic sectors and combine to remove binding constraints. The African Continental Free Trade Agreement (AfCFTA) is one policy in particular that holds promise if accompanied by complementary infrastructure investment to boost the sectors benefiting from trade facilitation and tariff reductions. Its implementation is expected to bring about industrial export gains of over 8% in nearly all African countries, and boost industrial exports excluding energy and mining more than 30% in half of countries. The combined urban job creation and economic gains from this would be immense; however, cities require "targeted investment to realize their full potential as hubs for the production of regionally-traded manufactured goods and services" (UNECA, 2022, p. x).

Another example of the need to pair hard infrastructure investments with supportive policies comes from the disaster risk management (DRM) sector, where hard investments such as dikes and flood retention walls can be paired with policy measures to combat deforestation, avoid the urbanization of flood-prone areas, and educate the population on risk mitigation (SADC, 2023). Situating investments in a coordinated policy package helps to unlock their full benefits.

Publicizing the strategy can help the private sector coordinate its investments alongside public infrastructure investments to generate multipliers and to maximize economic returns. As plan implementation and investment follow-through build government credibility, private investments will become even better aligned with the national and local investment strategies.

- National development planning is one tool that many African and Asian governments use to coordinate investments, with the idea that a national-level strategy can marshal limited resources to support specific sectors that can drive economic growth and development.
- Local and regional development strategies can do the same thing at the subnational level, coordinating the timing and impact of public investments for greater effect, and allowing private investment to follow.
- Urban planning, regional spatial planning and national spatial planning can also be useful tools for coordinating public investments across sectors and with the private sector, leading to higher returns than spatially disconnected or siloed investments.

A clearly spelled out strategy, implemented in a transparent way can build the trust necessary to improve taxpayer morale, helping to complete the investment-development-revenue generation cycle. Implementation is key here, as the majority of plans, particularly at the subnational level, remain technical and political exercises rather than actually guiding coordinated investment.

National and subnational development planning must identify the economic sectors that will not only drive growth but can create large numbers of productive jobs and broaden the tax base. Manufacturing and tradable services hold promise, particularly with the implementation of AfCFTA. These jobs and sectors, as well as their workforce, are based primarily in cities. Therefore, coordinated urban investments can serve the triple aim of releasing constraints on development-driving sectors, meeting the basic needs of a large and growing share of the population in an efficient way, and laying the foundation for future achievement of development targets.

Drilling Machine Rural Water Project,
Jos East, Plateau State, Nigeria.
© Shutterstock/Oni Abimbola

Water Utilities Corporation WUC Waste water treatment plant in Gaborone, Botswana. © Shutterstock/Bashi Kikia

Conclusion and Recommendations

Urbanization has put the African region at a development crossroads. African cities and urban areas with populations of at least 10,000 already produce 70% of the region's GDP and are home to over half of the region's population. As urbanization continues, cities are poised to drive economic structural transformation, productive job creation, and expansions in access to basic services. Urbanizing late brings opportunities to steer urban development and urban infrastructure in a direction that is climate smart and resilient. However, without adequate urban investment, Africa's economic structural transformation will be cut short, poverty and inequality will deepen, and climate risks will take a massive economic and human toll.

An estimated 5.34% of regional GDP, totaling $157 billion annually, is required to fund the infrastructure needed by African cities, well above current investment levels. There are a variety of ways that countries can begin to close the urban investment gap (Table 4). The right strategy is of course context-specific. Africa is not a monolith, and no strategy will work well for every country. At the subnational level, context is also critical. Large prime cities require a different approach than small towns, and subnational governments differ widely in their revenue administration capacity and ability to plan and implement investments.

Table 4: Strategies to close the urban investment gap

Recommendation	Level of government	Context
Taxes		
Leverage the opportunities of urbanization. Adopt a tax mix that taps into the growing urban tax base, taking care to ensure that taxes (particularly consumption taxes like VAT) are not regressive. National		All
Address the distributional consequences of taxes. Both tax policy and administration will not have pro-poor impacts automatically, and must be designed to do so. This requires assessment and monitoring, well-targeted exemptions and subsidies, and redistributive expenditures.	National and subnational	All
Tax the urban informal sector strategically. Design a tax approach that exempts the most vulnerable and accounts for the heterogeneity of the informal sector. Design payment systems that are easy to use and pair taxes with public service delivery.	National and subnational	All
Strengthen tax enforcement targeting the wealthy. Use transparent tax registries and withholdings on revenues or profits. Contract with outside entities to skirt political pressure when necessary.	National and subnational	All
Combat illicit financial flows. Engage in multilateral treaties and initiatives, and use OECD and G20 frameworks to combat money laundering and recover stolen assets.	National	All
Leverage technology to improve tax administration. Use digital technology to increase the ease and efficiency of tax assessment, collection and tracking, and to reduce corruption, while taking care not to burden the poorest and those without internet access.	National and subnational	All
Tap into the revenues of the rising digital services economy. Tax the earnings of large firms supplying and using digital services, not the services themselves. Apply digital services taxes to firms with customers in the taxing country, not just those with a presence or headquarters there. Pair taxes with investments to expand digital connectivity and prepare firms and sectors to participate in the digital revolution.	National	Middle and high income countries
Subnational revenues and decentralization		
Pair decentralized spending mandates with adequate funding. Subnational governments with devolved spending mandates must be able to address the infrastructure and service needs of the cities they serve. This necessitates being given authority to raise own source revenues, predictable and adequate central transfers, programs to build subnational government capacity for budgeting and project implementation, and external assistance where subnational capacity gaps remain.	National	More decentralized authority for larger and higher income cities; More capacity building and support for smaller and lower income cities
Link subnational revenue collection with service provision. A visible connection between revenues and services is fundamental for tax morale. Fees for services are one way to do this, but subsidies will be required for low income households. A mechanism for effective targeting of subsidies to those who need them is essential.	Subnational	All
Strengthen land-based revenues. GIS and digital technology can assist even low income local governments to do this effectively. Design of the associated policy and administrative system should be done with attention to the impacts on the poor and vulnerable.	Subnational	All. Simpler land-based revenue tools are available to low income and low capacity contexts. More complex tools are available for application in more developed land markets.

Recommendation	Level of government	Context
Subnational revenues and decentralization		
Pair improved subnational revenue administration with strategic development planning and budgeting. Successful revenue reform should be paired with efforts to coordinate spending on growth bottlenecks and human development gaps. Subnational economic development strategies can help to make strategic budget decisions, and capacity building for budget follow-through may be needed.	Subnational with national support	Higher income and higher capacity cities should put more effort into strategic prioritization of expenditures. Lower income and lower capacity cities will need more technical assistance to make budgets strategic and implement them effectively.
Borrowing and external finance		
Strengthen access to international and domestic finance. Governments should combat international risk perceptions and subjective borrowing rate premiums in the global financial market while developing domestic banking institutions to link personal savings with investments that can fuel the urban economy and economic transformation.	National	All
Pursue subnational creditworthiness. Cities can begin the long process of creditworthiness by obtaining a shadow rating accompanied by targeted capacity building to strengthen their financial position.	Subnational	Large cities with high financial capacity
Establish financial intermediaries to provide cities with access to finance. Financial intermediaries can source financing for pooled subnational government needs while supplementing capacity and reducing risk.	National- level to establish; subnational level to utilize	Smaller and mid-sized cities with lower financial capacity
Utilize bond types that attract socially conscious investors. This includes green bonds that can attract a wider investor pool to green investment projects and diaspora bonds that can attract diaspora investors willing to tolerate lower premiums and higher national currency risk.	National and in few cases subnational	All; Lower income countries may require outside assistance
Strengthen project preparation and implementation capacity. As one of the most significant gaps limiting impactful urban investments, capacity must be built at all levels with the support of external project preparation facilities and IFIs where necessary.	National and subnational	All

Table by authors

Among the list of recommendations for increasing urban investment resources, a few overarching themes stand out:

- Attention to social equity and the impact on vulnerable populations. Revenue instruments and investments must specifically be designed to be pro-poor and to avoid unintended consequences for vulnerable firms and populations.
- Use of technology. Digital technology can be used to streamline and reduce the cost of revenue administration, increase transparency, reduce opportunities for corruption, and bolster many aspects of the financial architecture.
- The need for capacity building. At both the national and subnational levels, revenue administration, strategic budgeting, financial structuring, project preparation and implementation all require high levels of capacity that are often in short supply. Targeted training and capacity building will therefore be an integral part of closing the urban investment gap.

The economic structural changes that accompany urbanization will assist national and subnational governments as they take action to increase their capacity to generate revenue and access financing. In order to close the loop and create a virtuous cycle, revenue and financing measures must be paired with efforts to close the urban investment gap, grow the urban economy, reduce urban poverty and strengthen urban climate resilience.

In addition to access more resources, countries and cities must spend those resources more efficiently and more effectively. This will require boosting capacity and streamlining project preparation and implementation, and strategically prioritizing investments into a package that can generate high returns while also uplifting the poorest and meeting basic needs. Managing the inherent tradeoffs is no easy task, and will require analysis, strategic thinking and public dialogue. Coordinating infrastructure investments in space, time and purpose will improve their effectiveness, as will aligning policy and workforce development to boost growth-driving economic sectors based in cities.

"Accelerating structural transformation effort and financing its implementation will be key to unlocking Africa's development potential" (AfDB, 2024a, p. 70). Yet progress on both structural transformation and financing has been slow and uneven. If business as usual continues, the time required to catch up with other regions or to realize the aspirations of the SDGs and Agenda 2063 will be a distant future.

Under such a scenario, many countries risk a vicious cycle with cities trapped in high poverty and low development, and a self-reinforcing cycle of underinvestment, poor revenue performance and reduced investment capacity.

However, freeing economies from this trap and propelling them into a virtuous cycle of investment, inclusive growth and diversified revenues is possible, and Africa's cities must be at the center. In order to move into such a virtuous cycle, bold and coordinated action is necessary. This will require a surge in strategic urban investments, complemented by policies to boost leading urban firms, linked with improved revenue generation, and supported by expanded capacity for continued investment planning and execution (Figure 18). The time to harness the opportunities of urbanization is now, while the window for an urban transition is still open. The future of African development requires going beyond rhetoric to bold and impactful action to leverage the potential of African cities.

Figure 18: Freeing Africa's cities from a low-development vicious cycle and launching them into a virtuous cycle requires bold and coordinated action

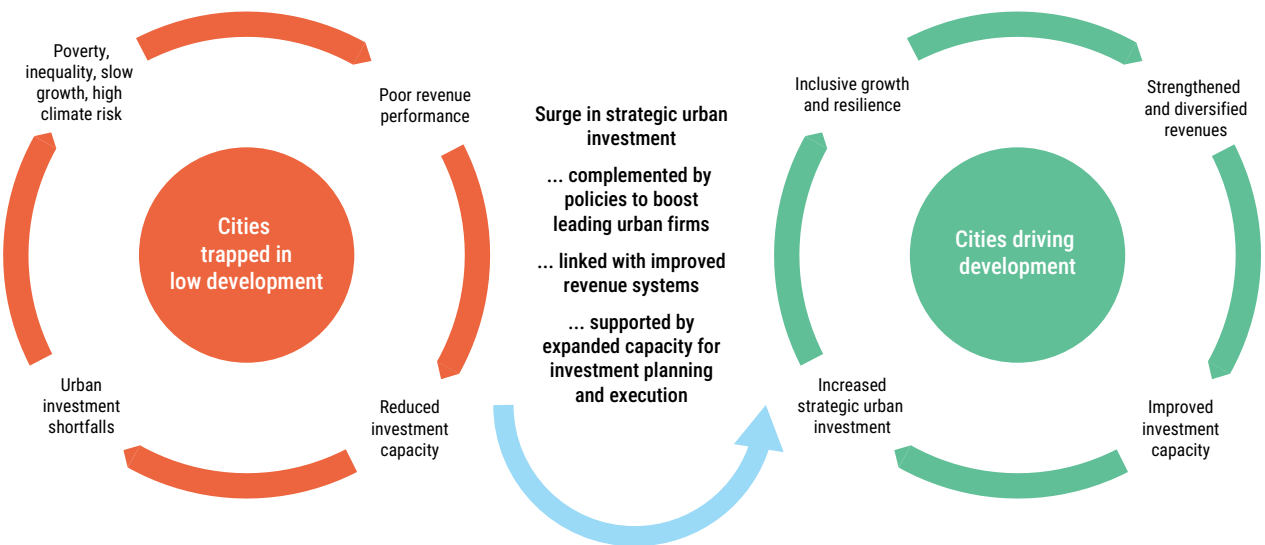


Image by authors

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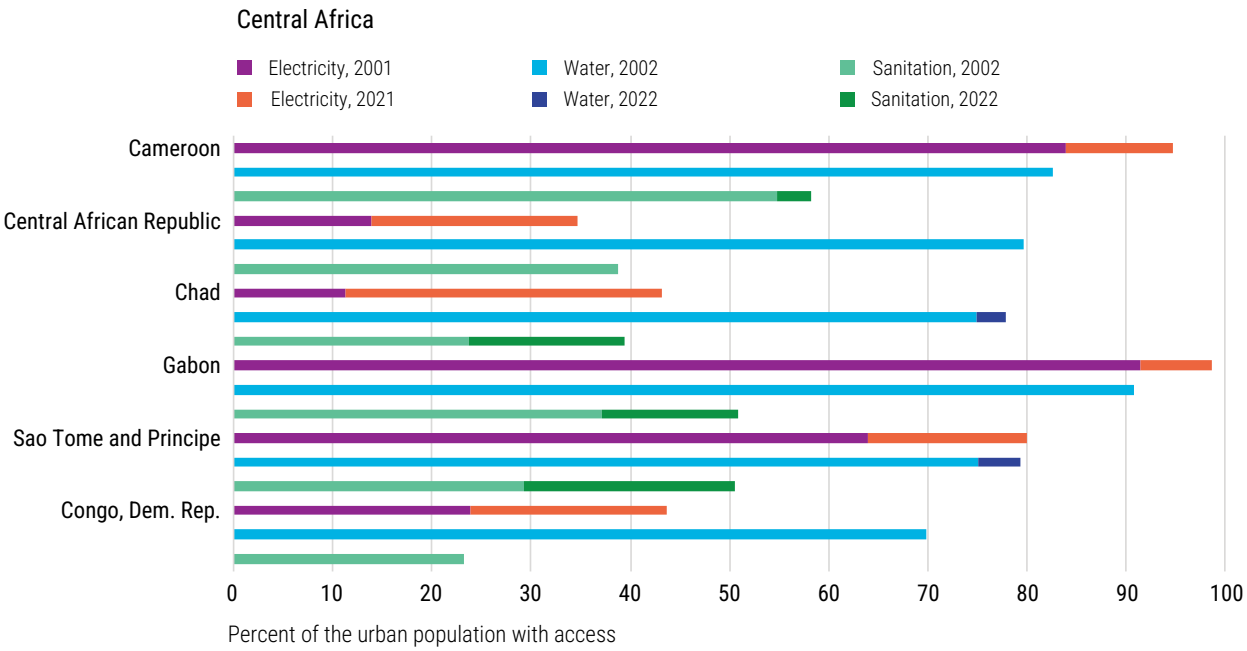
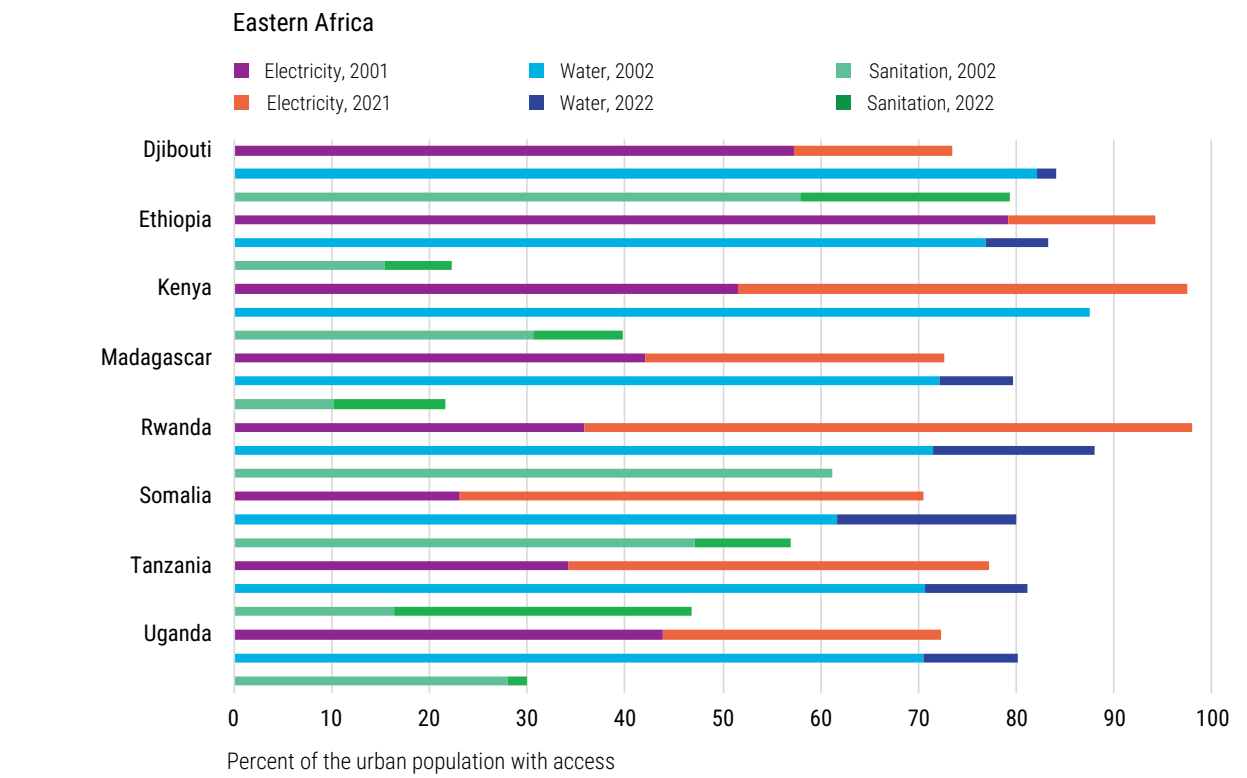
Annex A:
Additional country-specific data

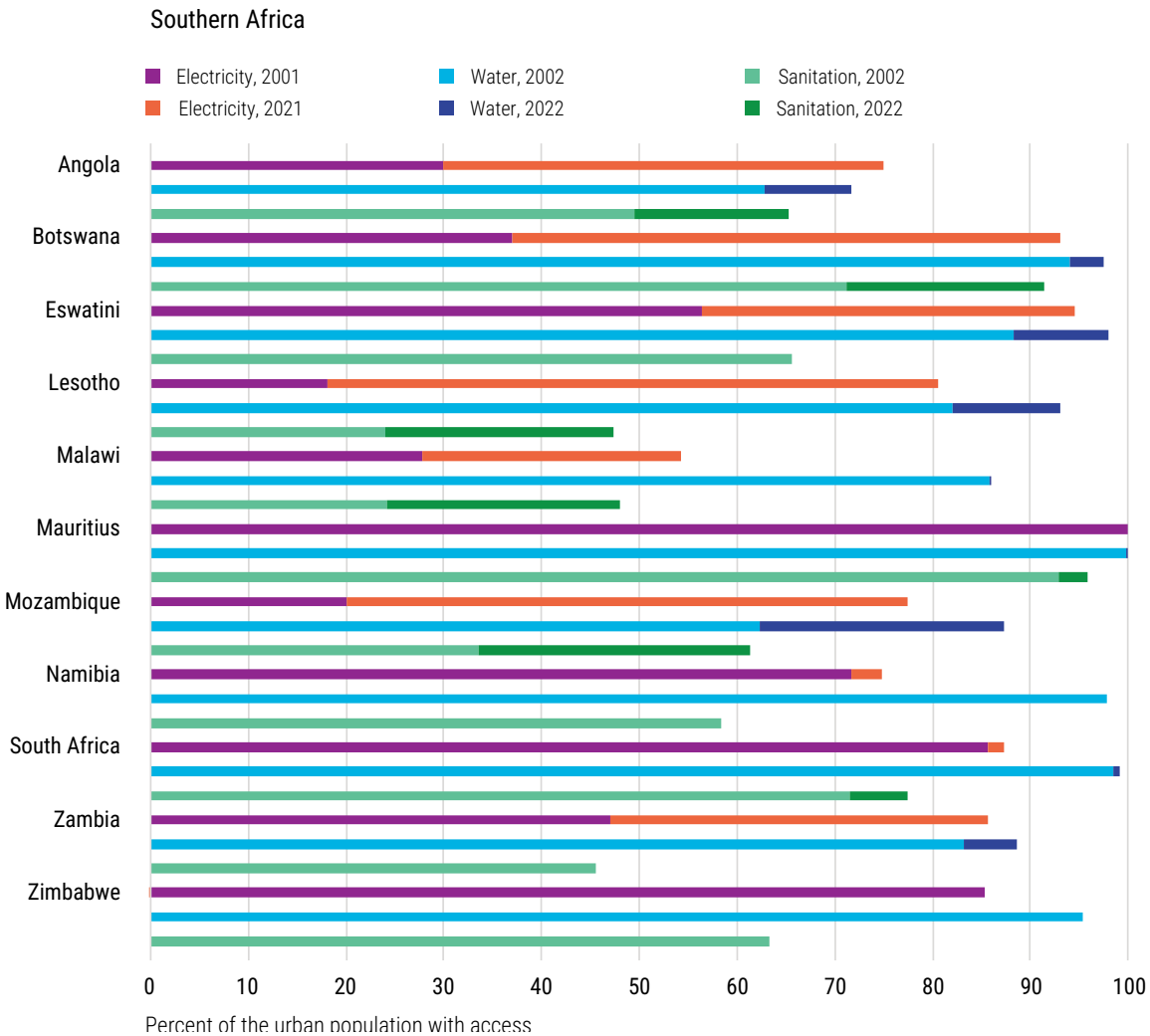
Access to basic urban services by subregion and country

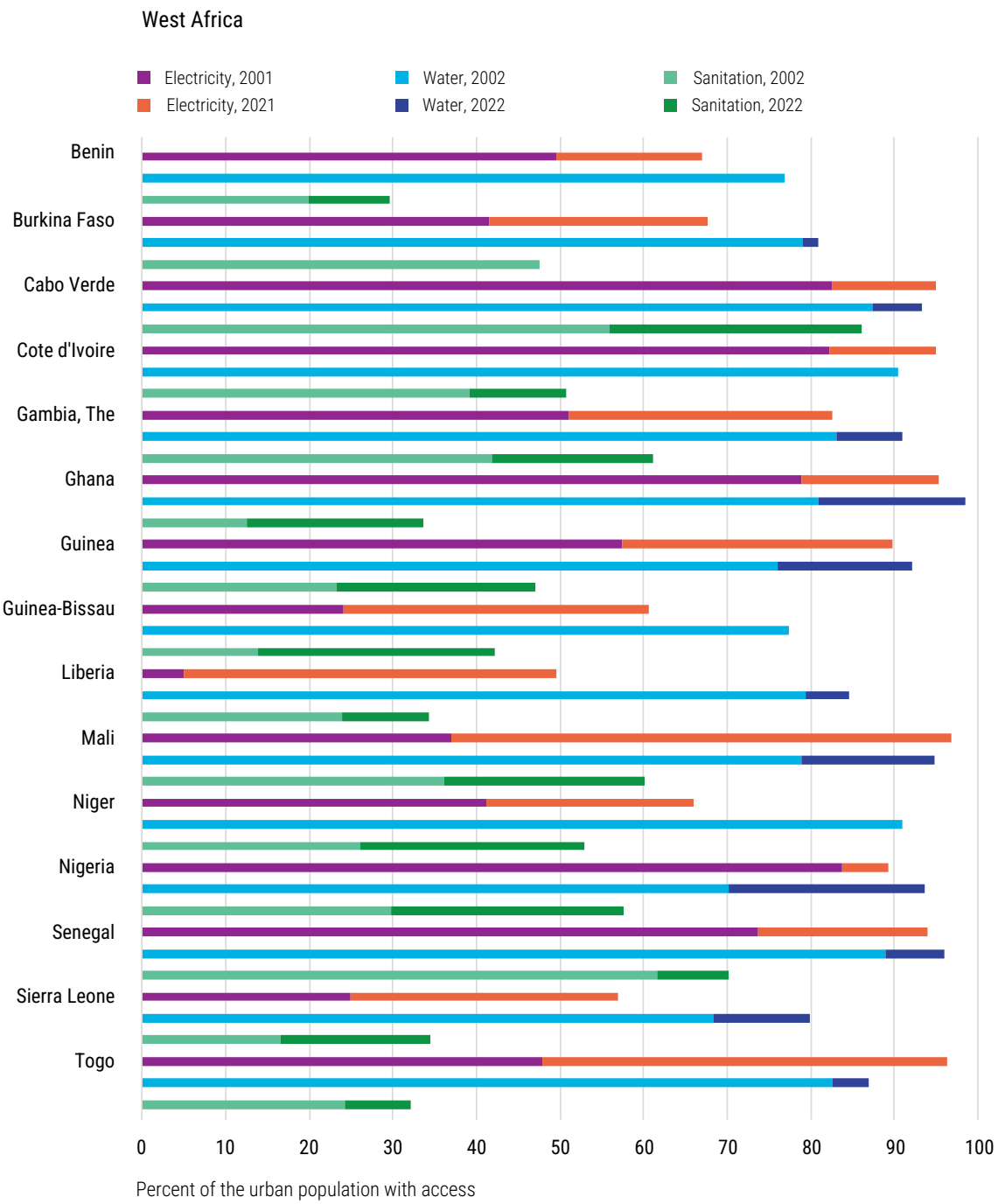
The following charts show the level of urban access to basic services (electricity, water and sanitation) 20 years ago and the expansion since then to current levels. Each country has three bars, one for each basic service type. Data is from the World Development Indicators database.





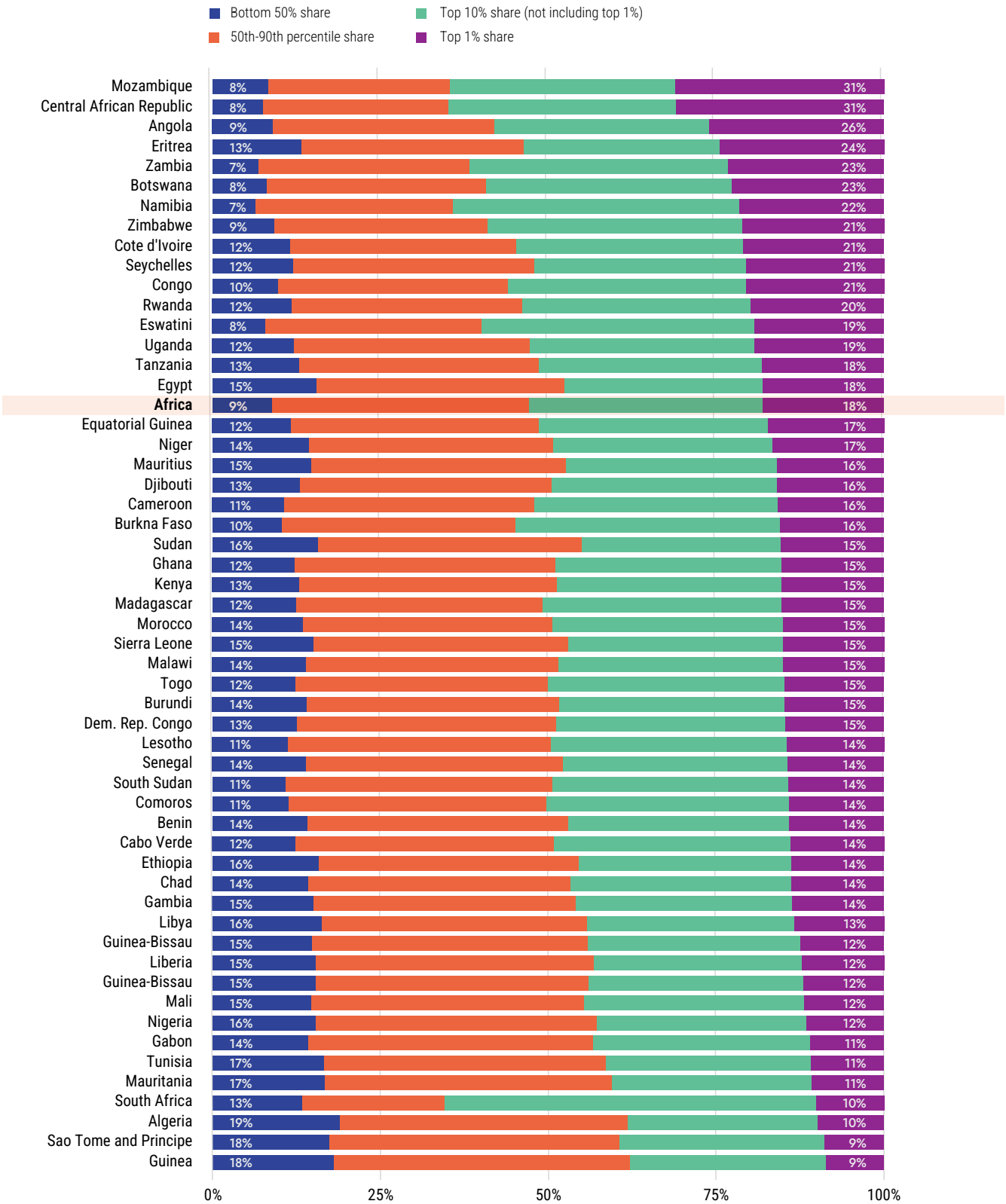

North Africa
Electricity, 2001
Electricity, 2021
Water, 2002
Water, 2022
Sanitation, 2002
Sanitation, 2022
Algeria
Egypt
Mauritania
Morocco
Tunisia
0
10
20
30
40
50
60
70
80
90
100
Percent of the urban population with access


Southern Africa
Electricity, 2001
Electricity, 2021
Water, 2002
Water, 2022
Sanitation, 2002
Sanitation, 2022
Angola
Botswana
Eswatini
Lesotho
Malawi
Mauritius
Mozambique
Namibia
South Africa
Zambia
Zimbabwe
0
10
20
30
40
50
60
70
80
90
100
Percent of the urban population with access


West Africa
Electricity, 2001
Electricity, 2021
Water, 2002
Water, 2022
Sanitation, 2002
Sanitation, 2022
Benin
Burkina Faso
Cabo Verde
Cote d'Ivoire
Gambia, The
Ghana
Guinea
Guinea-Bissau
Liberia
Mali
Niger
Nigeria
Senegal
Sierra Leone
Togo
0
10
20
30
40
50
60
70
80
90
100
Percent of the urban population with access

Income inequality by country

Income distribution across the national population by country, 2022



data: World Inequality Database

Annex B: Investment needs calculation and methodology

Infrastructure investment requirement calculations

Generally, large-scale estimates of infrastructure investment requirements follow either a top-down or a bottom-up methodology. Top-down methodologies were popularized by Fay and Yepes (2003). They, along with others who have replicated their methodology (ex: Ruiz-Nuñez and Wei, 2015) use statistical estimation to create a model that closely fits existing levels of infrastructure. The idea is not to explain or even justify the logic of each of the coefficients or components in the model, but instead to create a model that fits the data as well as possible so that it can be used to forecast future infrastructure demand by changing the population, GDP and urbanization parameters. One of the major shortcomings of this type of model is that it envisions a future that looks very similar to the past, albeit with a higher GDP. If there are current gaps in infrastructure coverage, they remain in the forecasted future which does not plan for advances in technology or the achievement of infrastructure-specific development targets.

By contrast, bottom up approaches calculate how much infrastructure would be needed to meet a specified target and then use unit costs to calculate the cumulative price tag. For example, Foster and Briceño-Garmendia (2010) calculate infrastructure needs for sub-Saharan Africa by setting explicit goals in each infrastructure sector (ex: developing 7,000 megawatts of power generation capacity, laying 22,000 megawatts of cross-border transmission lines, interconnecting capitals, ports, border crossings and secondary cities with good quality roads, etc.), and then adding up the costs.

Additional methodologies are also available. Some studies draw upon sector-specific economic models to estimate the costs of meeting a specified level of demand. For example, the International Energy Agency (IEA) has widely utilized models of energy costs under various emissions scenarios. The OECD's (2017) report on achieving climate and economic growth goals combines IEA estimates in the power and transport sectors with estimates by Booz Allen Hamilton, McKinsey, and prior OECD research in other infrastructure sectors.

Table B1: Annual infrastructure investment needs for Africa region (both urban and rural), existing estimates for three sectors.

Publisher	Reference	Electricity (% of GDP)	Roads (% of GDP)	Water and sanitation (% of GDP)	Three sector total (% of GDP)	Based on 2025 GDP ($ billion)
African Development Bank	AfDB (2018)	1.6%	0.7%	2.3%	4.5%	34.2
IMF	Schwartz, Fouad, Hansen & Verdier (2020)	1.6%	4.5%	2.2%	8.4%	247.4
World Bank	Rozenberg & Fay (2019)	1.6%	4.2%	1.9%	7.7%	169.1
Average (not specifically urban)		1.6%	3.1%	2.2%	6.9%	252.9

Note: These figures combine estimates for sub-Saharan Africa and North Africa based on region-specific GDP as reported and forecasted by the IMF. The AfDB figures included here use the midpoint of their high and low estimates.

It is challenging to summarize the compendium of estimates of infrastructure investment needs since they are for different time periods, differing geographies and different sets of sectors (Table B1). Taking three recent estimates from AfDB, the IMF and the World Bank, it is possible to harmonize estimates of infrastructure investment needs in three sectors, electricity, roads, and water/sanitation, to get an average of the three estimates for each sector. The result is a wide ranging three-sector total, from $34.2 billion to $247.4 billion region-wide for all locations, not just urban areas. Even within this harmonized estimate, it should be noted that sector targets were defined differently across estimates, and the way targets are envisioned to be achieved also differs.

It is clear that Africa needs major infrastructure investments, but how much of those investment needs are urban? A 2015 report by Cities Climate Finance Leadership Alliance (CCFLA) argues that the percentage of infrastructure that is "urban" is approximately equivalent to the percent of GDP coming from urban areas. Using this logic and the average of AfDB, IMF and World Bank infrastructure needs estimates, and given that approximately 70% of Africa's GDP is urban, the annual required investments in Africa's cities total 4.8% of regional GDP or $177 billion in 2025 for three sectors alone: electricity, roads and water and sanitation. Splitting the total required investment based on estimated GDP provides a very rough approximation and some further nuance is useful to go beyond the headline numbers.

What is urban infrastructure?

Determining which investment needs are urban is more complicated than it may at first seem, and there are two main issues at play. The first is determining how to classify locations as urban or rural, and the second is determining which investments serve urban areas.

Countries have varying standards when it comes to classifying cities and rural areas, with some countries using definitions based on administrative boundaries and others determining what is urban based on a settlement's population size.

The UN Statistical Commission recently came up with a classification of urban areas based on a uniform standard of density and total population in contiguous areas called the Degree of Urbanization, but this has not been widely adopted by national statistics offices in Africa. According to World Development Indicators by the World Bank, Africa's population was 44% urban as of 2020. However, the Africapolis database, which adopts a definition of urban based on satellite imagery and the density of human settlements to count all settlements with populations over 10,000 estimates that the region was 54% urban in 2020.

In determining which investments are "urban," it must be recognized that investment in cities goes beyond investment in public assets located within cities. For example, an improved national highway system connecting resource areas to urban processing and value-added activities, and then to ports can support growth and urban job creation. Another example is underwater fiber optic cables – located outside of cities, but with a major impact on urban economic activities and households. Hydro, solar and wind power generation are also critical to cities, but power generation infrastructure will likely be located far from urban areas.

The reverse is also true; not all spending in urban areas benefits the urban economy alone. For example, expenditures on urban port facilities, warehousing and transport terminals may be part of an agricultural development programme. As Linn (1982) observes, "it is not possible to separate the costs of urbanization from the costs of industrialization," (p. 632).

Among the existing estimates of global and regional infrastructure investment needs, few separate out "urban" investments. A IFC (2018) report on climate investment opportunities is one that explicitly focuses on urban investments. It takes a city-centric approach; however, it leaves out some of the major public infrastructure sectors (roads, ports, ICT infrastructure, and sanitation) and includes private investment sectors (buildings, electric vehicles). This is due to the focus of the report which is specific to achieving climate-related goals, not closing all public infrastructure gaps.

In the renewable energy sector, additional power generation to meet city-specific needs was included in the urban cost total, even though generation is likely to be physically located outside cities. The calculations take a granular approach, but only for a few cities, and then scales these estimates up for each region based on a typology of cities and the needs of the sample cities.

Foster and Briceño-Garmendia (2010), in a seminal study on sub-Saharan Africa's infrastructure needs, classify infrastructure into three categories, urban, rural and national or productive infrastructure. Urban and rural infrastructure are classified as infrastructure investments located in *and* serving those specific locations, respectively. National or productive infrastructure on the other hand is not location-specific, but "underpins the national economy as a whole: for example, generation capacity to serve industrial production; transmission lines; fiber-optic backbones; and the main components of the national transport system including trunk roads, railways, airports, and seaports" (p. 132).

Others have also tried to differentiate between productive and basic infrastructure. Fay and Yepes (2003), as well as Ruiz-Nuñez and Wei (2015), in studies published by the World Bank, conceptually differentiate infrastructure needs into two categories: consumer demand and producer demand. Consumer demand is based on the final consumption needs of households, whereas producer demand is for infrastructure and services used as an input to production. While conceptually appealing, this is challenging to differentiate statistically.

Estimating africa's urban infrastructure investment need

A picture of Africa's urban infrastructure investment need is made possible by including prior sector-specific estimates from prior reports and a nuanced definition of what is "urban." In addition to power, roads and water and sanitation from the three sources referenced above, it is possible to find estimates of Africa's infrastructure needs in transport outside of roads (i.e. rail, ports and airports) and ICT infrastructure from AfDB (2018), as well as flood protection[25] from the World Bank (Rozenberg & Fay, 2019), public transportation from IFC (2018) and the World Bank (Rozenberg & Fay, 2019), and waste collection and disposal from IFC (2018). The selected estimates use defensible methodologies and are aimed at achieving development targets and climate targets (the 2 degrees warming scenario). Estimates that maintain the status quo (existing GDP growth and maintaining service gaps) were excluded.

Translating these sector estimates into urban sector estimates can leverage existing literature as well. One option is to use Foster and Briceño-Garmendia's (2010) ratios, expanded for the difference in urbanization between sub-Saharan Africa in 2015 (their horizon year) and all of Africa in 2025. Another option is to apply the urban proportion of GDP as suggested by CCFLA (2015) to each sector estimate.

Installation of essential building systems in Lagos, Nigeria. © Shutterstock

25 No climate adaptation beyond flood protection is included.

Taking the average of all sector estimates and the average of the results when applying the two methods for separating out urban from the total (Table B3), we can arrive at an urban estimate. The estimated annual investment needs for Africa's cities is 5.34% of regional GDP, totaling an estimated $157 billion for 2025. Of that, just over 4% of GDP is needed for urban infrastructure located within the cities themselves, and 1.26% of GDP is needed for investments in trunk infrastructure that serve cities, including power generation and transmission to cities, national roads and railways, and fiber backbone (Table B2). This division of infrastructure within cities vs. national infrastructure serving cities uses Foster and Briceño-Garmendia's (2010) classification.

Lagos Waste Management Authority (LAWMA) workers cleaning the city in Lagos, Nigeria. © Shutterstock/ Stephen Nwaloziri

Table B2: Annual required urban infrastructure investments, basic and productive, % of GDP

Sector	Within cities	National, but serving cities	Urban total
Power	0.43%	0.59%	1.02%
Rail, ports, airports	0.26%	0.18%	0.44%
Roads	0.70%	0.47%	1.17%
ICT	0.11%	0.01%	0.12%
Water and sanitation	1.49%	–	1.49%
Flood protection	0.48%	–	0.48%
Public transportation	0.57%	–	0.57%
Waste	0.05%	–	0.05%
Total	**4.08%**	**1.26%**	**5.34%**

Table B3: Annual required urban infrastructure investments, Africa

Sector	Source		Applying Foster and Briceño-Garmendia (2010) ratios, adjusted for urbanization			GDP-based ratio suggested by CCFUA (2015)	Estimates that are already urban (IFC, 2018)		
		Full estimate, not only urban (% of GDP)	Urban within cities (% of GDP)	National serving cities (% of GDP)	Total urban estimate based on above (% of GDP)	Urban estimate based on urban ratio of GDP (% of GDP)	Urban estimate from IFC (% of GDP)	Urban, average of estimates (% of GDP)	Sector average ($ billion for 2025)
Power	AfDB (2018)	1.59%	0.38%	0.52%	0.90%	1.12%		0.90%	$30.05
	IMF (2020)	1.65%	0.39%	0.54%	0.93%	1.15%			
	World Bank (2019)	1.60%	0.38%	0.53%	0.91%	1.12%			
Rail, ports, airports	AfDB (2018)	0.88%	0.16%	0.11%	0.27%	0.62%		0.44%	$12.95
Roads	AfDB (2018)	0.66%	0.12%	0.08%	0.20%	0.46%		1.77%	$34.42
	IMF (2020)	4.53%	0.81%	0.55%	1.36%	3.17%			
	World Bank (2019)	4.20%	0.75%	0.51%	1.26%	2.94%			
ICT	AfDB (2018)	0.21%	0.09%	0.01%	0.10%	0.14%		0.12%	$3.53
Water and sanitation	AfDB (2018)	2.29%	1.55%		1.55%	1.60%		1.49%	$45.73
	IMF (2020)	2.24%	1.52%		1.52%	1.57%			
	World Bank (2019)	1.94%	1.32%		1.32%	1.36%			
Flood protection	World Bank (2019)	0.76%	0.44%		0.44%	0.53%		0.48%	$14.23
Public transportation	IFC (2018)						0.53%	0.57%	$16.74
	World Bank (2019)	0.92%	0.53%		0.53%	0.64%			
Waste collection and disposal	IFC (2018)						0.05%	0.05%	$1.34
Total								**5.34%**	**$156.93**

Annex C:
Questions for future research

Potential questions for future research in include the following:

- How much investment is needed for slum upgrading in Africa?
- What is the cost of investing in planned development now vs. upgrading unplanned development later?
- What is a reasonable bottom-up cost estimate for the investment needs of African cities (or perhaps specific city examples under different scenarios), including infrastructure sectors typically under the purview of subnational government?
- How much are African governments currently spending in urban areas (regionally or by looking at specific countries)?
- What indicators can be used to track the movement of countries along the trajectory of a virtuous or vicious cycle of urban investment, urban development and revenue generation?

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United Nations Human Settlements Programme (UN-Habitat)
P.O.Box 30030, 00100 Nairobi GPO KENYA
infohabitat@unhabitat.org