

# MANAGING MIGRATION AND URBAN EXPANSION IN SECONDARY CITIES: PLANNING FOR EQUITY AND GROWTH IN FUTURE CITIES



Schweizerische Eidgenossenschaft  
Confédération suisse  
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Swiss Agency for Development  
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**Cities Alliance**  
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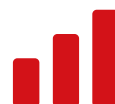


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# EXECUTIVE SUMMARY



**Sub-Saharan Africa is at the centre of global urban growth, with 34.7 per cent of the world's urban population growth from 2020 to 2050 expected to be in the region. Secondary cities are responsible for more than 50 per cent of this growth, which is taking place through both natural increase (57 per cent) and rural-urban migration (43 per cent).**

This shift in the population is leading to urban expansion that is fast and disorderly. Cities in sub-Saharan Africa more than doubled in area from 1990 to 2020, and they are forecast to increase as much as ninefold by 2050. Satellite evidence shows that 78 per cent of new urban residents from 1990 to 2015 were accommodated in new peripheral areas of expansion, of which 66 per cent were found to be unplanned or informal.

Urban planning can help cities in sub-Saharan Africa promote socio-economic inclusion of rural-urban migrants and new urban natives and also meet international commitments around migration. Unplanned and disorderly growth disadvantages migrants by cutting them off from urban services and many of the opportunities in the metropolitan labour market. Planned and orderly growth can do the opposite, physically linking new residents to the labour markets and services that will help them thrive. Migrants settle on the edges of cities in part because peripheral areas are more affordable, and

land is more abundant. The pragmatic decisions of migrants are rooted in their unique circumstances, and cities must plan for growth in order to avoid the emergence of permanent informal settlements.

Addressing this challenge takes planning techniques that focus on the urban periphery, where most new growth is occurring. Urban expansion planning is a tested approach for cities to prepare basic arterial infrastructure in peripheral areas, connecting expansion areas with the rest of the city and guiding development away from areas of high environmental risk. Acknowledging the reality of urban spatial expansion, urban expansion planning helps cities prepare land for 30 years of forecasted growth for settlement of new urban residents, including urban natives and rural-urban migrants.

Simple demographic forecasting and historical growth analysis can produce useful estimates of how much land a city will consume over the next 30 years. Implementation requires cities to secure corridors of land in the first five years to service this area. The corridors produce a grid of arterial roads spaced 1 km apart. This grid places all residents of the periphery within a 15-minute walk from a road that can carry trunk infrastructure and public transportation. Environmentally sensitive areas are also secured. Corridors of land are surveyed, marked, and protected from development by various means, ranging from easements to payments.

The approach can produce results on the ground. In Ethiopia, urban expansion planning from 2013 to 2016 led to the construction of over 570 km of arterial roads, creating space for at least 140,000 new residents and 26,000 jobs. It also reportedly reduced informality and squatting. Technical support in Ethiopia cost \$700,000 to support 18 cities for three years, with participating cities investing \$35 million from capital budgets over five years.

Local leaders and national policymakers appreciate urban expansion planning because it is pragmatic, evidence based, and locally led. Once city officials have been trained in the technique, the activities are within the capacity of most urban governments, including those with relatively few resources. Local leaders have shown that it is possible to embrace urban expansion planning, create buy-in from stakeholders, and demonstrate considerable creativity in solving implementation problems.





**IT IS IMPORTANT FOR CITIES TO INVEST IN URBAN EXPANSION PLANNING IN PART BECAUSE URBANISATION, DONE WELL, IS ASSOCIATED WITH HIGHER INCOMES, LONGER LIFE EXPECTANCY, AND BETTER HEALTH OUTCOMES DUE TO THE TREMENDOUS PRODUCTIVITY THAT RESULTS FROM THE COMPLEX WEB OF SOCIO-ECONOMIC RELATIONSHIPS IN CITIES. ACTIONS TO PLAN PERIPHERAL AREAS OF CITIES CAN BRING BROAD BENEFITS TO URBAN NATIVES AND RURAL-URBAN MIGRANTS BY ENCOURAGING ECONOMIC GROWTH.**

Urban economies in sub-Saharan Africa are primarily based on services and small and medium-sized enterprises, different from the export-led industrialisation that was seen in Asia, Europe, and North America. The service sector and SMEs benefit from strong intra-urban connections that expand the available customer base, permitting specialisation and adaptation. Urban expansion planning creates intra-urban linkages through the establishment of the arterial grid, which makes all parts of the urban periphery equally accessible.

Urban expansion planning is sensitive to the lifestyles of rural-urban migrants. These migrants maintain linkages with rural areas and may return to those areas many times for economic and social reasons. Successfully transitioning back and forth requires flexible housing options and easy access to urban labour and goods markets. Settled migrants and urban natives also benefit from opportunities to build wealth by establishing businesses and owning homes. Urban expansion planning makes land available for housing and businesses.

Evidence from case studies of successful cities highlights the major role of local political leaders in getting plans implemented on the ground. Local leaders took ownership of the urban expansion plans and were aided by higher levels of government in finding resources and overcoming obstacles. International partners introduced the idea and supported it with technical training and capacity building. Local staff mastered the technical aspects of plan-making and were available to support local leaders in consultations with higher levels of government and with local stakeholders.

This virtuous cycle of engagement reached its apex when cities linked their capital budgets to the urban expansion plans. Cities committed local resources for core activities such as plan drafting, surveying, paying compensation for land, and marking the grid. Plan implementation moved faster because of this investment. It also incentivised local teams to find and implement clever cost-saving mechanisms that are detailed in several case studies.

After acquiring some road corridors, cities started building basic road infrastructure. Funds for infrastructure construction also came from capital budgets, but urban development is very expensive compared to the cost of securing roads. Securing roads can be properly done at a loss to the municipality as part of the establishment of key public goods, but infrastructure costs have to be recovered if urban development is to be sustainable.







A major recommendation from international partners is to focus on capturing land value that is unlocked by urbanisation. Many strategies exist to do so, including raising land lease prices, charging property taxes, and levying improvement charges, among others. Some of these require institutional improvements, but others can be implemented immediately. Key to these strategies is ensuring that funds are reinvested in urban development and not siphoned off for other uses.

There is now strong evidence to show that rapid urban expansion in sub-Saharan Africa is driven by migrants, that this trend is beneficial, and that secondary cities have a major role to play as cities of welcome for these migrants. Further case studies underway in Ethiopia, Somalia, and Uganda highlight the potential for peer-to-peer learning and showcase the successful translation of the initiative from its initial context of Ethiopia to more countries in the region.

The main conclusion of this report is that the urban expansion planning methodology can support secondary cities in sub-Saharan Africa in managing rapid urban growth. This approach supports the inclusion of rural-urban migrants and has many positive effects for urban natives. Where implemented, urban expansion planning has been shown to promote orderly growth, a real departure from the status quo. With modest international support, it is within the capacity of even small and weak municipalities. This is a paradigm shift that is both necessary and sufficient to change the development trajectory of secondary cities in sub-Saharan Africa.

# INTRODUCTION: RAPID URBAN GROWTH DEMANDS A ROBUST RESPONSE



**Cities are key economic centres, hubs for innovation, and clusters of education, healthcare, culture, and government services. Since the industrial revolution, the share of humanity living in cities has ballooned, profoundly altering human habitats. Villages have grown into towns, towns have grown into cities, and some cities have grown into enormous, never-before-seen mega-urbanisations.**

From 2000 to 2020, the total urban population in less-developed countries grew by 1.39 billion people, an increase of 70 per cent, while their rural populations grew by 180 million, an increase of 6 per cent. Rural populations are now flat or shrinking, and the rural population growth rate is expected to be negative from 2020 onward. From 2015 to 2020, however, the urban population expanded at a rate of 1.9 per cent per year worldwide. The share of the population living in urban areas globally has risen from 29.6 per cent in 1950 to 56.2 per cent in 2020 and is now likely to increase to 68.4 per cent by 2050 (United Nations 2018).

This shift in population growth from the rural to the urban sphere is driven by migration (Keyfitz 2010), and not by natural increase alone. Cities grow in population through natural increase, meaning births to women already living in the city, through the migration of people from rural areas, or migration from other urban centres.

Urbanisation has helped increase human capital, driving unprecedented rises in life expectancy, new rights and opportunities for women and girls, better nutrition, lower birthrates, higher levels of learning, and greater material prosperity. Life in a city, however, requires different skill sets and abilities than life in a rural area. People born and raised in cities can acquire the necessary hard and soft skills as they grow up, but new rural-urban migrants require special consideration to succeed in these unfamiliar environments.

Rural-urban migrants often arrive in cities with connections to networks of family and associates, but with limited financial resources or identifiable job skills. Integrating these migrants into the urban labour market is critical to their long-term success, enabling them to participate in the economy and to benefit from the learning, matching, and sharing that cities can offer and, increasingly, helping them support rural family members as well.





**THE CHANGES THAT HAVE TAKEN PLACE IN THE SIZE AND DISTRIBUTION OF THE HUMAN POPULATION ARE VISIBLE IN SATELLITE IMAGERY, AS IS THE LACK OF GOVERNMENT ACTION TO PLAN AND PREPARE FOR THE RESULTING URBAN GROWTH.**

Successful integration of new residents is also crucial for the long-term success of cities. It creates larger and more functional metropolitan economies, reduces inequality, and decreases slum formation. But many cities, particularly secondary cities in developing countries, only offer attainable housing in poorly connected peripheral informal settlements that offer limited access to job centres and markets, broken and inadequate infrastructure, and shortages of public goods of all kinds. People who settle in these areas face far more obstacles than those who live in settlements with better access and services.

Addressing infrastructure and services backlogs in existing informal settlements is a multi-generational undertaking. Nonetheless, urban planning interventions made today can improve conditions in new and emerging neighbourhoods – those that will form in the coming years – by addressing access to both employment opportunities and markets, and by making housing and land more attainable. This can help cities better manage the joint challenges of rural-urban migration and rapid urban spatial expansion, benefiting migrants as well as urban natives and making cities more inclusive, productive, and sustainable.

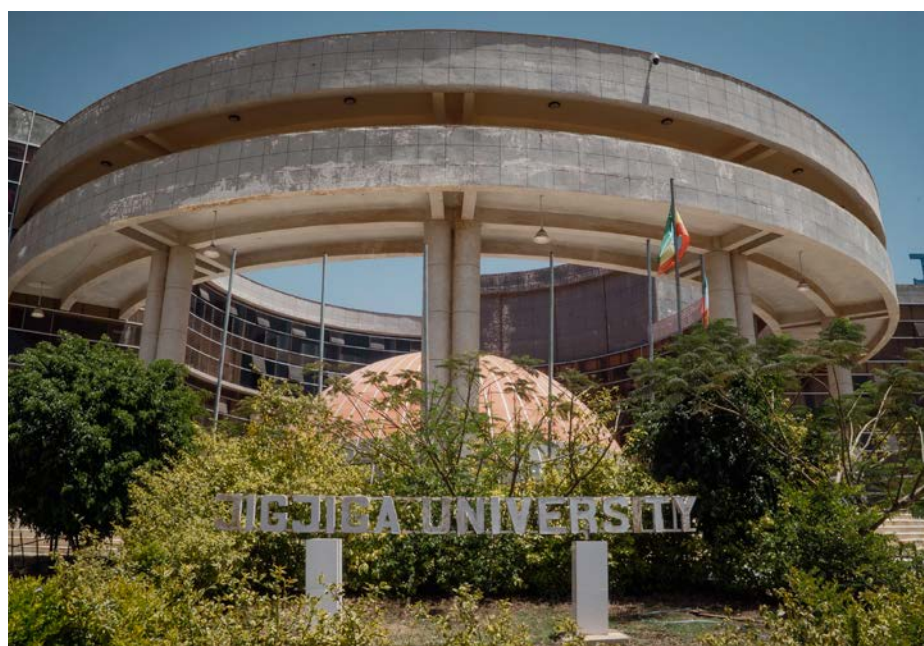
Population growth is always associated with growth in the physical area of human settlements because new residents require land for housing and services (Angel et al. 2016). Urban population growth between 2000 and 2015 has quadrupled the total built-up area of less-developed countries (Pesaresi et al. 2016). The most rapid growth is taking place in South and Central Asia and sub-Saharan Africa. Secondary cities in sub-Saharan Africa have doubled their populations, and the physical extents of secondary cities in that region grew even more rapidly than their populations, more than doubling over the same 15-year period (Angel et al. 2016).

The changes that have taken place in the size and distribution of the human population are visible in satellite imagery, as is the lack of government action to plan and prepare for the resulting urban growth. Much of what is being built lacks adequate infrastructure or is located in places at a high risk of natural disasters or environmental degradation (Friesen et al. 2019; Lamson-Hall et al. 2018). On the urban periphery, the share of new land prepared for settlement ahead of its occupation has actually declined over the last 15 years (Angel et al. 2016). Larger numbers of people are settling in unplanned areas; in Lusaka, Zambia, for example, the total population living in informal settlements increased from 553,000 in 2000 to 1,407,000 in 2020 (Chiwele et al. 2022).

Many governments seem reluctant to fully engage with this challenge. In part, this stems from a lack of clarity about the role of cities in national development and a desire to quickly improve conditions in rural areas and promote balanced territorial development. Considering the general lack of human and material resources in developing countries, and in secondary cities in particular, policymakers may also feel pressure to respond to more immediate needs. Fear of urban sprawl and concerns about urban infrastructure costs can also slow efforts to guide public investment towards the urban periphery. Empirical evidence clearly shows, however, that neglecting to plan for urban growth does not prevent it from occurring, and a growing body of research indicates that proactive measures to prepare for urban expansion can reduce infrastructure costs and increase land value.

**THIS FLAGSHIP PUBLICATION EXPLORES ONE PARTICULAR APPROACH THAT CITIES CAN TAKE TO PREPARE PERIPHERAL AREAS FOR URBAN EXPANSION. THE APPROACH, CALLED URBAN EXPANSION PLANNING, OFFERS SPECIFIC TECHNIQUES FOR SECONDARY CITIES WITH LIMITED FINANCIAL AND HUMAN RESOURCES TO PLAN AND PREPARE THE BASIC INFRASTRUCTURE THAT IS NEEDED FOR ORDERLY SETTLEMENT. A COMPANION DOCUMENT EXPLORES THE ROLE OF URBAN EXPANSION PLANNING IN HELPING SECONDARY CITIES ADDRESS THE THREAT OF CLIMATE CHANGE (LAMSON-HALL AND ANGEL 2022).**

Urban expansion planning is also a key tool for governments to implement international agreements such as the Marrakech Global Compact for Safe, Orderly and Regular Migration (2018), which recognises migration as primarily a local and urban phenomenon and calls for mayors to create conditions that are more inclusive for migrants, including promoting self-sufficiency and access to services. Such actions can also advance goals 5, 15, 16, and 19 of the Global Compact for Safe, Orderly and Regular Migration (2018), which call for countries to facilitate regular migration, provide basic services, and create opportunities for migrants to contribute to sustainable development. The strategies to achieve these goals align with Sustainable Development Goals (SDGs) 6, 8, 9, 11 and 13, covering access to clean water and sanitation; decent work and economic growth; industry, innovation and infrastructure; sustainable communities and cities; and climate action (UN General Assembly 2015). It specifically addresses Goal 11, which seeks to make cities and human settlements inclusive, safe, resilient and sustainable, touching on all aspects of the New Urban Agenda (NUA) and specifically supporting targets relating to affordable housing, inclusive urbanisation, access to green and public open spaces, and provision of affordable transit systems (The NUA 2016).



# URBAN EXPANSION PLANNING BASICS



**Urban expansion planning proactively addresses many of the challenges that affect rapidly growing cities by laying out an arterial road network in the urban periphery before development gets there. The arterial network consists of a grid of road corridors, spaced 1 km apart, wide enough to connect new areas across the city via public transportation, drainage, water, pedestrians, cyclists, and private vehicles. The arterial grid ties the urban fabric together, linking different neighbourhoods and letting workers seek jobs at any firm in the city, entrepreneurs sell goods and services across the whole urban area, and firms reach all of their workers, suppliers, and customers.**

Construction of an arterial grid network is only possible on the urban periphery, in areas that have not yet been settled. If it is not properly connected, the urban periphery can be far from the urban core and travel times to jobs and services long. The arterial road routes establish a framework that can give these areas spatial accessibility and connectivity, an approach which has succeeded in many global cities (Gerritse and Arribas-Bel 2018), promoting inclusion, equity, and also sustainability by granting physical access to the metropolitan labour market.

The urban periphery is also where many new migrants find homes (Caldeira 2017; Mabin et al. 2013). Ensuring that the urban periphery is well connected can help migrants and other residents successfully utilise urban areas to advance their personal and familial goals, which may differ from those of urban-urban migrants or people who are born in the city. Many migrants move back and forth between rural areas and cities based on the availability

of work, but they often have family members in rural areas, and it is unclear whether they intend to settle permanently in cities. This reluctance to fully embrace urban living may result from the lack of regular employment, decent housing, and basic services in many of the cities that are now rapidly growing. Migration can also be understood as a family decision, where access to cities provides a form of insurance against crop failures or other rural disruptions. Especially in cities without abundant formal employment, migrants may build their livelihoods out of circular migration – acting as labour brokers, traveling home for harvests, and bringing goods from rural areas to sell in the cities and vice versa.

This view is different from the conventional idea of migrants leaving rural areas and permanently settling in cities, and it requires a more flexible and inclusive approach to urban development, particularly in the case of housing. For example, a low-income housing scheme that forbid sub-leasing might address a housing deficit, but such schemes often fail to provide good access to the labour market or allow people to easily come and go. Informal housing often gives the flexibility that migrants require, but without the enabling framework that can come with the arterial grid, it can carry many downsides, including high prices, scarcity of land, and the connectivity issues previously discussed.

Cities can also use an arterial grid to create a stable supply of well-connected land on the urban periphery, leading to a more flexible, accommodating land market with reduced odds of ending up in unhealthy and disconnected slums. For urban natives and migrants with more resources, this creates opportunities to purchase and own land in the city, whether for a home or an expanding business. In both cases, it means better access and greater ability to pursue their goals.





**EVIDENCE FROM A GLOBAL ANALYSIS OF THE QUALITY OF URBAN GROWTH FROM 1990 TO 2015 FOUND THAT AS MUCH AS TWO-THIRDS OF THE NEW RESIDENTIAL DEVELOPMENT IN CITIES IS UNPLANNED AND DISORDERLY, WITHOUT ARTERIAL ROADS OR ORDERLY STREET LAYOUTS (ANGEL ET AL. 2016).**



For cities to succeed in supporting migrants, their leaders must be clear-eyed about the dynamics of the growth that is occurring. Empirical data shows that city leaders and national governments lack the ability to control how urban population growth will happen. Especially at the national level, urbanisation is a trend that inevitably means the populations and areas of cities will grow. From this well-supported premise, urban expansion planning contends that the best way to create productive, orderly and inclusive cities in the context of rapid urban population growth is by making room for new urban residents at the correct scale, in areas where migrants are likely to settle.

Urban expansion planning is focused on ensuring the supply of two main public goods: planning and securing the rights-of-way for the network of arterial roads that can carry infrastructure and public transportation and identifying and preserving environmentally sensitive open spaces. Many urban governments, even in developing countries, already engage in versions of these activities at a smaller scale. To create an orderly, long-term framework for growth, these efforts must be scaled up in a systematic and empirical way, and securing land for public needs must be completed before land is fully built-up.

Evidence for the general feasibility of the approach mainly comes from Ethiopia, where it was implemented under a 2013 programme called the Ethiopia Urban Expansion Initiative, and from current efforts in Uganda. The Ethiopia Urban Expansion Initiative trained 18 cities in the urban expansion planning process (Lamson-Hall 2018)<sup>1</sup>. It delivered a strong return on a relatively small investment of \$700,000 in technical support and training. Participating cities invested approximately \$35 million in World Bank infrastructure funds to construct or secure over 570 km of arterial roads in their expansion areas, creating space for at least 140,000 new residents and 26,000 jobs. This investment consumed 20 to 50 per cent of the capital budgets of the cities over five years – a considerable investment, but within their means for a project with such ample benefits (FDRE 2017).

<sup>1</sup> Supported by the Cities Alliance.

Urban expansion planning addresses a major need (Rakodi 2001). Evidence from a global analysis of the quality of urban growth from 1990 to 2015 found that as much as two-thirds of the new residential development in cities is unplanned and disorderly, without arterial roads or orderly street layouts (Angel et al. 2016). These dysfunctional patterns of growth, visible through satellite imagery, provide strong evidence of the major gaps in urban planning techniques (Watson 2002), urban planning theory and practice (de Satgé and Watson 2018; Hall 2014), and implementation frameworks (Berrisford 2014), observations which are anecdotally apparent and have also been discussed in the academic literature.

Urban expansion plans focus mainly on the peripheral areas of cities that will be built in the next 30 years. Estimates of peripheral growth are produced using empirical evidence that provides realistic estimates of future growth and establishes a strong case for urgent action. These estimates are not diluted by the inclusion of other data. The methodology is

simple, and the plans are created entirely by local officials. The same people charged with preparing the plans are the ones charged with implementing them, so much of the work is focused on identifying and addressing obstacles to implementation. Planning teams work to link the urban expansion plan with ongoing infrastructure investments, creating a hierarchy of plans in which the expansion plan guides other planning exercises. The planning process also explicitly includes national government and regional representatives, who are physically present and engaged as plans are being drawn. The plans benefit from considerable political commitment as a result. This has helped with getting resources for implementation, and implementation should always be considered the measure of success.

This report includes case study cities that showcase the challenges of urban expansion planning and highlight how selected cities overcame those challenges. The case studies are drawn from Ethiopia and Uganda. Those studies and new research produced for the report were developed as part of

an urban expansion initiative of the Cities Alliance Cities and Migration Programme, which supports nine secondary cities in Ethiopia, Uganda and Somalia (Table 1).

The present work programme expands on an earlier joint initiative of the Cities Alliance and New York University, which from 2013 to 2016 supported urban expansion planning in a core group of four regional capitals in Ethiopia and subsequently expanded to 18 rapidly growing secondary cities in that country. This pioneering effort helped many secondary cities prepare for urbanisation and led to much of the evidence integrated into this report. The current urban expansion planning initiative was launched at the World Urban Forum in February 2020. It adopts a new peer-learning approach that promotes regional collaboration on urban expansion planning. The initiative aims to generate new knowledge that will enable urban expansion planning to spread to more cities in sub-Saharan Africa, creating cities that can better accommodate rural-urban migrants as well as urban natives.

**TABLE 1**

Nine secondary cities preparing for urban expansion with support from the Cities and Migration Programme.

City Name	Country	Population 2019	Urban Extent (hectares) 2019	Population Growth Rate % 2000-2019	Urban Extent Growth Rate % 2000-2019
Arua	Uganda	174,628	3,553	6.9	5.7
Jinja	Uganda	182,455	4,945	7.2	7.6
Mbale	Uganda	171,746	3,652	4.8	5.8
Gulu	Uganda	198,062	4,177	5.7	5.5
Dire Dawa	Ethiopia	182,455	4,946	7.1	7.6
Adama	Ethiopia	171,746	3,652	4.2	5.8
Jigjiga	Ethiopia	198,062	4,178	5.5	5.5
Gabiley (observer)	Somalia	30,734	490	2.2	5.4
Borama (observer)	Somalia	174,628	3,554	6.2	5.7

Cities in the initiative are representative of secondary cities throughout Africa, with an average population growth rate of 5.2 per cent per year according to national authorities, and an average rate of increase in their urban areas of 6.1 per cent per year, based on satellite imagery analysis conducted by the authors. At this rate, their urban areas will on average double in the next 12 years.

The report introduces the core techniques of urban expansion planning as applied in rapidly growing secondary cities in sub-Saharan Africa. Although urban expansion planning is also practiced in Latin America, cities in sub-Saharan Africa are expanding much more rapidly in population and countries are urbanising at a higher rate, in part due to much greater migration from rural areas to cities. New data quantifies the scope of this rural-urban migration and explores the role of secondary cities in welcoming these new migrants.

The report builds on recent research on the relative roles of densification and expansion to highlight the extent of peripheral growth. Novel analysis is then used to establish the economic and social benefits of these trends. The growth rate in secondary cities is considered, as well as the share of new areas that are unplanned. The urban expansion planning methodology is introduced in detail, first through a summary of the action steps and then via a series of case studies that bring new information and data from field studies. The report concludes by discussing the key elements that make urban planning successful in sub-Saharan Africa and exploring new ideas for financing and supporting urban expansion initiatives.





# SUB-SAHARAN AFRICA IS AT THE CENTRE OF GLOBAL URBAN POPULATION GROWTH



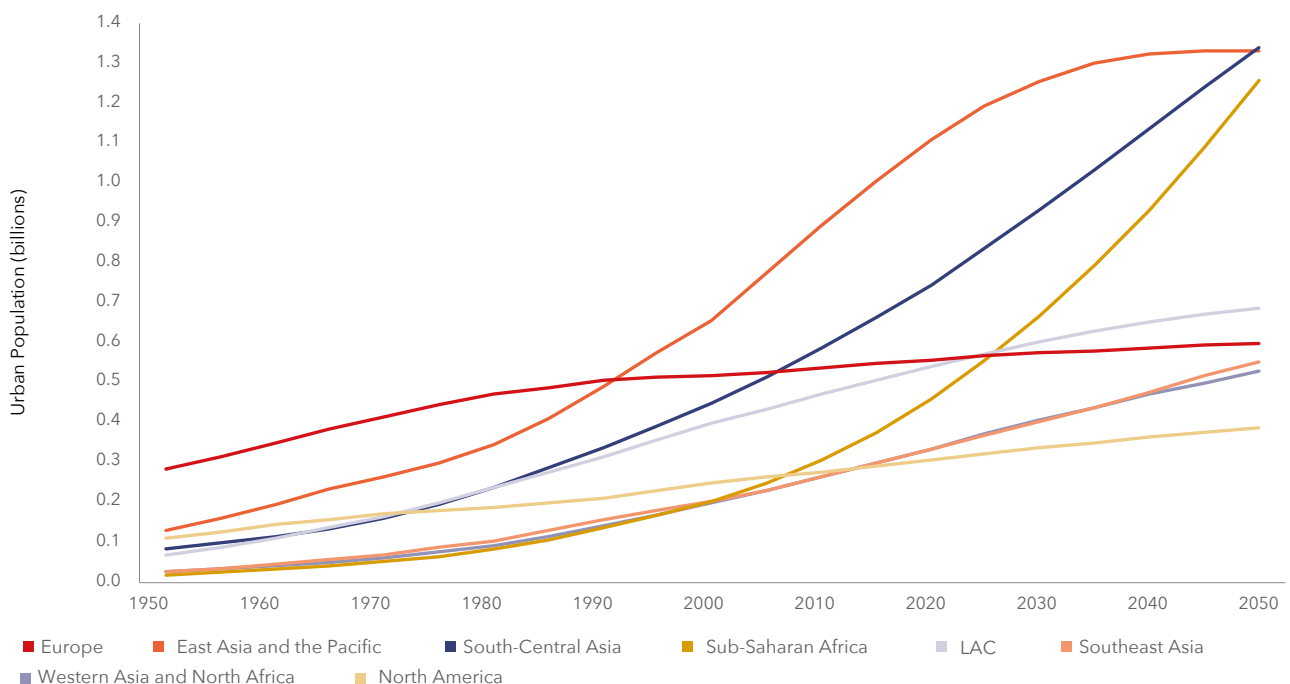
With most of the world's urban population living in East Asia and the Pacific, South-Central Asia, Europe, and Latin America, it is worth considering why the current initiative is heavily focused on cities in sub-Saharan Africa, by far the least urbanised region on earth. This region is at the epicentre of global urban growth, with a regional urbanisation rate that is much higher than the global average rate or the rates of other regions. The urbanisation rate in sub-Saharan Africa will increase from 41.4 per cent in 2020 to 58.1 per cent in 2050 (United Nations 2018). This trend is expected to

continue for the foreseeable future, while urban population growth and urbanisation in other regions - with the exception of South-Central Asia - tapers off (Figure 1).

More than one-third of the added population to urban areas in the next 30 years will be added in sub-Saharan Africa, and cities in that region are growing faster than cities in the rest of the world. By 2050, sub-Saharan Africa will have transitioned from being the region with the least share of the global urban population to being one of the three regions with the largest share of the global urban population. Even by 2050, sub-Saharan Africa will still be one of the least urbanised regions and will still be urbanising rapidly (Figure 2) (United Nations 2018).

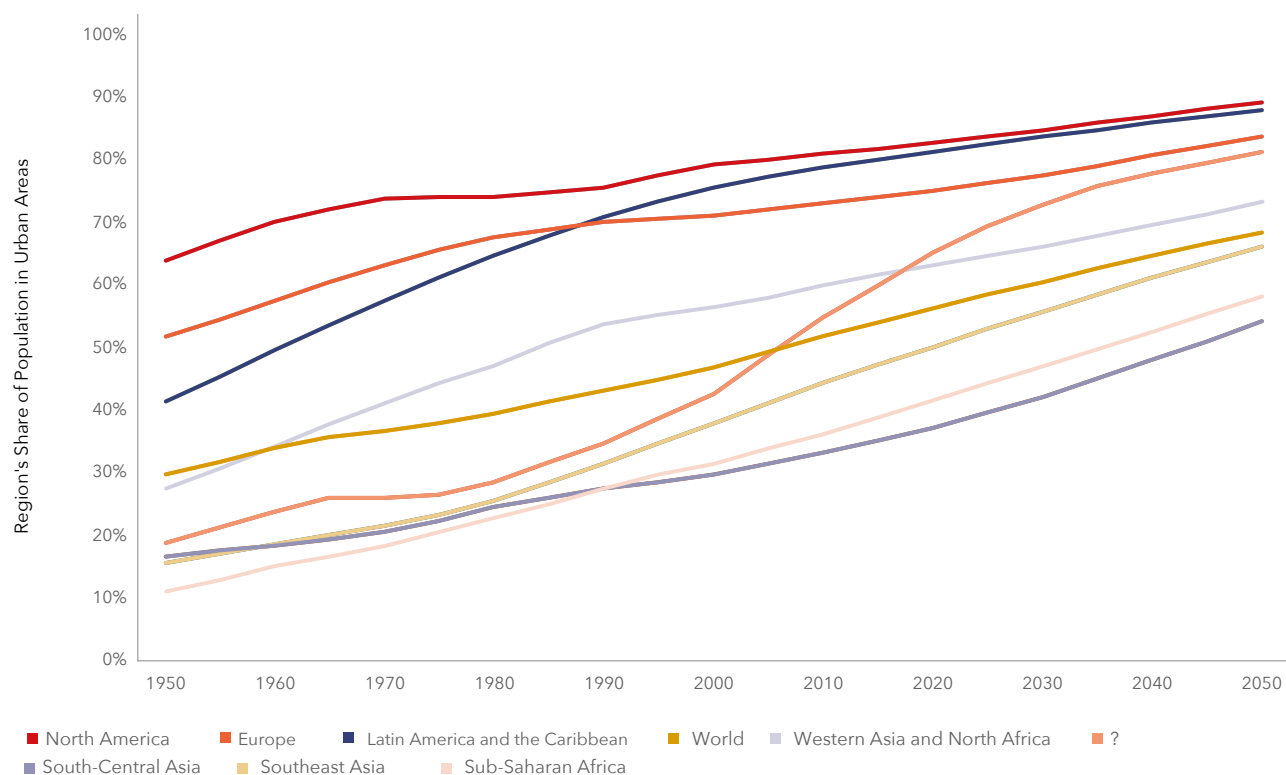
**FIGURE 1**

The growth of the urban population in world regions, 1950-2050. Sub-Saharan Africa, which had the lowest level of urban population in 1950, will be the third largest, and still fastest growing, by 2050 (United Nations 2018).



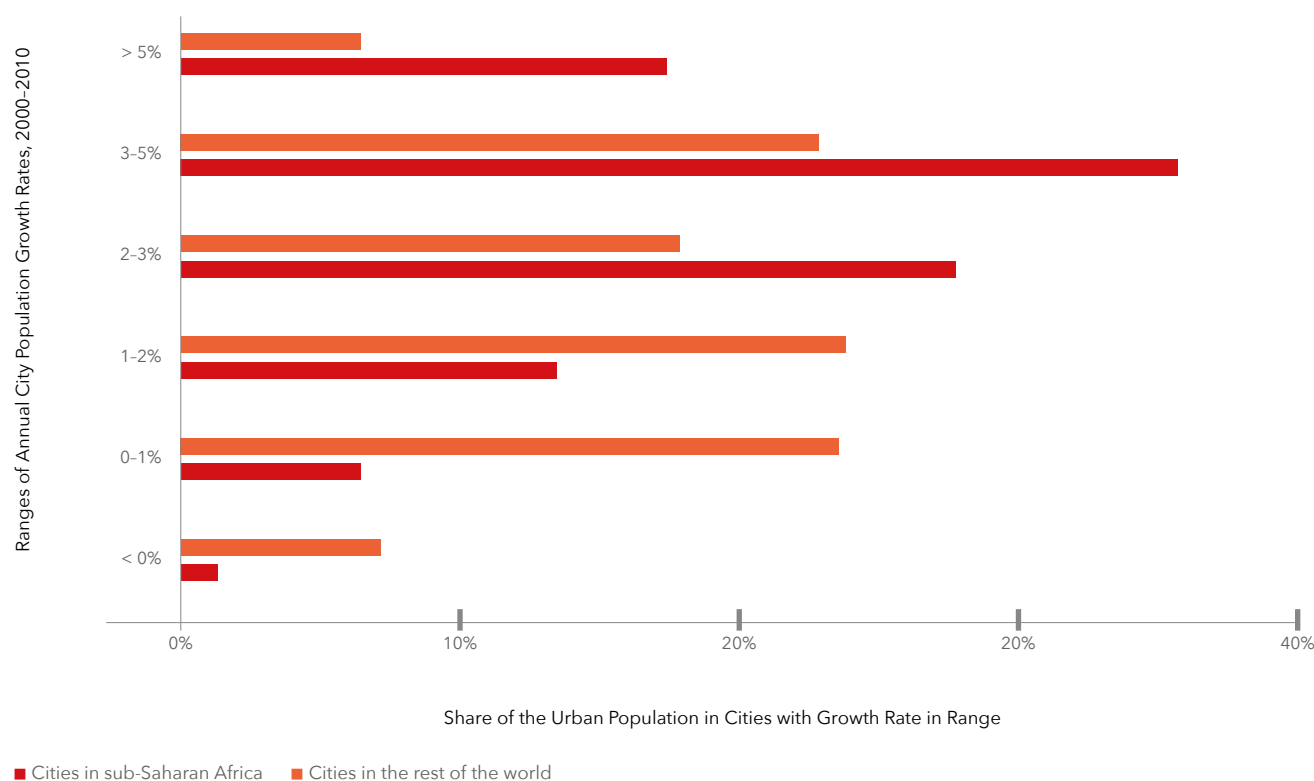
**FIGURE 2**

The increase in the level of urbanisation (share of the country population in cities) in world regions, 1950–2050. By 2050, sub-Saharan Africa will still be one of the two least urbanised world regions, still in the midst of its urbanisation process (United Nations 2018).



**FIGURE 3**

Share of the urban population in cities having different rates of growth. This figure demonstrates that cities in sub-Saharan Africa are growing faster than cities in the rest of the world (United Nations 2018).



A useful new way of framing this is to note that for every one person added to the urban population in Europe and North America, 18 persons will be added to the urban population in the remaining regions. Sub-Saharan Africa will be responsible for 34.7 per cent of total global urban growth and 53.6 per cent of total global population growth between 2020 and 2050. The next closest region in terms of growth will be South-Central Asia (which includes India, Pakistan and Bangladesh) with 24.8 per cent of total global urban growth and 23.6 per cent of total global population growth. Europe and North America will accommodate only 6 per cent of the urban population growth from 2020 to 2050 (United Nations 2018). Urbanisation is now a developing country phenomenon, disproportionately concentrated in South-Central Asia and sub-Saharan Africa, and cities in sub-Saharan Africa are growing faster than cities in the rest of the world (Figure 3).

Figure 4 shows the distribution of global urban growth from 1950 to 2050. In South-Central Asia, 80 per cent of the total urban growth from 2020 to 2050 will be concentrated

in just two countries – India (66 per cent) and Pakistan (14 per cent). Sub-Saharan Africa, in contrast, consists of 51 nations, with urbanisation and population growth dispersed among them. The two regional outliers in terms of total projected urban growth from 2020 to 2050 are Nigeria (22.5 per cent) and the Democratic Republic of Congo (10.6 per cent). The remaining two-thirds of growth is distributed across 49 nations in the region (United Nations 2018).

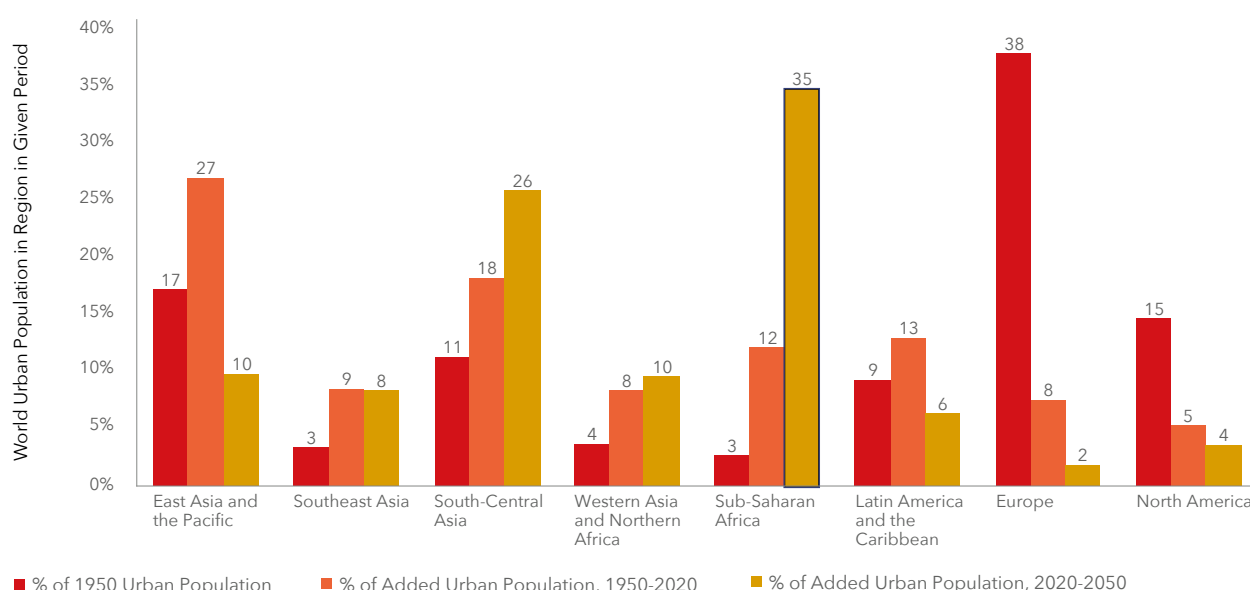
Sub-Saharan Africa includes many nations with challenging political and economic landscapes that are already making it difficult to finance and execute investments in urbanisation (Collier and Venables 2016; Rakodi 1997), as well as diverse and complicated histories of resisting urbanisation in favour of rural development. Migration and mobility continue to attract much interest, but also growing concern. The 2013 World Population Policies report states that “among 185 countries with available data in 2013, 80 per cent of governments had policies to lower rural-to-urban migration, an increase from 38 per cent in 1996” (United Nations 2013).

The data presented in this section highlights the magnitude of the growth cities are facing and makes it clear that policies to prevent migration are not preventing urbanisation from occurring. Instead of such policies, rapid population growth demands major initiatives to disseminate simple, robust urban planning and urban management practices at the regional level and support scalable and locally tailored projects to implement those practices at the level of individual cities within countries.

Urban expansion planning is a key response to this rapid urban population growth, but it is often opposed on the grounds that it may encourage urban sprawl by facilitating settlement outside the urban centre. Cities (including those in sub-Saharan Africa) are encouraged to pursue densification as a more sustainable strategy. The next section explores how the size and density of cities change as their populations grow, questioning the suitability of densification strategies for cities that are seeking to accommodate migrants.

**FIGURE 4**

The share of the urban population in world regions in 1950, the share of the increase from 1950–2020, and the share of the projected increase 2020–2050. Sub-Saharan Africa is expected to absorb 35 per cent of the population added to cities during the 2020–2050 period (United Nations 2018).





# CITIES ARE MAINLY GROWING THROUGH EXPANSION

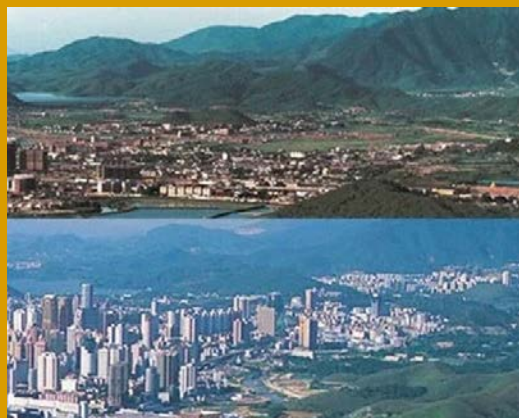


As cities grow in population, new urban residents can seek housing within the existing urban footprint (densification), or they can seek housing in new areas, expanding the city footprint (expansion) (Figure 5). These two types of urban growth are often framed as opposites, but they almost always happen simultaneously and in a complementary manner (Angel and Lamson-Hall 2020a). Understanding the relationship between them can help prioritise efforts to plan and prepare for rapid population growth.

From 1990 to 2015, 77 per cent of global urban population growth was accommodated through expansion, and 23 per cent through densification (Angel and Lamson-Hall 2020a). These values do not differ significantly between less developed and more developed countries.

**FIGURE 5**

Shenzhen, China in 1982 (top) and 2007 (bottom). The city has grown through densification and also through expansion.  
Credit: Over Hong Kong (2007), Kaysan Bartlett.





# DENSIFICATION

Densification happens when the population living in a given area increases. New residents can be accommodated through *infill*, which is the construction of new structures or the expansion of existing structures in empty lots and open spaces within the existing footprint of the city, or other increases in the total amount of floorspace by adding floors. They can also be accommodated through *crowding*, which is an increase in the number of people occupying existing floorspace, with no change in the quantity of floorspace available (Angel and Lamson-Hall 2020b).

Imagine a family that is already living in the city in a small house surrounded by a garden. The family has a new baby, and the baby shares a room with its two brothers. With the birth of the new baby, the population of the city increased by one person, but the area has stayed the same, so the density has increased. The mechanism of the increase is to raise the level of *crowding*, because no new floorspace has been added – the baby shares a room with its brothers.

The same family has three cousins from the countryside who move to the city and build a shed in the garden where they sleep and keep their things. The population of the city is now three persons higher, and the area of the city has stayed the same, so the density has also increased. The mechanism of the

increase is *infill* because the new people are living in new floorspace on land within the city footprint that was previously open space.

One of the sons marries. A new room is built atop the existing house, increasing the total residential floorspace in the city and reducing the level of *crowding*, but maintaining the same built-up area at the ground level. When that family has a baby, the total density in the city will increase, but the crowding will still be lower than it was before the second room was built. The mechanism of the increase in density will be *infill* because the new person is living in new floorspace on land within the city that was already built-up.

The addition of new buildings or the expansion of existing buildings



within the existing urban footprint is sometimes done by ordinary residents on their own plots as in the example above. This is true of “backyarders” in South Africa, for instance, where recipients of government-subsidised housing often build a backyard house that they then rent out in the informal rental market. This is the fastest-growing type of housing in South Africa, promotes densification through infill, and is illegal (Brueckner et al. 2019).

The illegal occupation of vacant parcels of land (most commonly government land) is another occasional method of infill. This activity consists of the physical occupation of the land through the construction of a simple building. The presence of one or two structures on a vacant parcel often leads to the formation of a slum or squatter settlement, as other landless and houseless people occupy the space (Figure 6) (Muriuki et al. 2011).

For the poor, most of the cost of housing is driven by the cost of land. Because the residents do not have to pay for squatted land, the cost of creating their homes is very low. When the parcel is fully built, however, the rental price for space within the settlement converges with prices in the surrounding area and can be even higher on a square metre basis simply because the illegal nature of the settlement allows for greater flexibility in the types of rentals that are offered. Squatter settlements within the city can offer a much better location than similar settlements that may be built on the urban periphery, making them valuable for people who are working or trying to access government services (Figure 7) (Bertaud 2018).

Infill development can also be done on a larger scale by the government through the recycling of inner-city lands. This was widely seen in the United States in the 1940s–60s as urban renewal

projects saw the demolition of older neighbourhoods and their replacement with high-rise tower blocks (Collins and Shester 2013). The same physical phenomenon is underway in Ethiopia, with inner city neighbourhoods being demolished in a wholesale fashion and replaced with government-subsidised high-rise tower blocks (Figure 8) (Kloosterboer 2019).

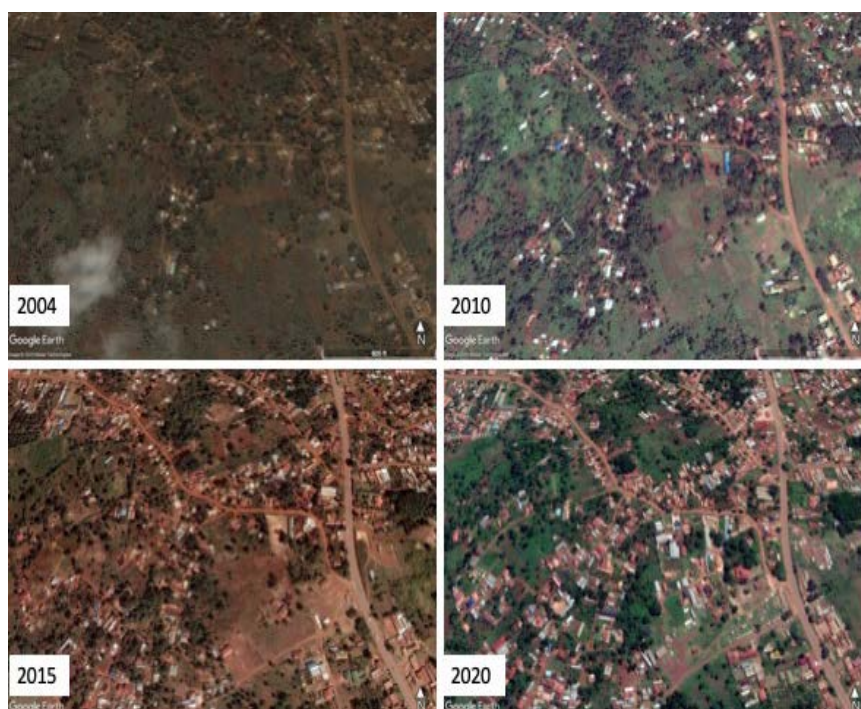
Infill projects can be created through real estate developers who purchase existing buildings or vacant lots and construct new buildings with more units, more floors, or both. These units are then listed for sale or rent (McConnell and Wiley 2010).

**IRONICALLY, THESE PROJECTS SOMETIMES WIND UP REDUCING THE POPULATION DENSITY OF THE NEIGHBOURHOODS IN WHICH THEY ARE PLACED. ALTHOUGH THE HIGH-RISE BUILDINGS THEMSELVES ARE ABLE TO HOUSE A LOT OF PEOPLE, THE PROJECTS CAN INCLUDE EXTENSIVE AMOUNTS OF OPEN SPACE BETWEEN THE BUILDINGS AND ARE OFTEN REPLACING HOUSING WHICH WAS EXTREMELY CROWDED AND THEREFORE EXTREMELY DENSE. THE NET EFFECT CAN LOWER THE NUMBER OF PEOPLE LIVING IN A NEIGHBOURHOOD, REDUCING THE DENSITY AND ALSO THE CITY'S ABILITY TO ACCOMMODATE NEW URBAN RESIDENTS WITHIN ITS EXISTING FOOTPRINT (TALEN 2014).**

**FIGURE 6**

The evolution of an informal settlement in Jinja, Uganda shows the way in which a nucleus of informal settlement can expand over a relatively short period of time.

Source: Google. (n.d.)





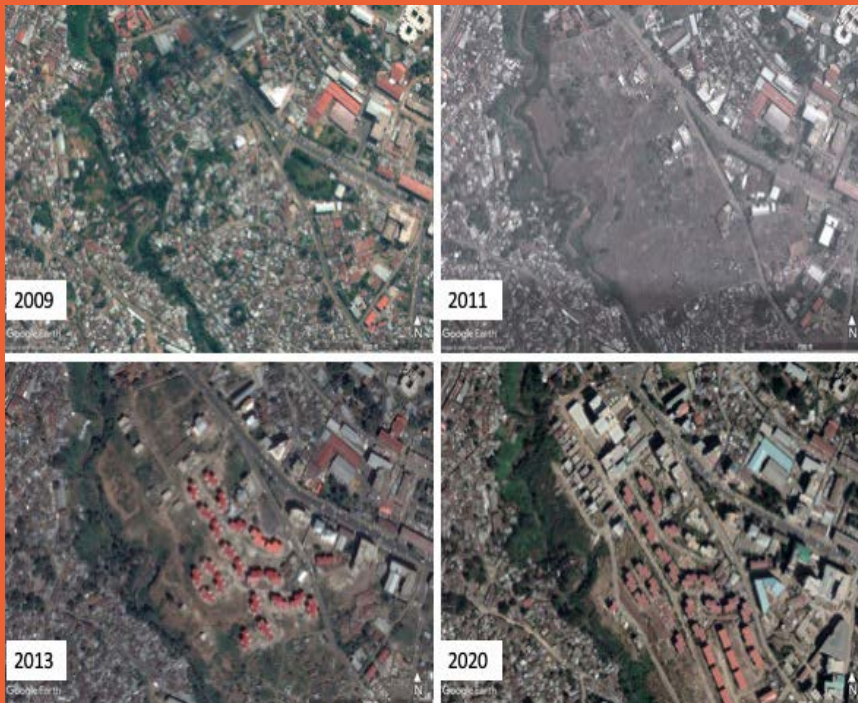
**FIGURE 7**

Korail Basti in Dhaka, Bangladesh is located near the centre of the city, giving poor residents much better access to jobs than if they had settled in similarly priced formal housing on the urban periphery. Source: Google. (n.d.)



**FIGURE 8**

Replacement of dense kebele housing with condominium housing, 450m from the Piazza neighbourhood of Addis Ababa, Ethiopia. Source: Google. (n.d.)



# EXPANSION

Space to settle within the existing city is limited, and when urban populations are growing rapidly, land in the existing area can become inaccessible to most residents. Expansion complements densification by creating new lands for settlement on the urban edge. These lands can be developed through land subdivision (legal or illegal) or squatting and can be used to make room for new residents, including rural-urban migrants; de-densification of congested centres; or the expansion of businesses that require additional space.

The main patterns of development are extension and leapfrog. Expansion through extension is contiguous with the existing area of the city, growing the urban footprint. Expansion through leapfrog developments introduces open spaces between the urban footprint and the new settlement area, making them discontinuous with the existing urban footprint (Figure 9) (Sharma and Joshi 2013). Leapfrog development is often filled in over time.

It sometimes happens that when a city is surrounded by unused land, people who need a place to build a home may enter that land and erect simple structures. This occurs more often on government land, but it does sometimes also occur on abandoned private land (Brueckner and Selod 2009). However, truly

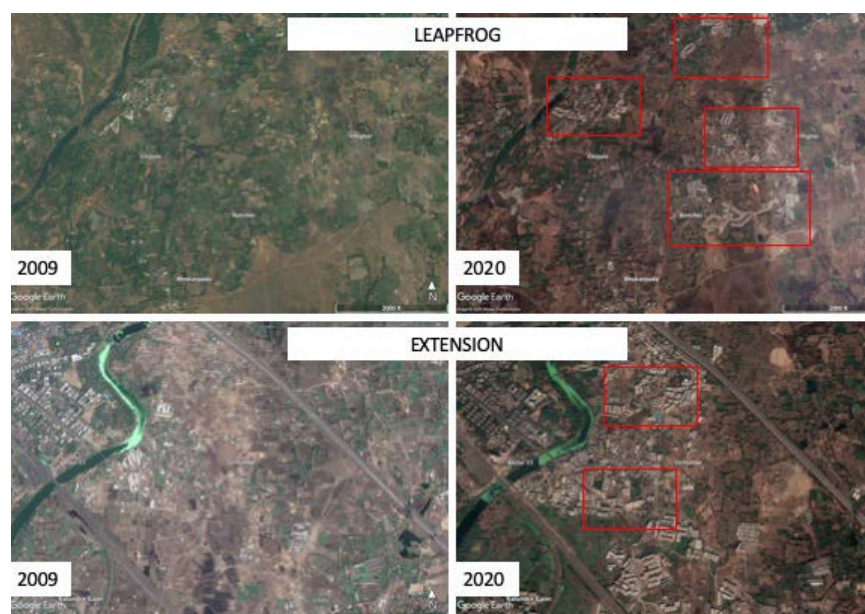
disorganised and atomistic squatting appears to be fairly rare (ibid). A more common phenomenon is *informal land subdivision*, in which the illegal occupation of land is handled by professionals who organise the land for settlement and eventually collect rents or sell parcels or homes in the informal market (Rakodi and Leduka 2004). These two types of development – squatting and land subdivision – are quite different in practice but are often conflated, as in the notable claim by UN-Habitat that one billion people live in slums (Quigley 2009).

Subdivision (legal or illegal), the most common method of expansion, involves creating a plan and parcel scheme (a system of plots) for a piece of land that was not previously in urban use. A land developer either purchases or already has the rights to a piece of land on the urban periphery. They then lay out a network of roads that will provide access to all of the developable areas of the piece of land. The remaining land is considered 'salable,' and this land is subdivided into plots that can be sold, leased or rented. In some cases, the developer himself will build the houses, and in other cases they simply provide the land. Depending on the nature of the development (legal, illegal, wealthy, low-cost, etc.), the developer may also bring infrastructure such as water lines, electricity, and sewerage to each individual plot and include green spaces or other non-salable areas that can be used for public buildings such as schools (Rakodi and Leduka 2004).

In illegal land subdivisions, land may be occupied by professional squatters who enter a piece of land that is abandoned or owned by the government. These professional squatters are organised by illegal land developers, and their main job is to establish a claim on the land so that the subdivision process can move forward. They typically do this by laying out roads and plots, and by erecting simple structures. The specific mechanism used by

**FIGURE 9**

Leapfrog development (top) occurs at a slight distance from the urban edge of Mumbai, India. Extension (bottom) is continuous with the urban edge of Mumbai. Source: Google. (n.d.)







**IN ILLEGAL LAND SUBDIVISIONS, LAND MAY BE OCCUPIED BY PROFESSIONAL SQUATTERS WHO ENTER A PIECE OF LAND THAT IS ABANDONED OR OWNED BY THE GOVERNMENT. THESE PROFESSIONAL SQUATTERS ARE ORGANISED BY ILLEGAL LAND DEVELOPERS, AND THEIR MAIN JOB IS TO ESTABLISH A CLAIM ON THE LAND SO THAT THE SUBDIVISION PROCESS CAN MOVE FORWARD.**

squatters will vary depending on the legal systems and norms that govern squatting in that particular location – broadly, they will do whatever is minimally necessary to establish a claim on the land that is sufficiently strong to prevent them from being kicked off. Once this claim is established, the land is made available for sale or rent (Oloyede et al. 2007).

Another very common permutation of illegal land subdivision is when the original owners (often farmers, but sometimes tribal owners) illegally subdivide their land, converting it

from rural to urban use and, not coincidentally, converting themselves into landlords (Figure 10). This is the main method of land delivery in Ethiopia and in many other countries, and it is more common in places without an organised real estate sector or access to finance for development (Kaganova and Zenebe 2014). Because the owners rarely have a background in surveying or land subdivision, the resulting road and plot patterns may be less orderly than when professional developers (legal or illegal) undertake this task (ibid).

**FIGURE 10**

Informal land subdivision in 2020 on the urban peripheries of Dire Dawa, Adama, Jigjiga, Ethiopia, and Gulu, Uganda. Source: Google. (n.d.)





# EFFORTS TO CONTAIN URBAN EXPANSION

**Cities are rapidly expanding in area, and urban expansion accommodates the vast majority of population growth the world over. Despite this, many governments have attempted to contain the growth of cities in the name of sustainability, fiscal responsibility, or both. The net effect of these practices is harmful to new urban residents, who often end up settling in unplanned areas due to a lack of other options, and to the city itself due to underservicing, congestion, and overcrowding.**

The relative importance of expansion to the accommodation of new urban residents is easily explained by the fact that it is easier and cheaper than densification. Because of that, it is much more suitable for many groups of people who are seeking housing, including urban natives who are young and trying to establish households, or new migrants who either have limited resources or are not totally invested in the city. It can also be much easier for people trying to expand businesses, for example.

Expansion is easier because it takes place on vacant land, typically farmland or pasture. Because of this, the land can be organised to accommodate urban residents

without any of the disruptions that come from increased crowding or the replacement or expansion of buildings that densification might require. This also means that it can be done more quickly than densification, because it requires less coordination and fewer safeguards. This also allows it to be done in a more decentralised manner, whereas major densification projects often require some form of intervention by the government. In theory, therefore, expansion is a more elastic mechanism for increasing the supply of land and housing.

Expansion is also generally cheaper than densification (McConnell and Wiley 2010). This is partly due to the fact that some infill projects require purchase and destruction of existing buildings, but it is mainly due to the low value of peripheral land. The bid-rent theory of urban economics supports the idea that land becomes less expensive as you move away from the centre of the city, something that can easily be verified with empirical data. Land is almost always less costly at the urban edge than it is at the centre (Alonso 1960; Ng and Lo 2015). Because of this, infill parcels, especially cleared infill parcels that are ready for building, are almost always more expensive per square metre than cleared land at the urban edge. Expansion is also supportive of lower cost incremental development and housing without finance, a topic explored in Box 1.



## BOX 1 CAN HIGH BUILDINGS SOLVE THE CHALLENGE OF URBAN GROWTH?

The intensity and magnitude of urban expansion has prompted many urbanists to call for geometric solutions to problems that are social and economic, such as housing development. First and most popular is the call for the use of tall buildings to densify urban footprints, as an alternative to allowing expansion on the urban periphery.

The logic is simple. People who are migrating to cities require floorspace in which to live. This floorspace can be provided horizontally, through expansion, or vertically, through an increase in the heights of buildings. Greenbelts and urban growth boundaries can be used to restrict the supply of land and increase its cost, incentivising vertical development. In places where the underlying cost of land still does not support vertical construction (the cost of land has to exceed the cost of construction for a given area before it makes sense to build up), regulations and subsidies can force the change.

This approach has been tried in many places around the world and has never succeeded in preventing urban expansion. Leaving aside businesses (which may require different types of spaces), the share of the total population that can be accommodated in tall buildings is limited by five factors:

### 1. SUITABILITY:

Low-income residents often have animals, gardens, or operate businesses out of their dwellings; may have changing household compositions; and generally benefit from dwellings that can be expanded or changed as needed. The fixed nature of most units in tall buildings (many failed architectural experiments have attempted to address this) inherently limits their usefulness for low-income households.

### 2. DEMAND

Demand for high-rise units is partly limited by the first consideration – suitability – but it is mainly limited by their price relative to the income of residents. Construction costs for multi-story condominium housing under the Integrated Housing Development Programme (IHDP) in Ethiopia, which took a very low-cost approach and enjoyed the support of international development partners, was by 2010 able to produce 80,000 units for a construction cost of \$573 million, or around \$7,162 per unit. This did not include the price of land or supporting infrastructure. Per capita GDP in Ethiopia was \$341 in 2010. Assuming two working adults per household and one-third of household income going to housing, the average Ethiopian family would have to work for almost 32 years in order to afford one of these units. The solution would seem to be financing (of course, this still requires the financial institutions or public sector of the country to be able to bear the up-front cash cost of construction, but that is a separate issue). But at current levels of savings (estimated at 22.2 per cent by World

Bank 2020) and assuming a 20 per cent down payment, it would still take the average household almost ten years to save a down payment, and this is assuming that they only used their savings for that. Over this ten-year period in which the average household is saving a down payment, millions of Ethiopians, some of them much poorer, will move to cities and require housing immediately. Even with highly favourable conditions, low-cost construction techniques, free land, and free infrastructure, housing in tall buildings is simply too expensive and too slow to be enjoyed by most citizens in a developing country on a timeline that would prevent horizontal expansion.

### 3. LOCATION

Cities always have some vacant land within their current boundary, and some of this can be used for tall buildings. However, the best locations within a city are usually already occupied. To increase the heights of buildings in these places, it is possible to demolish existing buildings and build higher, but it can be more pragmatic to simply allow the addition of floors onto existing buildings. This is often seen in informal settlements and is a key densification measure. However, as with demolition and replacement of existing buildings, it can be both risky and expensive, producing floorspace that is unaffordable to low-income residents.

### 4. PUBLIC FUNDS

Because most new urban residents will not be able to afford apartments in tall buildings, using them to accommodate urban growth requires some kind of public subsidy for those residents. These funds are limited, and the impact of spending to subsidise high-rise building construction can resonate in other sectors such as health and education. In developing countries that are facing high rates of urbanisation, the cost of providing subsidised housing to the entire population that will require it is truly prohibitive.

### 5. SPEED

Considering the magnitude of the urbanisation that is taking place, cities would need to plan sufficient space in tall buildings to accommodate a three- or fourfold increase in total population over a relatively short period of time. This amounts to replacing all of the residential stock of the city with buildings that are three to four times higher or replacing a smaller percentage of the residential stock with buildings that are higher still, in addition to making necessary infrastructure upgrades. Urban redevelopment of this nature takes time, and it would be almost impossible to accomplish quickly in the contexts in which rapid urbanisation is taking place.





Urban expansion can best be supported by recognising the need for some combination of allowing infill in existing areas (permitting taller buildings as one of the mechanisms) and permitting self-housing and real estate development through urban expansion on the urban periphery. There are no examples of cities that have scaled up tall building construction and densification enough to prevent urban expansion.

Rising incomes also provide a portion of the explanation for urban expansion. Based on the available data measuring city growth from 1990 to 2015, a doubling of a city's population is associated with an 80 per cent increase in its area, and a doubling of a city's GDP is associated with a 55 per cent increase in its area. In the time it took to double the urban populations in sub-Saharan Africa, incomes rose enough that the area of cities in the region actually tripled. Globally, more than 80 per cent of the variation in the urban footprint of cities can be explained by their population and income alone. (Angel et al. 2016).



Roughly two-thirds of cities in sub-Saharan Africa have populations that are “rapidly growing,” or growing at three per cent or more per year. Projections from the UN Population Division predict that the populations of rapidly growing cities in sub-Saharan Africa will approximately quadruple by 2050 (United Nations 2018). If the same pattern of urban expansion holds, the areas of such rapidly growing cities would increase an average of ninefold by 2050. A ninefold increase in the urban area in 30 years may sound fantastical, but it is not unprecedented. From 1990 to 2015, about one-eighth of cities expanded in area more than eightfold, for example (Figure 11).

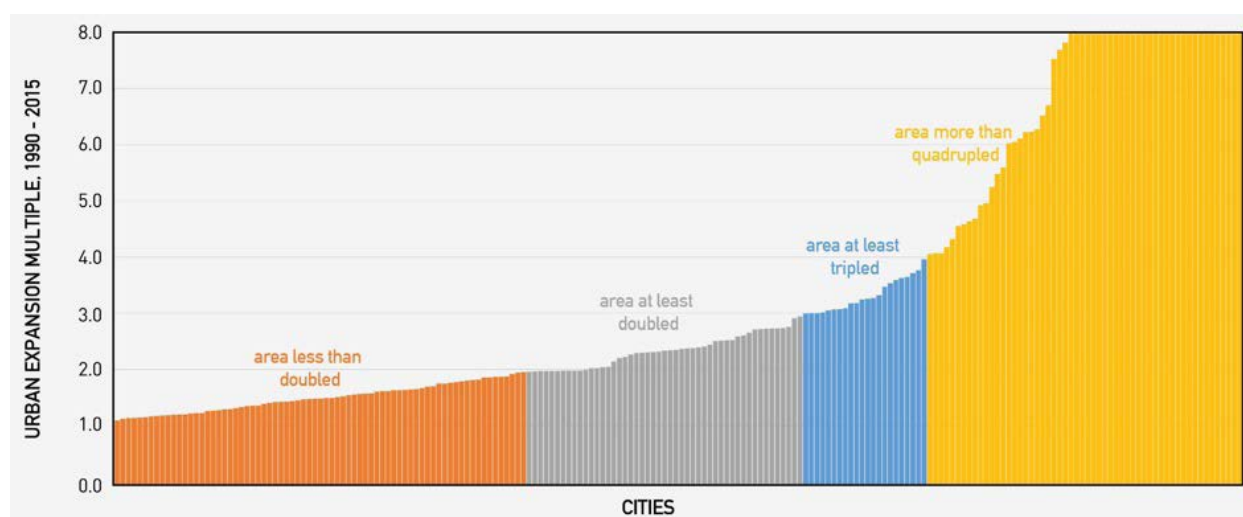
Data on the relative share of rural-urban migrants accommodated through densification or expansion is not available, but an estimate is possible. The subsequent section estimates that 43 per cent of new urban residents are rural-to-urban migrants. Even assuming that all of the infill in cities was due to migration and natural increase was entirely accommodated on the periphery, infill would still only have been able to accommodate slightly more than 50 per cent of all migrants. If rural-urban migration were blocked entirely and cities only had natural increase to contend with, then infill would still only have been able to accommodate roughly 40 per cent of all population growth. In one global sample that looked at the growth of 200 cities from 1990 to 2010, not a single city was found to have reduced in area, and all cities, including

those that lost some population, were found to have expanded in area as residents sought locations for new homes and places of business (Angel and Lamson-Hall 2020b).

The data makes it clear that urban expansion is essentially inevitable. Urban expansion can also be considered a pro-poor approach to accommodating urban growth when compared to densification. It is cheaper for individuals and governments. It can be done without access to housing finance, and land costs are also lower. It is simpler and easier, making it less disruptive for existing residents, and better able to quickly scale up in the face of changes in demand. It is also realistic, in the sense that it is already occurring. Preparing land for urban expansion should be seen as a core strategy to prepare cities for both rural-urban migration and natural increase.

**FIGURE 11**

Each bar represents one city in a representative set of 200 global cities. The increase in area of that city from 1990 to 2015 is shown on the y-axis. Redrawn from Angel et al. 2016.



# RURAL-URBAN MIGRATION IS THE DRIVER OF URBANISATION IN SUB-SAHARAN AFRICA



National censuses often neglect to ask questions about migration, and when migration has been included (as was the case in Ghana in 2006 for example), the geographical component that would allow demographers to identify whether a person was born in a rural or an urban area was often missing (De Brauw et al. 2014). Migration to cities in sub-Saharan Africa is clearly occurring, but the magnitude of rural-urban migration will impact estimates of future urban growth, and migrants have different needs than people born in cities. Because of the lack of primary source data, the share of urban population growth that is due to migration must be modeled.

Tacoli, McGranahan, and Satterthwaite (2015) estimate the share of urban population growth due to rural-urban migration by assuming that the population growth rate in rural and urban areas is equal to the country's population growth rate. They then observe that the rate

of growth of the urban population is the sum of the urbanisation rate (the rate of increase in the urban population as a share of the total population) and the national population growth rate. From this they conclude that the share of rural-urban migration in the urban population growth rate is simply the urbanisation rate. For example, between 2010 and 2020, the annual urban population growth rate in sub-Saharan Africa was four per cent. The urbanisation rate during this period was 1.3 per cent. Using this methodology, rural-urban migration contributed 32.5 per cent (1.3/4) to urban population growth during this period. By this estimate, one out of three people added to cities in the region was a migrant from the rural areas.

This methodology can be improved upon by incorporating the well-established fact that fertility rates are lower in urban areas than they are in rural areas. A recent study by Lerch (2019) assembles data from multiple sources and provides information showing that the difference in fertility in rural and urban areas varies from a minimum of 0.8 children per woman and a maximum of 1.7 per woman, with an average of 1.25 additional children per woman in rural areas.

The fertility rate is closely related to the population growth rate. We can investigate this relationship in more detail by looking at World Bank data on fertility rates and annual population growth rates for all countries, which is available for all years from 1961 to 2018. We chose data for all countries for seven time periods: 1961, 1970, 1980, 1990, 2000, 2010, and 2018. The relationship between the fertility rate and the annual population growth rate is shown in Figure 12.

Figure 12 tells us that one additional birth per woman is associated with an increase of 0.46 per cent in the population growth rate. If we assume that there is a difference in the fertility rate between rural and urban areas of 1.25 births per woman, then we can assume an average difference between the natural population growth rates in rural and urban areas of 0.58 per cent ( $0.46 \times 1.25$ ). This allows us to calculate the share of urban population growth due to rural-urban migration, assuming unequal fertility rates between rural and urban areas.<sup>2</sup>

<sup>2</sup> The calculation requires some explanation. The natural rural population growth rate equals the natural urban population growth rate + 0.58%. The number of people migrating out of the rural areas must equal the number of people added to the urban areas in a given period. We know the total populations in urban and rural areas at the end of the period. These conditions are sufficient to calculate the share of migrants in the urban population at the end of the period.



**FIGURE 12**

The population growth rate (y-axis) as a function of the fertility rates in all countries, 1961–2018. Source: World Bank (2020)





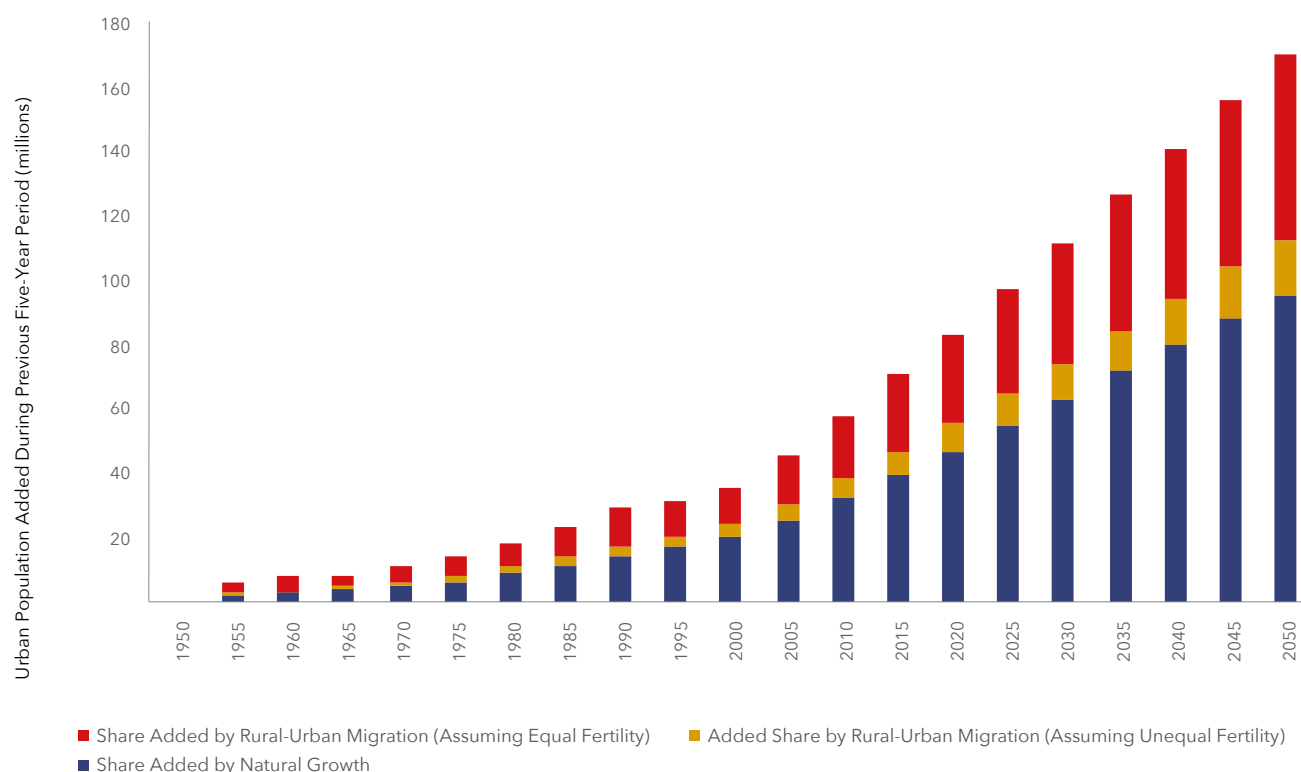
Figure 13 shows that, if we assume unequal fertility, then the share of rural-urban migration in the growth of the urban population in sub-Saharan Africa will average 43 per cent between 2020 and 2050. The figure illustrates the shares of natural growth in each five-year increase in the urban population of sub-Saharan Africa between 1950 and 2050, the share of rural-urban migration assuming equal fertility – this is the share obtained by Tacoli et al. (2015) – and the added share of rural-urban migration assuming unequal fertility. More than two out of five people added to cities in the region during the coming three decades will be migrants from rural areas.

Because of this migration from rural areas to cities, rural areas within countries are now by and large growing more slowly in population than the national average, and urban areas are now growing more rapidly than the national average. With 43 per cent of urban growth attributable to rural-urban migration, the majority of growth in urban population is due to urban natural increase. Any solution proposed to address rapid urbanisation should consider both the needs of urban natives and the needs of migrants (See Box 2).

**THE SPECIFIC GEOGRAPHIC DISTRIBUTION OF THIS POPULATION GROWTH AMONG CITIES OF DIFFERENT SIZES IS ALSO IMPORTANT TO CONSIDER BECAUSE IT WILL IMPACT THE CHARACTER AND QUANTITY OF THE SUPPORT THAT CITIES IN SUB-SAHARAN AFRICA WILL NEED IN ORDER TO MANAGE THIS RAPID URBANISATION. IT WILL ALSO IMPACT THE SCOPE AND TARGETING OF URBAN EXPANSION PLANS.**

**FIGURE 13**

Five-year increments of the increase of the urban population in sub-Saharan Africa, showing the share of the increase in population attributed to natural growth, to rural-urban migration assuming equal fertility, and to rural-urban migration assuming unequal fertility.





## BOX 2 DYNAMICS OF MIGRATION

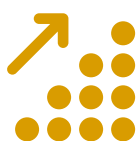
This report concerns itself with the phenomenon of urbanisation in secondary cities in sub-Saharan Africa. The movement of people from rural areas to cities, rural-urban migration, is the main driver of urbanisation in that region and in the world in general. Internal migration has other dynamics beyond rural-urban, including rural-rural and urban-urban migration. These can all be observed, and many people make several moves.

A useful exploration of migration can be found in *Migrants, Markets and Mayors: Rising Above the Employment Challenge in Africa's Secondary Cities* (Christiaensen and Lozano Gracia, 2021):

**"A common lay understanding of a migrant is a person who moves away from his or her place of usual residence,** whether within a country or across an international border, temporarily or permanently, and this can be for a variety of reasons. This is the broad umbrella notion of migration advanced by the International Organization for Migration. The smaller the area considered as area of residence, the quicker one is classified as a migrant when one moves and the larger the share of migrants in the overall population. Similarly, the longer one is considered a migrant after moving into an area, the more migrants there will be. This is important to bear in mind when comparing migration rates across countries.

**Migrants differ by duration and origin.** Those having moved to a district/zone during the past 0-3 years are considered short-term migrants; those having moved 3-10 years ago are considered long-term migrants. All others are considered urban natives. Migrants who move to an urban area from a rural area are further distinguished from those who move from other urban areas. Rural migrants are often first-time migrants, and thus less familiar with the more monetary, anonymous nature of urban interactions. They may also have different motivations for migrating, different skill sets, and different labour market experience than migrants from other urban centres. As a result, rural-urban and urban-urban migrants may fare quite differently within the urban labour market."

# SECONDARY CITIES ARE ADDING MORE POPULATION THAN PRIMATE CITIES



Cities in sub-Saharan Africa are exhibiting growth rates that far exceed their national growth rates. The largest cities within a country are often assumed to be growing more rapidly than smaller cities and tend to attract the most resources and attention, national and international. At the same time, there have been a number of pronouncements stating that the majority of urbanisation in sub-Saharan Africa is taking place in secondary cities, and that those cities are growing more rapidly than others (Zimmer et al. 2020). Current datasets indicate that secondary cities are responsible for more than 50 per cent of the growth in total urban population in sub-Saharan Africa.

Public data from World Urbanization Prospects (United Nations 2018) is available for cities with a population of 300,000 people or more. A companion universe of 4,231 cities with populations of 100,000 people or more was compiled for the *Atlas of Urban Expansion, 2016 Edition* by including additional data from the Chinese Academy of Sciences (Blei et al. 2018). This dataset does not include information from the 2020 round of censuses, but it was rigorously validated for the 2010 set and provides grist for an indicative analysis.

Within this set of cities, there were 461 cities in sub-Saharan Africa with 100,000 people or more in 2010. Forty-seven of these cities, 10 per cent of the total, had populations of one million or more. These primate cities are found to have absorbed 46 per cent of the urban population growth. As of 2010, primate cities contained 45.2 per cent of the total urban population that was found in sub-Saharan African cities of 100,000 people or more.

The actual growth rate of secondary cities is difficult to measure. First, there is no universally accepted definition of what constitutes a secondary city. Definitions vary from country to country and from report to report, and many cities in sub-Saharan Africa may not be included in a database that only contains cities with more than 100,000 people, as urbanisation levels are still quite low in the region. Because of the stated constraints in the data, all non-primite cities with populations of 100,000 people or more will be referred to as secondary cities in this report. For more information on possible definitions of a secondary city, refer to Box 3.

Based on this definition, secondary cities contained 54.8 per cent of the total urban population in sub-Saharan Africa in 2010. These secondary cities absorbed 54 per cent of the urban population growth between 1990 and 2010. The inclusion of additional secondary cities with populations of less than 100,000 would undoubtedly increase the share attributable to secondary cities.





### BOX 3 WHAT IS A SECONDARY CITY?

There are a range of cities of different sizes around the world, and there are exponentially more smaller cities than larger ones. All countries have one primate city, which is simply the largest city in the country (occasionally a country has two primate cities, for instance Quito and Guayaquil, Ecuador). The primacy of this city is measured as the share of the total urban population that resides in the city. It can also be measured by comparing the primate city to the next largest city in the country. For instance, New York is the primate city in the United States, but it only contains four per cent of the urban population and is slightly more than twice as populous as Los Angeles. London, in contrast, contains 20 per cent of the total urban population of the United Kingdom and is five times as large as the next most populous city, Manchester.

Countries in sub-Saharan Africa tend to have a higher degree of primacy than most other countries, in part due to the colonial legacy that neglected the development of secondary cities and concentrated business and administrative resources in the primate city, which also tended to have links to the home country. This legacy was

reinforced in many countries after independence, with the primate city growing precipitously due to rural-urban migration.

The issue of how to define secondary cities is in some ways a very simple one from the standpoint of urban expansion planning in sub-Saharan Africa. In urban expansion initiatives, a secondary city is simply any city that is not the primary city in the country and has a population of 100,000 people or more (borrowing from Rondinelli 1983). The statistics produced in this paper regarding secondary cities use that definition.

This definition is scientifically problematic because it is not generalisable – for example, in China a secondary city might have two million people, and a place of 100,000 is barely considered a town – but it is pragmatic. Primate cities are usually highly politicised and already tend to receive a lot of attention and resources, making them difficult to work in. Secondary cities are much easier to work in politically and logistically and also receive far less support. As compared to tertiary cities (those smaller than 100,000 and larger than a village), secondary cities usually have a more developed administrative structure and greater access to resources, increasing the odds that the programme will actually be implemented on the ground. In a different context, such as South and

Central Asia, these would be the main considerations when trying to identify secondary cities for the purposes of urban expansion planning.

Outside of urban expansion, secondary cities can be defined either by population, function, or relationship to other urban areas. This question was addressed in great detail in a 2014 Cities Alliance CIVIS report (Roberts and Hohmann 2014), arriving at the following definition:

“A secondary city is largely determined by population, size, function, and economic status. Commonly, secondary cities are geographically defined urban jurisdictions or centres performing vital governance, logistical, and production functions at a sub-national or sub-metropolitan region level within a system of cities in a country. In some cases, their role and functions may expand to a geographic region or the global realm. The population of secondary cities ranges between 10–50 per cent of a country’s largest city, although some can be smaller than this. They will likely constitute a sub-national or sub-metropolitan second-tier level of government, acting as centres for public administration and provision of education, knowledge, health, community, and security services; an industrial centre or development growth pole; a new national capital; or a large city consisting of a cluster of smaller cities in a large metropolitan region.”

Analysis of the average annual rate of population growth of African cities as a whole in sub-Saharan Africa suggests that there is no statistical difference in the growth rate among cities of different population sizes (Figure 14).

This conclusion, which may seem counterintuitive, was reached by introducing a new and important analytic modification to normalise the growth rates of individual cities, net of their national growth rates. Without this normalisation, which involved subtracting average national growth rates from the individual city values, random variations in the national growth rates (to which overall city growth rates are closely linked) would distort the comparison across borders.

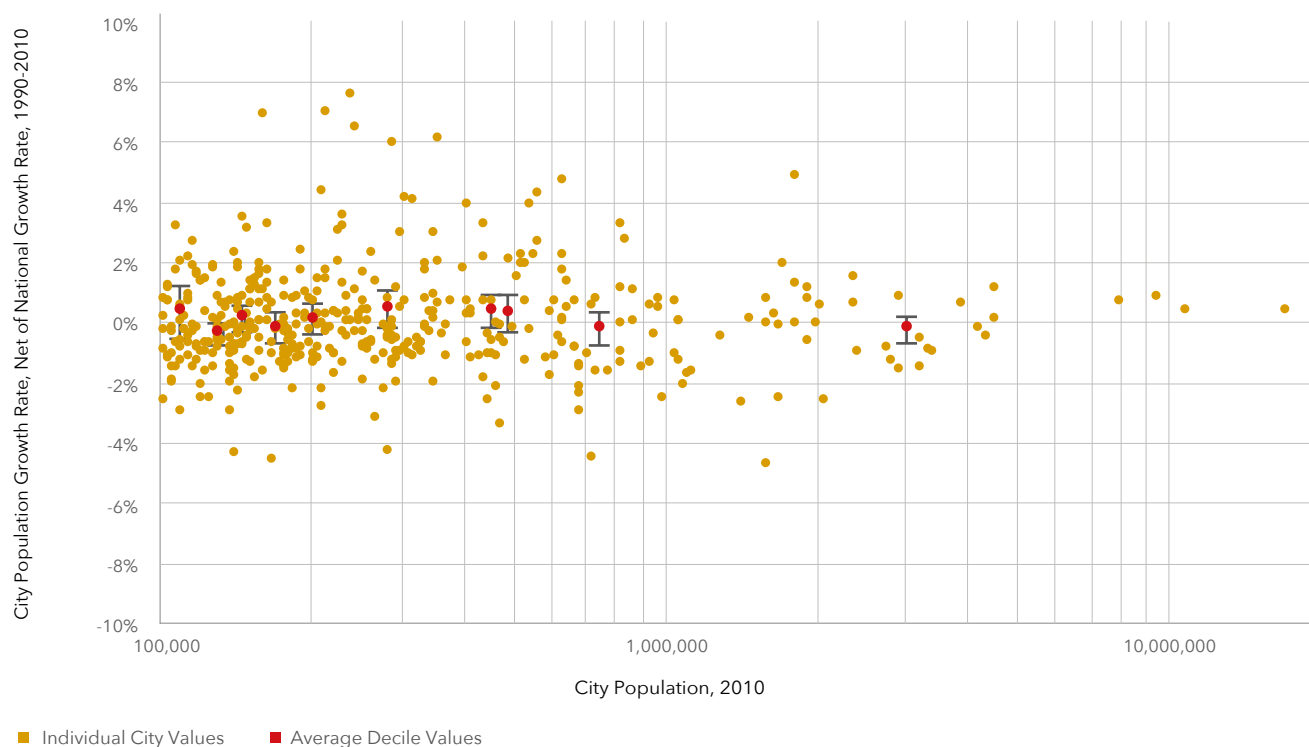
In Figure 14, normalised individual city growth rates from 1990 to 2010 are shown as orange dots. All cities are ranked by their 2010 population, from largest to smallest, and divided into ten deciles, with an equal number of cities in each decile. The average normalised growth rate was calculated for each decile (shown as a larger red dot) as well as its 95 per cent confidence interval. These average values have overlapping confidence intervals and cannot be said to be statistically

different from one another. Therefore, it is not accurate to claim that larger, medium-sized, or smaller cities are growing at a faster rate than cities in other population size ranges once the data has been corrected to account for national growth rates.

Secondary cities are growing at an average rate of 3.4 per cent per year (calculated from United Nations 2018). Forty-seven per cent of these cities are growing at greater than 3.4 per cent per year, with an average growth rate of 5.2 per cent. At this growth rate, the urban population would double in the next 15 years and quadruple in the next 30 years. On average from 1990 to 2015, a doubling of urban population in cities translated into a tripling of the urban area (Angel et al. 2016). In other words, for slightly less than half of secondary cities in sub-Saharan Africa, their physical areas could increase threefold in the next 15 years, and then threefold again in the subsequent 15-years, accounting for the projected ninefold increase by 2050. This magnitude of growth is visible in Accra, Ghana, for example, which increased its population threefold and area 6.5-fold from 1991 to 2014 (Figure 15).

**FIGURE 14**

Average annual city population growth rate, net of the national growth rate, between 1990 and 2010 as a function of city population size in 2010 for all cities with 100,000 people or more in 2010 in sub-Saharan Africa (United Nations 2018).





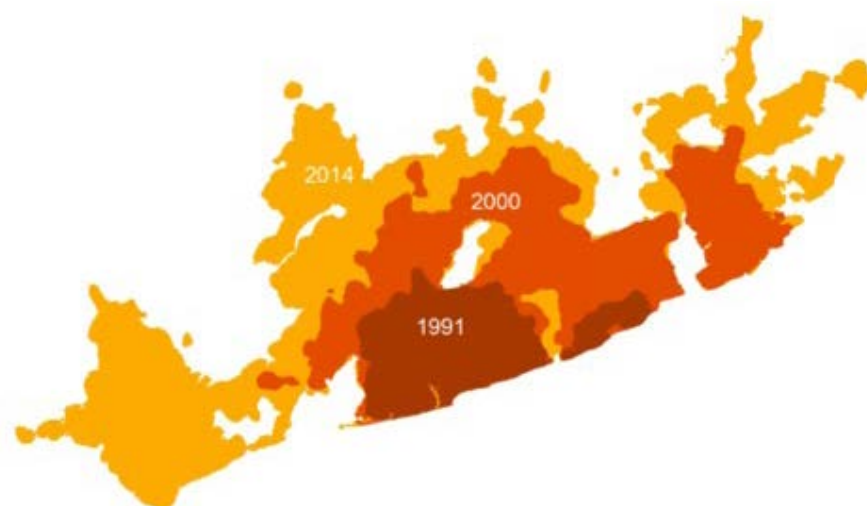
**SECONDARY CITIES ARE GROWING AT AN AVERAGE RATE OF 3.4 PER CENT PER YEAR (CALCULATED FROM UNITED NATIONS 2018). FORTY-SEVEN PER CENT OF THESE CITIES ARE GROWING AT GREATER THAN 3.4 PER CENT PER YEAR, WITH AN AVERAGE GROWTH RATE OF 5.2 PER CENT.**

Available data does not allow us to measure whether smaller cities have a greater or lesser share of migration than larger cities. An assumption of 'no difference' in rate would mean that they absorb a larger absolute number of migrants than primate cities, in line with their greater absolute growth. It may also be the case that a greater share of growth in secondary cities is due to rural-to-urban migration, whereas growth in primate cities includes a higher share of urban-urban migrants moving from smaller cities to larger ones.

Secondary cities are responsible for a slightly greater absolute amount of the total urban population growth than primate cities. Small and medium-sized cities are also more multitudinous and require special attention because of their small size and large number. Even if the secondary cities are only growing at average rates that are similar to those of primate cities, then the need for broad programmes of support becomes more apparent and the challenge of distributed spatial development becomes more obvious.

**FIGURE 15**

Rapid growth in Accra, Ghana, from 1991 to 2014 (Provided by authors).





# SECONDARY CITIES ARE CITIES OF ARRIVAL

**Secondary cities are increasingly vital links in the urban system, helping to “bridge the gap between the major urban centres and the rural hinterlands” (Rondinelli 1983). In many African countries, a new system of secondary cities is being developed through the expansion of pre-existing settlements due to natural increase and rural-urban migration. Secondary cities are cities of arrival, but population growth creates an enormous demand for these cities to provide basic services and facilities, and to articulate, diffuse, and integrate systems that can help “stimulate equitable... development” (ibid).**

Rural-urban migrants choose primate cities and secondary cities in more or less equal numbers, and evidence is accumulating to show that migration to secondary cities leads to improved outcomes, including more rapid poverty reduction and more inclusive growth patterns (Christiaensen, De Weerd, and Todo 2013). Permanent rural-urban migrants may enjoy better access to employment and education, healthcare and services (Buhaug and Urdal 2013; Bloom, Canning, and Fink 2008 from Zimmer et al. 2020), but the impetus for migration is often rooted in the economics of rural life.

Overpopulation and uncertain rural livelihoods due to climate change and climate-driven conflict (Henderson, Storeygard and Deichman 2017; Burke, Hisang and Miguel 2015) incentivise rural families to diversify income sources to improve household-level resilience by sending relatives to work in urban and peri-urban areas. The choice of city is based on many factors (Haug 2008), such as the availability of transportation infrastructure, the political climate, or the existence of pre-existing social networks that can ease the migratory transition (Van Hear, Bakewell and Long 2018). Secondary cities are often closer to rural areas and are therefore more supportive of this goal, allowing rural households to remain connected to relatives living in urban and peri-urban areas (Owuor and Foeken, 2006; Lanjouw, Quizon and Sparrow, 2001). Those relatives, in turn, can maintain their social and economic networks, becoming key drivers of rural-urban linkages (Baker, 1990; Bryceson, 2011; Dorosh and Thurlow, 2013; Larsen and Birch-Thomsen, 2015; Owusu 2008; Satterthwaite and Tacoli, 2003 from Zimmer et al. 2020).

The decision to establish roots in a city carries with it a risk/reward calculation (Harris and Todaro 1970) that balances the possible urban wage with the probability of finding employment, itself a function of the total urban labour force. This decision is frequently taken at a household level, incorporating the

probability of employment, the urban wage premium, and also the need for internal remittances and access to credit which could be enhanced by having a family member working in an urban area. (Stark and Taylor, 1991; Stark and Bloom, 1985). The fluid nature of this rural-urban migration helps explain the growing importance of secondary cities, whose proximity is related to the decision to migrate (Christensen and McCord 2016).

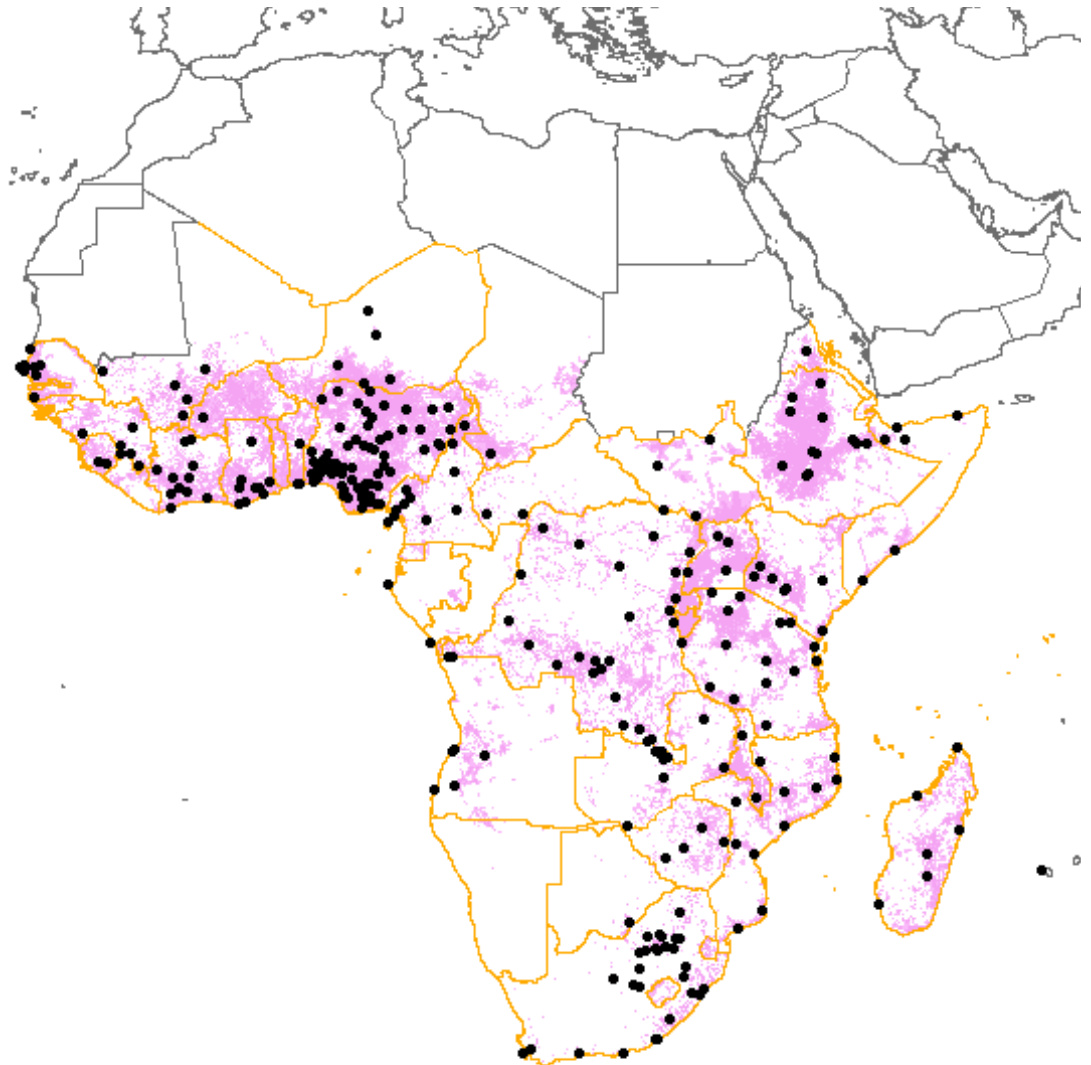
**The geography of these secondary cities in sub-Saharan Africa makes their importance more intuitively obvious (Figure 16). For much of the region, secondary cities are the closest and most accessible cities; the cities that are the centres of service and commerce that furnish rural-urban linkages to the agricultural hinterlands where the majority of the population still resides. In fact, more than 600 million people live within 100 km of a secondary city.**

Secondary cities will offer higher wages and more opportunities to access services than rural areas, but less than would be available in the primate city. Their smaller labour markets also mean that the probability of quickly finding some kind of work, formal or informal, may be somewhat lower. However, they may be less risky in other ways. These cities are, on average, closer geographically from a given rural area than the primate city in the country. Such cities tend to have existing rural-to-urban linkages, meaning transport is readily available and they are well-known to residents of the adjacent rural areas. This physical proximity also makes it likely that rural residents will have existing networks within the urban area, creating an easier transition (Awumbila 2014).

Whether or not these tradeoffs – lower wages and a smaller labour

**FIGURE 16**

Areas with a population density of greater than 50 people per km<sup>2</sup> are shown in purple. Secondary cities are black dots. The orange outline indicates the nations of sub-Saharan Africa. Secondary cities in sub-Saharan Africa are widely dispersed across the populated zones, and most rural areas are closer to and better connected with a secondary city than with the singular primate city. (Map prepared by authors.)



market, for greater insurance and more connections to home – lead to a secondary city or a primate city (or even international migration) depends on the type of rural-urban migrant, the resources they have available them, and the expectations that they may carry from their family or clan. Rural-urban migrants who choose secondary cities may have fewer resources and fewer connections than migrants to the primate city or cross-border migrants (Owuso 2008).

The role of secondary cities in attracting these rural-urban migrants is not only geographic, and the incentives for secondary cities to welcome these new migrants are powerful, with future economic growth and socio-economic progress hinging in part on a rational, supportive response to prepare cities for rapid growth from rural-urban migration.

# URBANISATION CONTINUES TO BRING ECONOMIC GROWTH AND BETTER LIVES



**Increased rural-urban migration to secondary cities can help lift migrants and their families out of poverty and drive broader economic growth. In the vast majority of countries around the world, urbanisation has been accompanied by rising incomes (Collier 2013), longer life expectancy (Kim and Kim 2016), lower infant mortality, greater opportunities for women and girls, and an eventual decline in the rate of population growth (Arouri et al. 2014; Taylor and Martin 2001). In fact, no country has become wealthy without urbanising (Coulibaly et al. 2008; Spence, Annez and Buckley 2008; Jedwab and Vollrath 2015).**

This is because cities are tremendous engines of human productivity. In essence, a city is a set of socio-economic relationships between people, facilitated by a built environment. The benefits of urbanisation stem from the proximity of people to one another that urban infrastructure enables. This leads to connections and relationships which facilitate “learning,” “matching,” and “collaborating.” In

cities, firms can better match with suppliers, workers, and customers, and citizens can better match with jobs that suit their skills and interests (Glaeser 2013). Cities also reward and facilitate learning, particularly the on-the-job education of workers, which encourages the accumulation of human capital (Bacolod et al. 2009; Glaeser and Mare 2001). Cities also allow people to collaborate on complex tasks, applying the benefits of learning to reward specialisation.

The net effect of this learning, matching, and collaboration is a tremendous increase in productivity when compared to rural economies. Larger cities are consistently found to be more productive than smaller cities (Glaeser 2011). The only limit on the size and productivity of cities is congestion – the phenomenon whereby the increased movement of people in a city eventually overwhelms the transportation infrastructure in that city, slowing travel and reducing the distance that a person can commute. When the costs of congestion exceed the benefits of being together, the share of jobs that people can access within a reasonable commute may shrink or stagnate (Bertaud 2018), reducing opportunities for learning, matching, and collaborating.





This theory of urban economies was formed by observing the urbanisation processes of countries in North America, Europe, Latin America, and East Asia. Those urbanisation processes occurred alongside rapid industrialisation. The promise of formal-sector industrial jobs drew people from rural areas and offered unskilled migrants a starting rung on the ladder of prosperity (Boustan et al. 2013). Critically, cities in sub-Saharan Africa are growing in population without adding many industrial jobs (Asmal et al. 2020).

There are a number of complex macroeconomic reasons for the lack of industrial employment (Ekekwe 2019), but the upshot of urbanisation without industrialisation is that most cities in sub-Saharan Africa have economies that are primarily oriented around consumption and provision of goods and services to their rural hinterlands. This is an economic orientation that lends itself to smaller firms, less formal sector and more informal-sector activity, and a higher number of owner-operators when compared with a manufacturing-based economy that can benefit from agglomeration and economies of scale (Avner et al. 2017).

Some scholars have characterised this phenomenon of urban service economies

as “urbanisation without development,” (originally Fay and Opal 2000), contending that these economic modes may not support socio-economic progress (Collier 2007) and voicing concern that cities in sub-Saharan Africa may even be “laggards, experiencing increasing urbanisation, rising poverty, little investment, and scant formal-sector job creation” (Roberts and Hohmann 2014). This interpretation has become widespread and is often cited as an argument against investing in urban settlements in the region.

Recent data (1960–2015) suggests that economic growth and urban population growth do move hand-in-hand in most countries in sub-Saharan Africa, just as in other world regions (World Bank 2020). This substantiates the findings of de Brauw, Mueller and Lee (2014), showing that greater rural employment is correlated with lower per capita GDP.<sup>3</sup>

<sup>3</sup> The finding in this report was established by comparing the share of the 2015 level of urbanisation (the share of the population living in urban areas) in a given time period (1960, 1970, 1980, 1990, 2000, or 2010) with the share of the 2015 GDP per capita during this period in the 43 countries of sub-Saharan Africa with more than one million urban residents. The results of this comparison are illustrated graphically in Figure 4. If the “urbanisation without development” thesis should prevail, then there should be no significant correlation between the two, and the trendline in Figure 17 should be horizontal: different values of the level of urbanisation will be associated with not-so-different values for GDP per capita.

Figure 17 below shows the data in Figure 4 for the ten countries in sub-Saharan Africa with the largest urban populations in 2020. In most of them, the curves associating GDP per capita and the level of urbanisation slope upwards, indicating that a higher share of the population in urban areas is associated with a higher GDP per capita. The Democratic Republic of Congo is the clear exception, where urbanisation continues while GDP per capita remains relatively flat. Ghana was also an exception until 2000, when GDP per capita and urbanisation began to increase hand-in-hand.

Figure 18 illustrates the clear positive association between the level of urbanisation and the level of GDP per capita in sub-Saharan African countries. It compares the share of the 2015 GDP with the share of the 2015 level of urbanisation. Based on this analysis, a doubling of the

level of urbanisation is associated with a 2.6-fold increase in GDP per capita. This is also shown in Table 2.

This novel analysis shows that urbanisation in sub-Saharan Africa is strongly associated with economic growth at the national level, exceptions such as the Democratic Republic of Congo notwithstanding. At the household and individual level, people in sub-Saharan Africa who live in cities have longer life expectancy, lower infant mortality, lower fertility levels, higher levels of education, and higher levels of income (Collier 2013; Sahn and Stifel 2003).

The types of urban employment that have emerged are developmentally appropriate, given prevailing levels of infrastructure and human capital. Service sector work is oriented around micro entrepreneurship and the development of small

and medium-sized enterprises, offering opportunities that more closely correspond to the needs and productivity levels of sub-Saharan Africa economies. These activities also have lower barriers to entry, making them better suited to the levels of education and formal sector employment experience of many new urban migrants. Substantial productive benefits are also emerging from new rural-to-urban linkages as cities grow, improving rural livelihoods by increasing the size and access to market for agricultural goods as well as providing additional sources of income due to access to urban employment.

**FIGURE 17**

GDP per capita in six time periods (1960, 1970, 1980, 1990, 2000, 2010 and 2015) in ten sub-Saharan African countries as a function of the levels of urbanisation during these periods.

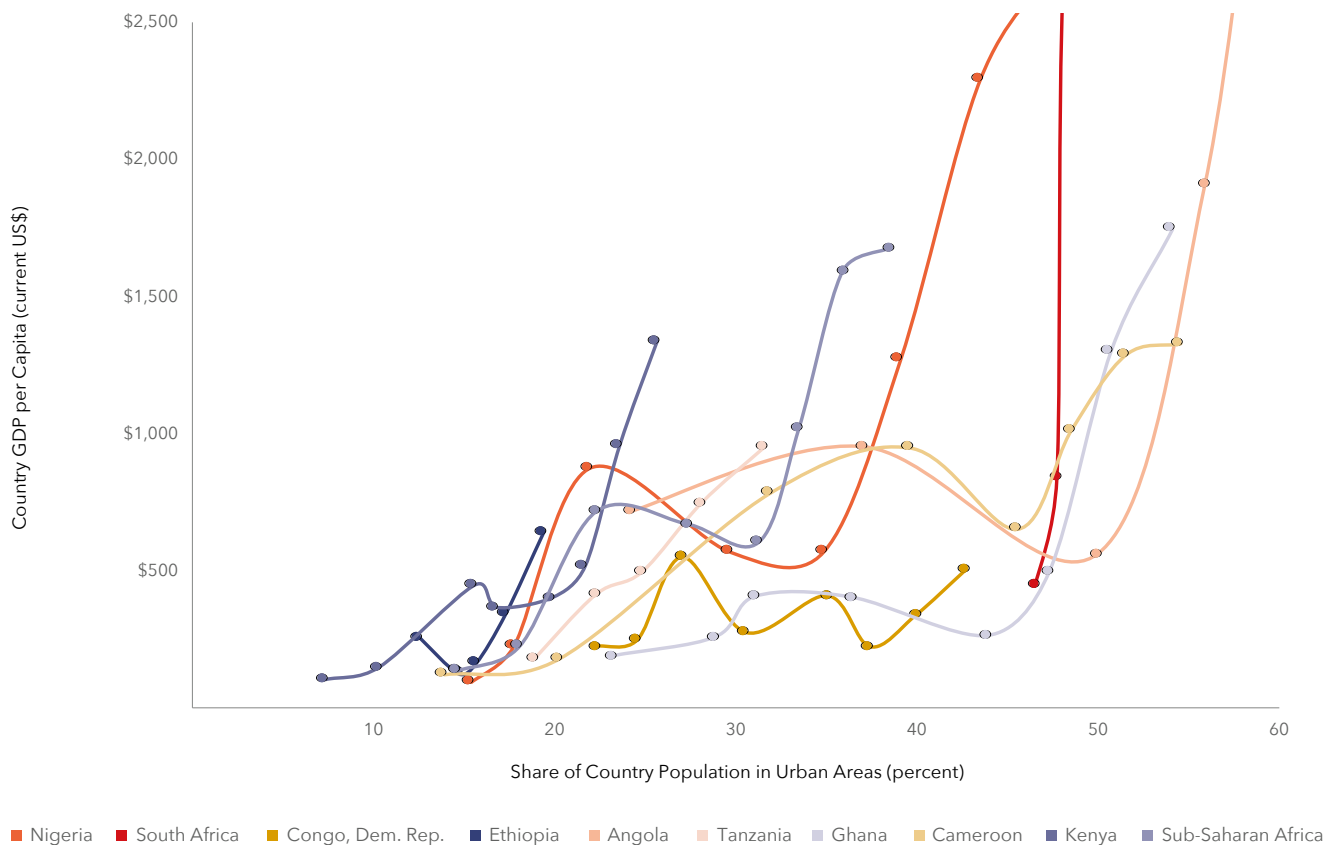
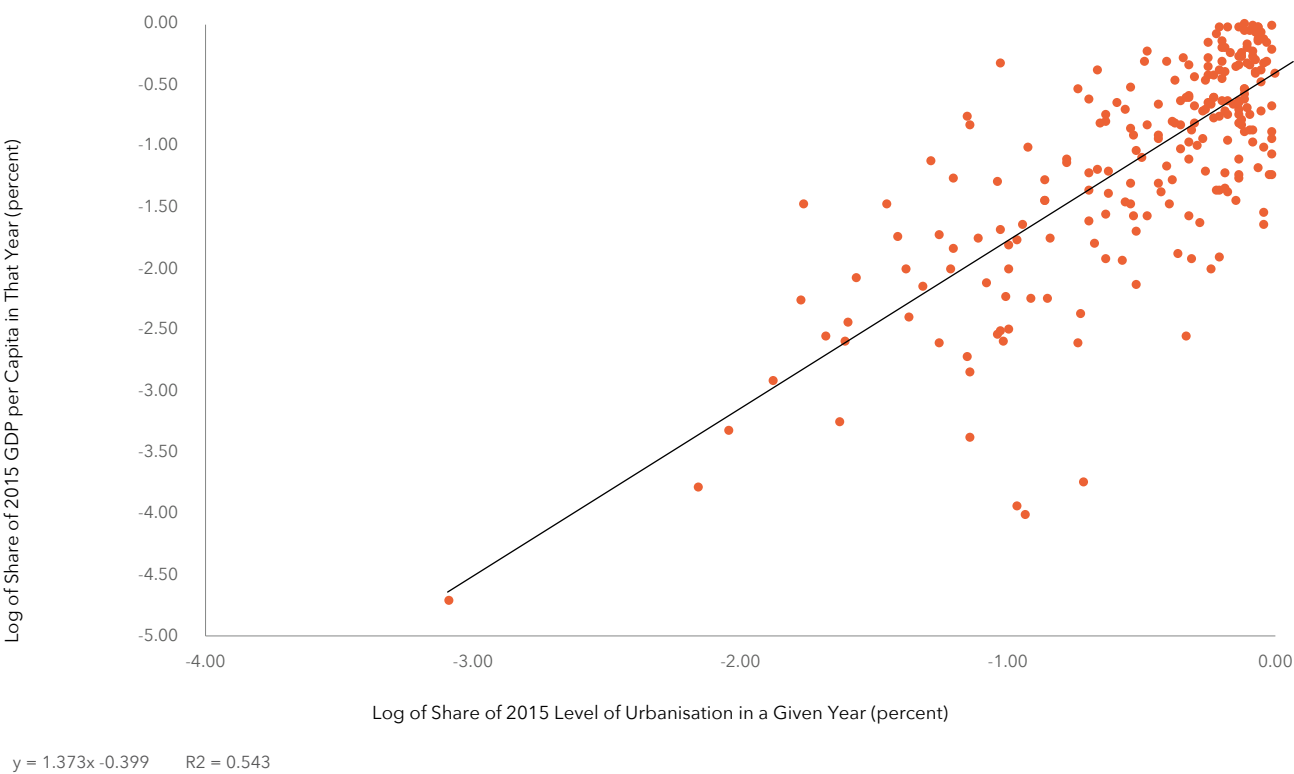


FIGURE 18

The logarithm of the share of 2015 GDP per capita in six time periods (1960, 1970, 1980, 1990, 2000, 2010 and 2015) in 43 sub-Saharan African countries as a function of the logarithms of the shares of their 2015 levels of urbanisation during these periods.



Many migrants may not be seeking to settle permanently in cities, but they are eager to establish socio-economic relationships within cities, for a variety of reasons. The current wave of rural-to-urban migration has the potential to dramatically improve the lives of hundreds of millions of people who are moving to cities. Urbanisation brings improvements in socio-economic indicators and is strongly associated with economic growth worldwide and in sub-Saharan Africa (Awumbila et al. 2015; Farhanna and Mannan 2019). As secondary cities grow, planning for growth can help accommodate the livelihood and lifestyle choices of the people who want to build those socio-economic relationships. Unfortunately, this has not been the case in recent decades.

TABLE 2  
A regression model with the logarithm of the share of 2015 GDP per capita in six time periods (1960, 1970, 1980, 1990, 2000, 2010 and 2015) in 43 sub-Saharan African countries as the dependent variable, and the shares of their 2015 level of urbanisation during these periods as the independent variable.

Variable	Coefficients	p-value
Intercept	-0.4	0.000
Log Share Urban	1.373	0.000
Observations	257	
Adj. R-Squared	0.542	



# URBAN EXPANSION IN SUB-SAHARAN AFRICA IS RAPID AND DISORDERLY



As cities in sub-Saharan Africa have increased in population and area over the past 25 years, they have become more disorderly. This has made them less hospitable to the long-term success of new arrivals. An assessment of the orderliness or disorderliness of growth from the *Atlas of Urban Expansion: 2016 Edition* found that 66 per cent of residential areas that were developed between 1990 and 2015 were either informal or completely unplanned. The methodology used satellite imagery

analysis and considered the layout of blocks and plots, the width and quality of the street network, proximity to arterial roads and other infrastructure, and comparisons with surrounding areas. Newly built areas were less likely to have a street grid, tended to have smaller or narrower streets, were farther from arterial roads that can carry public transportation, were more likely to have unpaved internal roads, had bigger blocks and fewer four-way intersections, and less public open space (Angel et al. 2016).

This lack of planning has consequences for residents. Among other things, residents of unplanned and informal areas may not have rights to the land that they are occupying, they may lack access to green spaces, and they may not be receiving urban services such as piped water, sanitation, education or healthcare (Wekesa et al. 2011). These areas are also less likely to be connected to the urban transportation networks, with road networks that are smaller and less capable of carrying public transportation (Angel et al. 2016). Residents of informal settlements spend a greater share of household income on transportation and have longer travel times on average (Salon and Gulyani 2010). Much of this has to do with deficiencies in the provision of infrastructure and poor planning of the road network (Diaz et al. 2013).

Many cities in sub-Saharan Africa have master plans, structure plans, or comprehensive plans with a ten to 15-year time horizon. These plans focus on investments in the existing area of the city, typically underestimating the amount of growth that will occur on the periphery. They are often prepared by consultants whose success is measured on the basis of plan adoption, incentivising them to neglect or downplay issues such as enforcement of regulations or resource availability. They also have a limited ability to address governance challenges, local ownership, local politics, or coordination with other levels of government (Hameed and Nadeem 2008; Peter and Yang 2019), and often sidestep these issues entirely. Finally, some cities, particularly primate cities and national capitals, have adopted aspirational plans that describe an impressive vision but may have unclear links to investments and resources (Nyiransabimana et al. 2019 on the Kigali master plan, for example). This is a small window into why so many cities in sub-Saharan Africa have paper plans but are unplanned in practice.



Many factors can impact the prospects of a particular migrant or group of migrants, but physical integration is one over which the city has considerable control. For rural-urban migrants in particular, living in settlements that lack access to the metropolitan labour market may isolate them from the economic and social networks that are key to finding formal sector employment and accessing education and services (MacKinnon 2015). This reduces the opportunities for the kind of exchanges and network building that support full integration into the city (Coquery-Vidrovitch 2005) and can retard long-term growth.



# URBAN EXPANSION PLANNING: A TESTED APPROACH TO MAKE ROOM FOR URBAN EXPANSION



The data presented so far has highlighted the challenges and opportunities of urbanisation in sub-Saharan Africa. Cities are adding population at a rapid pace, with secondary cities leading the way. Secondary cities are particularly important to the urbanisation process, functioning as cities of arrival for new rural-urban migrants, who are driving the urbanisation trend. Population growth is being translated into spatial expansion, with cities adding extensive new peripheral lands as urban natives and new rural-urban migrants settle in areas that are affordable and easy to develop. The movement of people to cities is associated with improved socio-economic outcomes, but much of the growth has been disorderly. Cities in sub-

**Saharan Africa are forecast to quadruple their populations by 2050 and potentially increase their urban areas ninefold, a magnitude of growth visible in projections of Accra, Ghana, from 2014 to 2050 (Figure 19).**

With this magnitude of growth, there is a real need for new planning tools that can help cities align their future urban layouts with the socio-economic needs of new residents. This requires them to make room for growth by increasing the supply of land available for development, establishing strong connections between newly built areas and the rest of the city, and providing flexibility in the growth process.

The rest of this report explores the urban expansion planning approach and how it can help cities make room. Urban expansion planning focuses on making room for new urban residents on the periphery of cities, in the areas where most growth is likely to occur. The

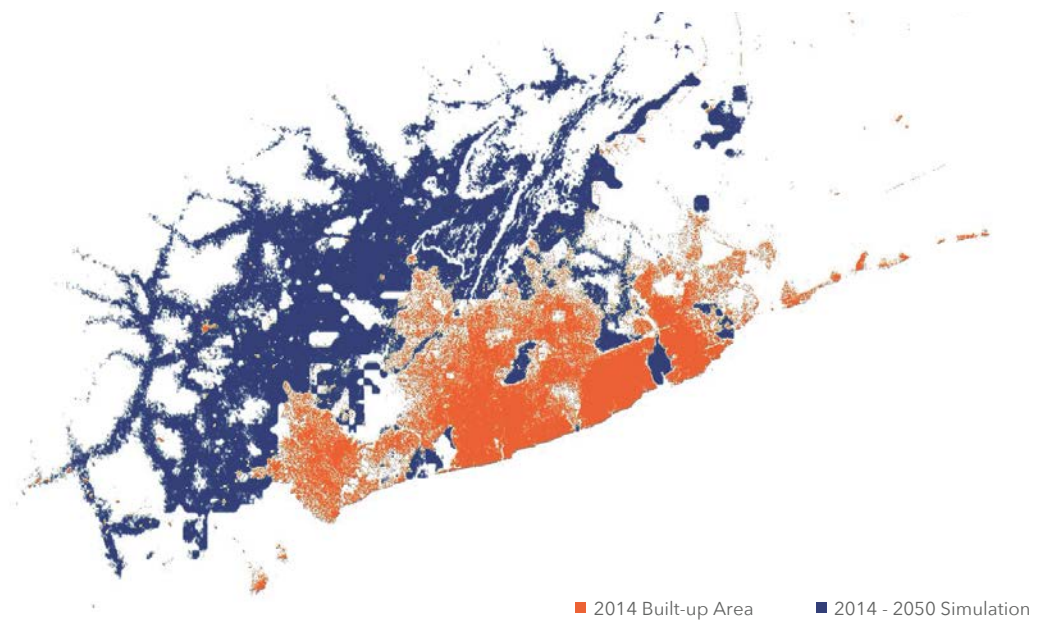
methodology emerged through consideration of earlier versions of the data presented in the previous sections and through the study of the growth patterns of successful cities. Urban expansion planning seeks to be simple, pragmatic, and implementable by local officials, focusing on the most critical planning priorities on the urban edge – things that must be done before development occurs, or they will be too costly to do later.

Urban expansion planning also has a critical role in promoting sustainable development. This is discussed in more detail in a companion paper (Lamson-Hall and Angel 2022). In general, urban expansion plans can provide structural support for the protection of environmentally sensitive areas by offering alternative development sites. By creating a long-term framework for growth, expansion plans also help guide development away from areas of high risk, and, as the case study of Bahir Dar illustrates, make it easier to support people living in risk-prone areas. Arterial road grids, a



**FIGURE 19**

A growth simulation in Accra, Ghana, from 2014 to 2050 (Provided by authors).



key element of urban expansion planning, promote compact development and reduce travel times, potentially lowering long-term greenhouse gas emissions from transport.

Just as investments in railroads and ports can facilitate export-led industrialisation, urban expansion planning can support the growth of more productive and diverse service economies in sub-Saharan Africa. Economies in the region are often vulnerable to urban infrastructure deficits: shops in urban slums may be difficult to reach and might struggle to access customers from other areas of the city. Small neighbourhood customer bases may not

support more specialised services, leading to a landscape of highly similar businesses with low rewards for innovation. Traders bringing goods from rural areas and living in slums may be reluctant to set up shop in wealthier parts of town if the cost of intra-urban travel is high or travel times are long or unpredictable, even if potential returns are higher. By ensuring growth areas are well-connected, urban expansion plans can ease travel within the city, increasing the size of the potential customer base for micro, small and medium-sized enterprises and incentivising better quality, more specialisation, and higher productivity.



**IN GENERAL, URBAN EXPANSION PLANS CAN PROVIDE STRUCTURAL SUPPORT FOR THE PROTECTION OF ENVIRONMENTALLY SENSITIVE AREAS BY OFFERING ALTERNATIVE DEVELOPMENT SITES.**

# THREE PROPOSITIONS FOR MAKING ROOM FOR URBAN EXPANSION



**Successful urban expansion plans are derived from three evidence-driven propositions:**



## 1) LAND FOR HOUSING THE POOR

For poor people, including newly formed households comprised of urban natives and recent rural-urban migrants to cities, the cost of land is the biggest obstacle to having a home (Angel 2000). Actions that make land more accessible and more available help address the housing challenge for the poor more than almost any other actions.

The most affordable land in cities is always on the edge, or periphery, and this is where the poor often settle. A plan to help people access land must focus on making land abundant, increasing the supply so that the price falls within the reach of most households.



## 2) EQUITY OF ACCESS

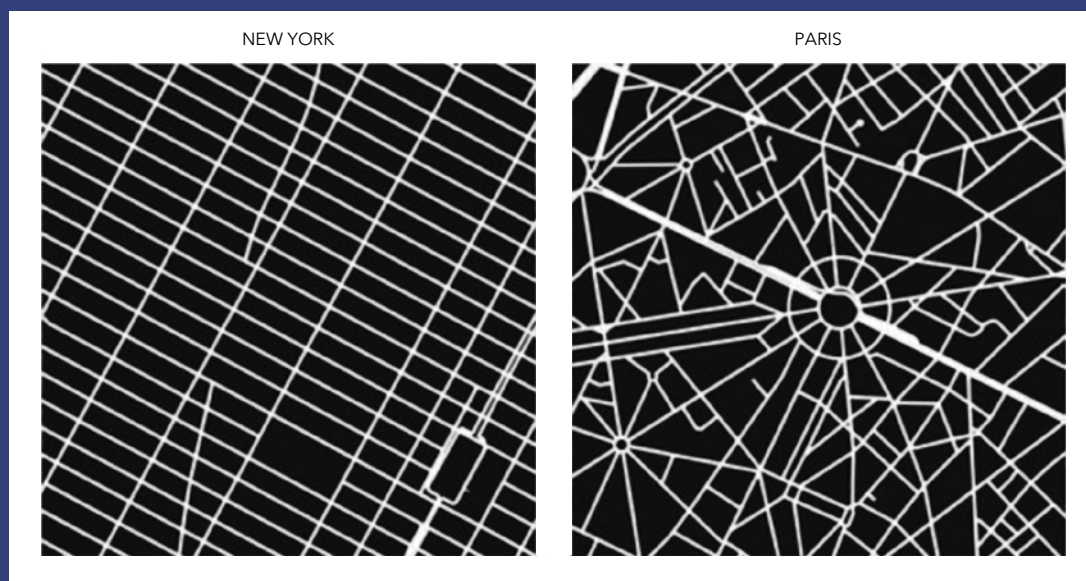
Urban growth in sub-Saharan Africa frequently occurs along road corridors, in a phenomenon called 'linear development.' This development is linear because often the only roads that give access to land along the urban periphery are national highways. When growth is concentrated along these highways, they essentially function as local arterial roads. This impedes their effectiveness for long-term commerce and highlights a key consideration when planning for growth; in order to be desirable, land must be accessible.

But minimal accessibility is not enough to facilitate the integration of the people who are living in that area. For that to happen, the newly developed areas have to have a parity of access with existing areas - ideally, the network of arterial roads will provide equal access from newly developed areas to all other parts of the city. These physical connections will also lead to economic and social connections, by making it easier for people to work and access services in other parts of the city and providing networks that goods can travel along.

Plans must consider the desirability of land. While desirability is largely driven by location, the real considerations are cost and time. Planners should assume that all well-located areas will eventually be developed, regardless of hazards or environmental importance, or will need to be vigorously protected from settlement and competitive alternative locations made available.

**FIGURE 20**

During urbanisation, the government can use public land, such as roads and parks (white), to organise the layout and configuration of private land (black). This is the essence of urban planning. Credit: Geoff Boeing.



### 3) THE PUBLIC WORKS PROPOSITION

In light of rapid urban growth and scarce resources, urban governments must focus their energy on providing basic public works in cities, starting by identifying and securing road corridors and land for public spaces. These public works guide development by subdividing land into public and private uses, with public land providing amenities and connectivity to private land (Figure 20). Road corridors are necessary for efficiently running infrastructure such as water and drainage, and public spaces are key to quality of life in urban areas.

It is cheaper and easier to provide public works in places that were planned before development occurred (Angel 2008). As cities expand, the necessary lands for public works and public open spaces must be secured in advance of development. Otherwise, the cost

of assembling the rights-of-way for public works will be prohibitive and the political cost of displacing existing residents will prevent significant action from being taken.

Based on these three propositions, New York University developed a planning methodology to help cities make room for urban expansion (Angel 2012). This methodology guides cities in making Urban Expansion Plans, which are a new type of plan based on the idea that cities should work to welcome their new urban residents by preparing land for them to settle on; that doing this before development occurs will lead to cities that are more orderly, equitable, sustainable and productive; and that cities can become empowered to do this work using local resources.



# THE FIVE-STEP URBAN EXPANSION PLANNING APPROACH

In urban expansion planning, a simple five-step programme translates the academic concepts in the propositions and preceding evidence into a programme of action that cities can implement. Each step has simple goals that directly address the needs of cities by responding to the ideas and evidence presented in the preceding sections. Experience implementing urban expansion planning on the ground has also made it possible to identify the support that participating cities need, and the actions municipal governments must take in order to succeed.



## STEP 1: PREDICT

### Key Goal:

Determine how much land the city is likely to need for urban expansion in the next 30 years.

### International Support:

International experts provide city teams with training in how to forecast future growth and help compile data inputs to support this process. The experts then validate the predictions of the city team.



## STEP 2: CONTROL

### Key Goals:

Determine where new urban areas will be located, and how the city can gain planning authority over this new expansion area.

### International Support:

Lead from behind by validating the analysis of the municipality and provide technical advising and recommendations during conversations with adjacent governments and the regional government.

### MUNICIPAL ACTIONS:

- › Establish an urban expansion team consisting of local technical staff and a political leader, typically a deputy mayor or city manager.
- › Receive training in urban expansion planning and learn how to use population and density information as an input alongside population and density information to forecast future land requirements, using the methodology provided by the international team.
- › Prepare these estimates of future growth in both tabular and map form and share them with city leaders in dedicated briefings.

### MUNICIPAL ACTIVITIES:

- › Using geographic information system (GIS) software, take the total administrative area of the city and subtract all areas that are not available for expansion. This includes preserved areas, environmental zones, areas with regular flooding, areas with steep slopes that prohibit building, federal land, and all areas that are already built-up, including squatter areas that are unlikely to be removed.
- › Working with the regional government and adjacent governments, identify an expansion area that the city can grow into and secure planning authority over that area.
- › Working with the regional government and adjacent governments, secure an agreement to unify planning authority within that expansion area.



## STEP 3: PRESERVE

### Key Goals:

Identify the environmentally sensitive and high-risk places within the expansion area and determine how to protect them from development.

### International Support:

Share common international criteria for designating land preservation areas. Use international experience to help the urban expansion teams achieve a realistic amount of protected land based on their capacity to preserve land from development.



## STEP 4: PLAN

### Key Goal:

Design a network of 30m-wide arterial roads, spaced 1 km apart, to make the lands in the expansion area accessible for development.

### International Support:

Organise a workshop for cities to present summary information on their expected growth and their available resources to the regional and national authorities. Support cities in preparing a first draft of their arterial grids with direct support from trainers.

### MUNICIPAL ACTIVITIES:

- › Review existing areas of environmental preservation and high risk in GIS using a satellite imagery background such as Google Earth.
- › Identify areas that may need to be preserved but are not, particularly watershed areas, and mark those places on the map as “no-build” zones.
- › Propose a hierarchy of priorities and propose strategies and tools for protecting the most important places, including the use of relevant legislative tools.

### MUNICIPAL ACTIVITIES:

- › Create a map of the administrative area of the city that shows the locations of existing built-up areas and major roads, the no-build areas identified in the previous stage, water bodies, and topographic lines.

Discuss the areas where demand for land is highest, and the areas that are likely to grow in the future, assuming that development will be mostly contiguous, except where physical barriers prevent it.

Starting from the existing road network, draw the arterial grid, creating the 1 km macroblocks for the first five years. Proceed in stages until the entire draft grid is drawn.

- › Digitise the grid plan and present it to relevant political leaders to secure official approval of the plan. In many cases this requires a vote of the city council to adopt the plan.

The output of the first four steps of the Making Room Approach will be an Urban Expansion Plan for a city, similar to the urban expansion plan of Mekele, Ethiopia shown in Figure 21.

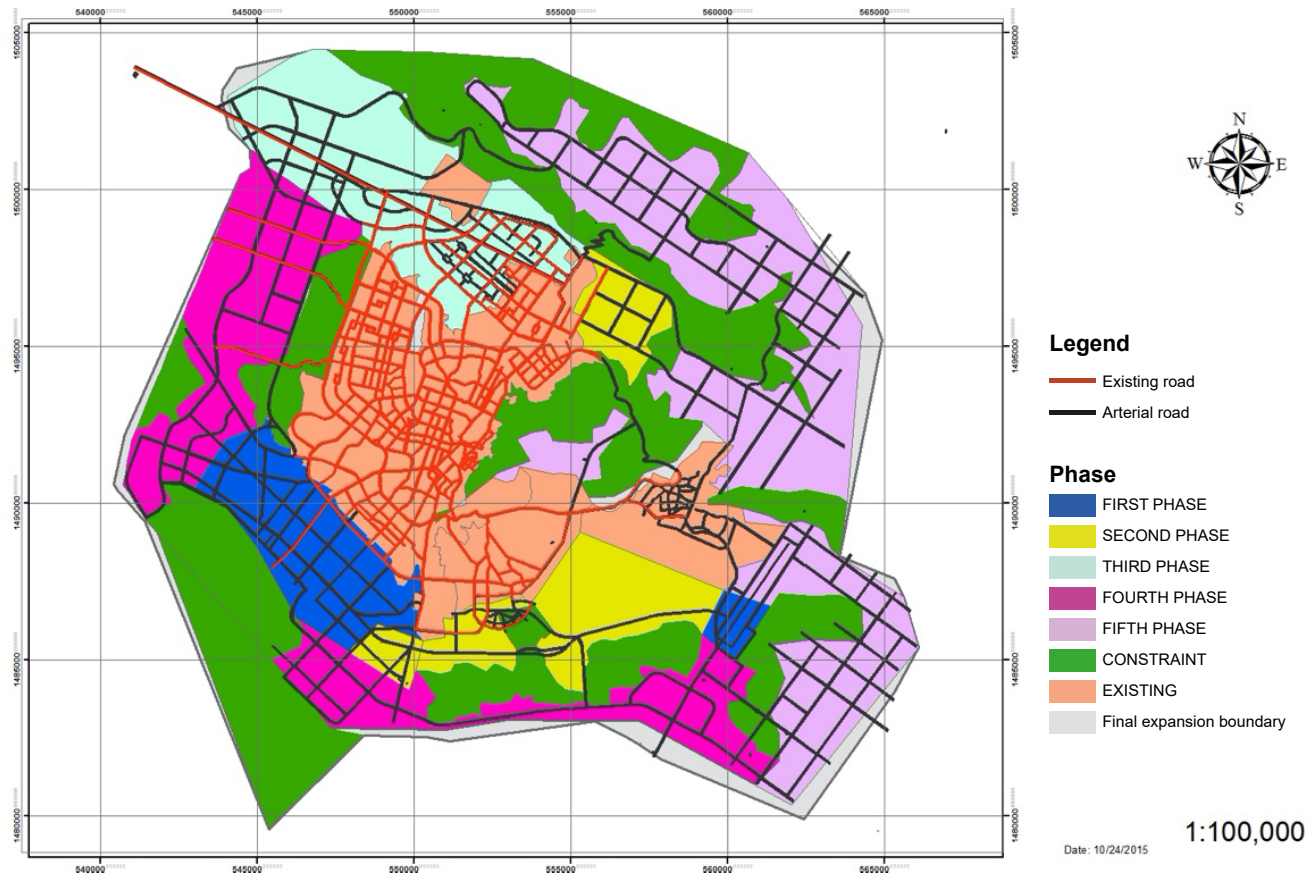
The plan shown above uses public works to organise land into public and private uses. It expands in all directions, recognising that desirable areas will eventually be developed. It provides for a major expansion of the built-up area of the city,

acknowledging the reality that much growth takes place on the periphery. It reserves some large public spaces that have environmental value or are considered unbuildable, but it does not assume that the protection of these lands will occur by fiat – instead, it provides ample land nearby with heightened access, incentivising new residents to settle in those areas. The plan connects the city and the new lands together using an arterial road grid that also organises the land on the urban periphery into macroblocks.

The roads in the arterial grid are 30m-wide strips of land spaced 1 km apart. These roads can carry trunk infrastructure and are wide enough to have dedicated lanes for public transportation and pedestrian and cycling infrastructure (Figure 22). The benefits of having an arterial road grid are substantial in terms of providing clear routes for trunk infrastructure, organising future residential and industrial areas, and creating a productive landscape for firms and workers.

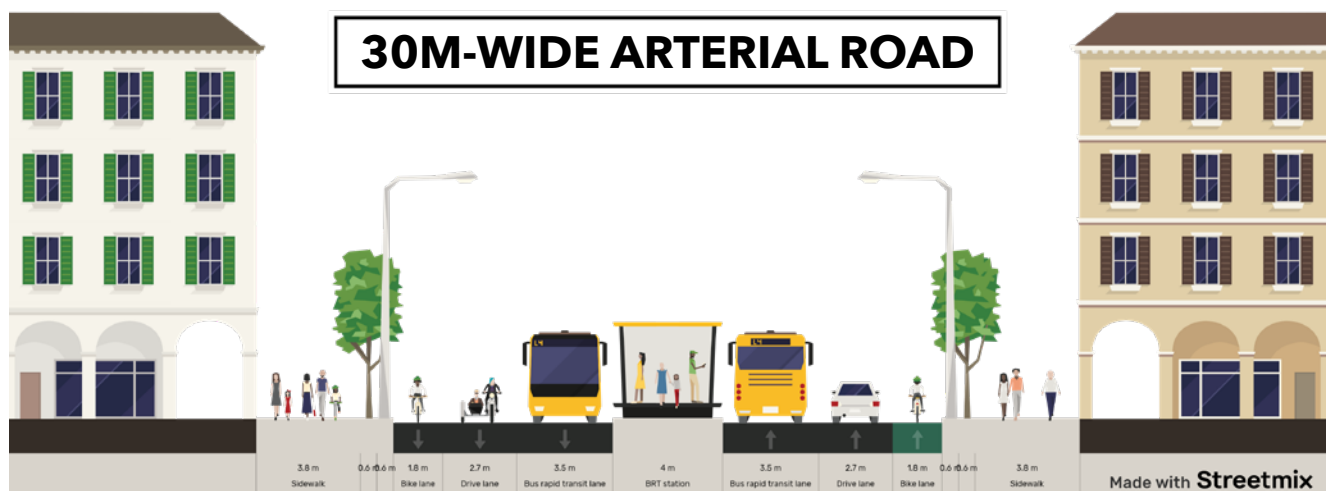
**FIGURE 21**

The approved urban expansion plan of Mekele, Ethiopia identifies where land for the arterial grid will be acquired to guide the next 30 years of growth and prescribes the phases in which different sections of the grid will be constructed, based on anticipated demand for land.



**FIGURE 22**

A 30m-wide arterial road corridor, with space for sidewalks, bike lanes, and bus rapid transit (Produced in Streetmix by authors).





A typical arterial grid requires land amounting to roughly six per cent of the total expansion area. Unlike more detailed plans, the demand on government revenue and the immediate impact on farmers and other residents of the urban periphery is minimal. Even after the land for the grid has been acquired, farmers can continue to grow crops until construction actually begins.

The final step is to translate the plan into actions on the ground. The key to an urban expansion plan is that the government has to secure the land for the arterial grid and open spaces now, before any other development occurs, but can construct the grid in phases based on demand. This keeps the cost of compensation manageable and minimises unplanned settlement. The net effect is to make the grid plan more realistic and easier to implement.

Each of the five steps of urban expansion planning is critical to helping cities plan for rapid urban population growth. The argument for taking these actions (out of all possible actions) is a simple one; the key tool that government has to organise urban growth is the acquisition and laying out of public lands. There are many other planning needs in cities, but government capacity is limited. In order to plan for growth at the correct scale, while also remaining flexible enough to accommodate the needs of rural-urban migrants, the plans themselves must be simple. Simple plans are easier to make and explain, making it easier to garner political support and freeing up resources to focus on the real challenge: implementation.



## STEP 5: PROTECT

### Key Goal:

Deploy tools and resources to guard the arterial road rights-of-way against squatting and development, so that they are available in the future.

### International Support:

Share international practices on financing, support creative problem solving through communication and presentation of examples, provide training in a simple methodology for surveying the grid to estimate compensation costs.

### MUNICIPAL ACTIVITIES:

- › Survey the grid and adjust it to minimise conflicts. Identify landowners along the route and political leaders in each jurisdiction that is involved.
- › Meet with those political leaders to share the grid planning concept and identify different tactics to secure road rights-of-way, including payment of compensation, acquisition through eminent domain, the use of liens on titles, and voluntary contributions. The problems and solutions are local in nature.
- › Meet with stakeholders on the urban periphery, providing early and transparent engagement with landholders along the proposed route by top municipal officials.
- › Reach agreements with landholders and ensure that payments or other guarantees are made promptly.
- › Mark the rights-of-way of the arterial road with stones or trees, allowing farmers to continue to use the land in the right-of-way until urban development reaches their area.

# WHY CITIES FAIL TO PLAN FOR URBAN EXPANSION



Planning for urban expansion is not a new idea. In fact, cities have been engaging in urban expansion planning for thousands of years (Cartledge 2009), preparing peripheral areas for settlement by new residents. Historically, birth rates in cities were far lower than death rates, and all growth in cities was due to rural-urban migration. Cities organised their urban expansion because an orderly development plan offers substantial benefits over disorderly growth, for all of the reasons described in the preceding sections.

Despite these benefits and strong historical precedent, most rapidly growing cities today are failing to make and implement adequate and effective plans for their urban expansion. Their apparently lacklustre response to such an important issue raises the critical question of why cities fail to manage their growth in a timely and effective manner, despite the obvious benefits of doing so. This section explores the question in more detail.

First, it is important to acknowledge that many cities in many countries do plan for a limited amount of growth. For example, most cities are required to prepare a ten or 15-year plan (sometimes called a master plan or a structure plan) which is concerned with the overall area of the city. This is meant to be a *comprehensive* plan that coordinates investment in all sectors and guides development throughout the city.

The usefulness of such a comprehensive plan may seem self-evident, but the cities that exist in reality often bear little resemblance to their plans (Hedrick-Wong and Angelopulo 2011; Buckley et al. 2016) because these

master plans are rarely, if ever, implemented. Many critiques of this traditional planning process have emerged in recent years (Watson 2009), mainly focused on complexity, inclusivity of the process, and the resources required.

**Comprehensive plans are ambitious and highly complex undertakings. They require the collection of an enormous amount of information and depend on the accuracy of numerous forecasts, not only of populations and traffic flows, but of the demand for goods and services in different locations and, lately, of possible ecological and climate changes as well. This information then has to be processed, interpreted, and translated into a series of goals, inputs, actions, and outputs for each aspect of the plan. Simply managing the process can strain the capacity of city planning agencies even in developed countries. It is a major endeavour, and it is therefore typically done once a decade or less, with the risk that the information used to prepare the plan is no longer relevant in later years when it needs to be implemented.**





In sub-Saharan Africa, cities – and secondary cities in particular – lack a large force of professional planners who can supervise and lay out of new areas on the urban periphery at a scale that is commensurate with demand (Commonwealth Association of Planners 2018), so such plans are typically prepared by outside consulting firms, often from developed countries (Nippon Koei Co. Ltd 2014, for example). This creates issues of local ownership, leading to implementation problems. It also means that most learning is done by the members of the consulting teams themselves, who typically take their lessons home with them, leaving locals with “end products” that are, in many senses, black boxes. Municipal officials who receive the plan and are tasked with implementing it often have only a limited sense of the data used to prepare the plans and the origins of the recommendations and proposals that they contain. As a result, the planning process needs to be followed by a “cascading” or “coordination” stage, in which other departments and bureaus must be brought up to speed on the plan, often as outsiders. In the worst case, this happens after the consultants have left, and the city receives only limited support from afar. Even in the best case, the process is difficult and time consuming. Unless the plan has a determined political champion, the plan becomes a dead document that is neither reflected in investment strategies nor in the plans of other bureaus and departments such as water, parks, and transportation.

Comprehensive plans also often assume comprehensive efforts at implementation, but many cities lack the resources to implement ambitious strategies in several departments at the same time. A framework for prioritisation can help, but such frameworks can be driven by political considerations (such as the desire to rehabilitate a central plaza) and not by planning concerns.

## THIS IS PARTICULARLY PROBLEMATIC WHEN DEALING WITH PARTS OF THE CITY THAT ARE OCCUPIED BY MIGRANTS OR NEW RESIDENTS, WHO MAY HAVE LITTLE POLITICAL VOICE.

The planning process is also slow, for all of the reasons stated above – the need for comprehensive data, the time for interpretation and analysis, the time needed to engage a consulting firm, time for analysis and interpretation, and finally for the cascading of the plan and its reflection in the investment programmes of various city bureaus. Many cities operate with outdated plans for years while the process of updating the plan is underway, and by the time plans are finished, they may already have been eclipsed by events on the ground.

To these standard critiques of current planning practices, we add one more: these plans also typically underestimate the total quantity of urban expansion that the city is likely to face, which leaves many new urban residents without serviced urban land on which to establish homes and businesses. It is common for plans to provide for a 20 or 50 per cent increase in the total urban area over a ten to 15-year period. In fact, almost all cities in sub-Saharan Africa will experience increases of 100 per cent in total urban area over that time period, and most will quadruple or more by 2050. In countries with traditions of developing gridded street layouts (such as many Latin American countries), this leads to the establishment of large gridded informal settlements on the urban periphery. In countries without such a tradition, it leads to the establishment of non-gridded informal settlements



in the same areas. In neither case are the new areas serviced with arterial roads or given the connectivity and accessibility that their residents require.

This tendency to “underplan” for growth is sometimes rooted in ambivalence toward urbanisation in general, and specifically to further growth of urban populations and the consequent growth in urban footprints. Despite overwhelming and visible evidence that urbanisation is inexorable and that its concomitant expansion is a vital mechanism for accommodating new urban residents, governments at all levels have attempted to slow down urban population growth and to contain or control urban expansion through greenbelts, smart growth policies, urban growth boundaries, compact city regulations, and even imperial edicts, such as Queen Elizabeth I’s 1580 proclamation prohibiting the expansion of the City of London (Barnes 1970).



# EXPERIENCES ON THE GROUND IN ETHIOPIA AND UGANDA



Considering the widespread informality seen on the peripheries of many rapidly growing cities, some practitioners and policymakers question the feasibility of planning for urban expansion. As with any development project, the obstacles to achieving implementation on the ground are myriad. Each step comes with particular challenges that must be overcome. Six case studies explore the questions of implementation: government buy-in,

training of local officials, completion of the plan itself, the search for legal and budgetary mechanisms that can be used to secure the land for the arterial grid and environmentally sensitive areas, outreach to landowners, surveying, and the considerable obstacles involved in institutionalising the approach. The final case study expands upon the benefits of the programme with new research on the household-level impacts of successful urban expansion planning (Table 3).

TABLE 3  
Seven case studies in Uganda and Ethiopia.

Urban Expansion Planning Activity	Example City
Predict - Determine how much land the city is likely to need for urban expansion in the next 30 years.	Gulu, Uganda
Control - Determine where new urban areas will be located, and how the city can gain planning authority over this new expansion area.	Dire Dawa, Ethiopia
Preserve - Identify the environmentally sensitive and high-risk places within the expansion area and determine how to protect them from development.	Bahir Dar, Ethiopia
Plan - Design a network of 30m-wide arterial roads, spaced 1 km apart, to make the lands in the expansion area accessible for development.	Jinja, Uganda
Protect - Determine what tools and resources are available to guard the arterial road rights-of-way against squatting and development, so that they are available in the future.	Hawassa, Ethiopia
Urban expansion by other means: the structure plan of Adama	Adama, Ethiopia
A survey of household-level impacts of urban expansion planning in Hawassa, Ethiopia	Hawassa, Ethiopia



Much of the information highlighted in these case studies is drawn from field reports documenting city progress in implementing urban expansion in Uganda and Ethiopia. In 2017 a project evaluation was prepared by the Ethiopian Ministry of Urban Development and Construction (MUDC) to assess the extent to which the proposed activities had been undertaken and conducted qualitative research into the impacts of preparing land for growth on the urban periphery.<sup>4</sup> In 2018 an academic paper (Lamson-Hall et al. 2018) was published that included further empirical research on the success of the initiative. Also included is information from interviews conducted while preparing a documentary film on the initiative (Marron Institute of Urban Management 2020). A ground survey and some recent satellite imagery analysis conducted for this report round out the data. Most of the examples are drawn from Ethiopia, where implementation has gone furthest, but examples from an initiative in Uganda are also included. Hawassa, Ethiopia is considered twice, but from different angles.



## Ethiopia

Ethiopia is one of the least urbanised countries on earth and one of the countries that is most rapidly urbanising, with an urbanisation rate expected to increase from 21.7 per cent in 2020 to 39.1 per cent by 2050, and an urban population

4 Report was provided to the authors by the MUDC.



that will grow by 300 per cent over the same time period. This urban expansion is partly driven by a high natural rate of population growth, but is also the result of large migration flows, sparked by (among other things) new employment opportunities in secondary cities, displacement due to ethnic conflicts, and drought-related challenges in the rural economy.

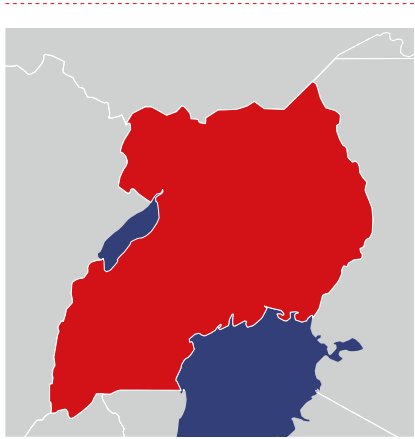
Ethiopia is a country in sub-Saharan Africa that has been unique in its focus on the advancement of secondary cities as a key pole of their national development strategy, with initiatives to build the capacity of local administrations, supporting decentralisation and proper fiscal management, and

infrastructure and industrial development in secondary cities.

In 2013, the Ethiopian Ministry of Urban Development and Construction<sup>5</sup> launched a project to implement urban expansion planning called the Ethiopia Urban Expansion Initiative. It partnered with city governments to provide technical training in the Making Room methodology to four rapidly growing secondary cities in Ethiopia – Mekele, Hawassa, Bahir Dar, and Adama – and expanded the programme to 14 additional cities (Figure 23).

5 New York University and Cities Alliance provided technical support and funding.

Much of the data on the results of urban expansion planning comes from cities in Ethiopia. The country has a unique land management system and, until 2019, a cohesive government. These institutional factors are often cited as the major reasons for the success of the initiative and were also used to explain why it would not work elsewhere. The case studies from Ethiopia tell a different story – that the programme design encouraged local ownership by creative and determined officials, and selective interventions to enhance coordination between levels of government empowered those to officials to take meaningful actions on the ground.



### Uganda

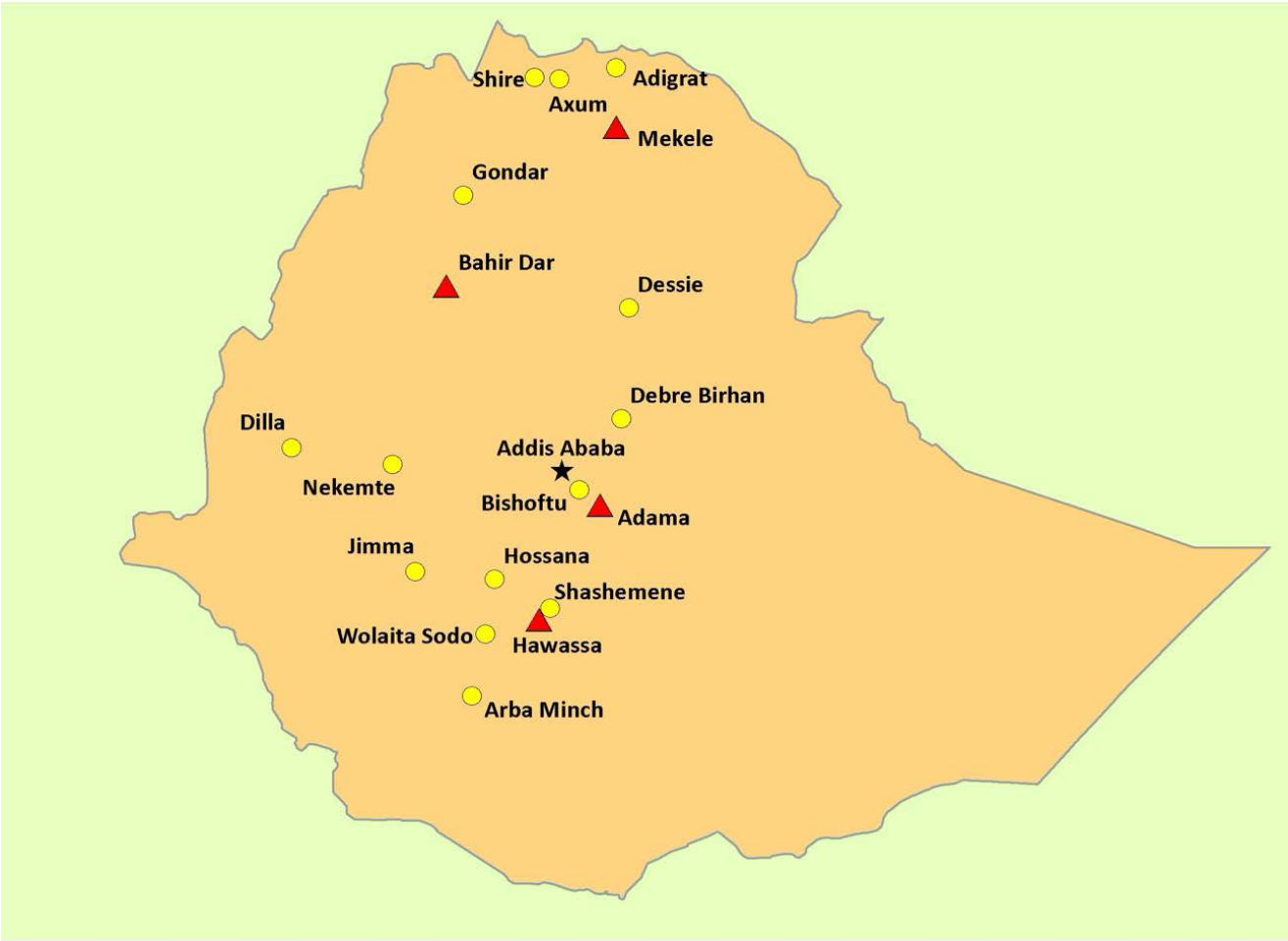
Uganda has been exploring urban expansion planning since 2020, when the Ministry of Lands and the Ministry of Local Government assigned a dedicated joint team to study the urban expansion planning methodology. Four cities

are currently working to implement urban expansion planning: Arua, Gulu, Jinja, and Mbale (Table 4).

These cities are experiencing an average increase in population of 6.2 per cent per year, and Uganda is set to more than triple its urban population by 2050, from 11.7 million to 46.4 million people (United Nations 2018). Urban population growth is much more rapid than rural population growth, despite higher birthrates in rural areas (UBOS and ICFII 2012), as new migrants flow to cities.

This urban population growth will cause the area of cities in Uganda to double in the next 15 years and quadruple by 2050. Most cities are ill-prepared for the influx, with incomplete

**FIGURE 23**  
The first four (triangles) and next 14 (circles) cities of the Ethiopia Urban Expansion Initiative.



**TABLE 4**

Population and area growth rates of four cities in Uganda that are planning for urban expansion.

City Name	Country	Population 2019	Urban Extent (hectares) 2019	Population Growth Rate % 2000-2019	Urban Extent Growth Rate % 2000-2019
Arua	Uganda	174,628	3,553	6.9	5.7
Jinja	Uganda	182,455	4,945	7.2	7.6
Mbale	Uganda	171,746	3,652	4.8	5.8
Gulu	Uganda	198,062	4,177	5.7	5.5

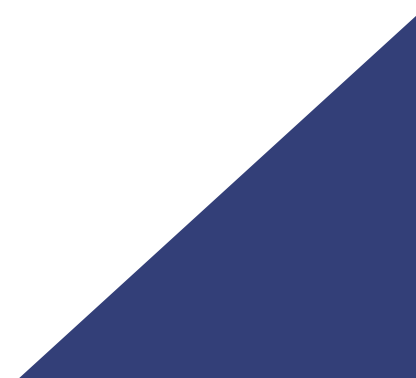
physical development plans and a lack of available and well-connected urban land for housing and business development.

The government of Uganda has already taken an important first step toward managing this rapid growth by implementing a plan to upgrade 15 Ugandan municipalities to full city status over the next several years. The four cities participating in the urban expansion initiative were upgraded in 2020. The central government sees urban expansion planning as a key approach to assist these new cities, and other upgraded cities, in managing their urban peripheries.

Land management and urban governance in Uganda are completely different from Ethiopia. Uganda has four land tenure systems prevailing in different parts of the country and limited public ownership of land (FAO 2022). In Ethiopia, the government owns most of the land,

and urban areas use a leasehold system. Urban governance and urban infrastructure in Uganda are comparatively weak due to incompletely implemented decentralisation reforms. Urban governance continues to derive enabling legislation from the Town and Country Planning Act, portions of which are unrevised since British rule. Politically, both countries have strong ruling parties, which could facilitate coordination with higher levels of government, but Uganda is also very politically centralised, potentially harming free action on the part of local officials.

Implementation of urban expansion planning in Uganda, though in its early stages, gives an important window into the feasibility of the approach outside Ethiopia.





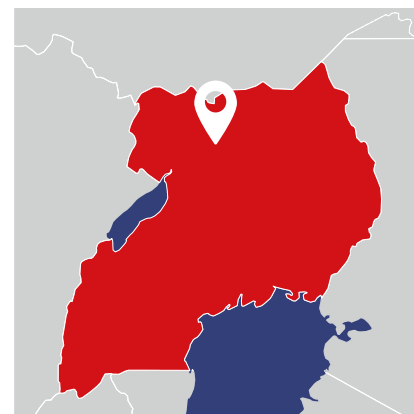
# PREDICTING URBAN EXPANSION: GULU, UGANDA

**Key Goal:** Determine how much land the city is likely to need for urban expansion in the next 30 years.

New annexations in Gulu have expanded the area of the city from 5,460 ha to 22,565 ha and added approximately 50,000 new residents to the population who require services and urban infrastructure. Migration from rural areas has been described by city leaders as “rampant” and is characterised as a major challenge, leading to increases in slums, crime, and social privation.

The current physical plan of the city covers the original 5,460 ha area, leaving 17,105 ha unplanned at the time of annexation. The city was also lacking accurate data, with no sense of how many people were likely to move to the city or how much land they were likely to consume in the coming years. This is the first challenge addressed by urban expansion planning.

The mayor of Gulu assembled a dedicated urban expansion team consisting of a senior physical planner, a city engineer, a land



supervisor, a statistician, an environment officer, and surveyor, and led by the deputy town clerk, a top administrative bureaucrat who can publicly represent the project.

The team was trained to produce three sets of data: the estimated population, area, and population density for every year to 2050. To calculate that, they used historical data sources – population data from the census (Table 5), and built-up area data based on LANDSAT imagery, which was provided by the international

**FIGURE 24**

The change in physical extent and built-up area of Gulu, Uganda from 1987 to 2019.

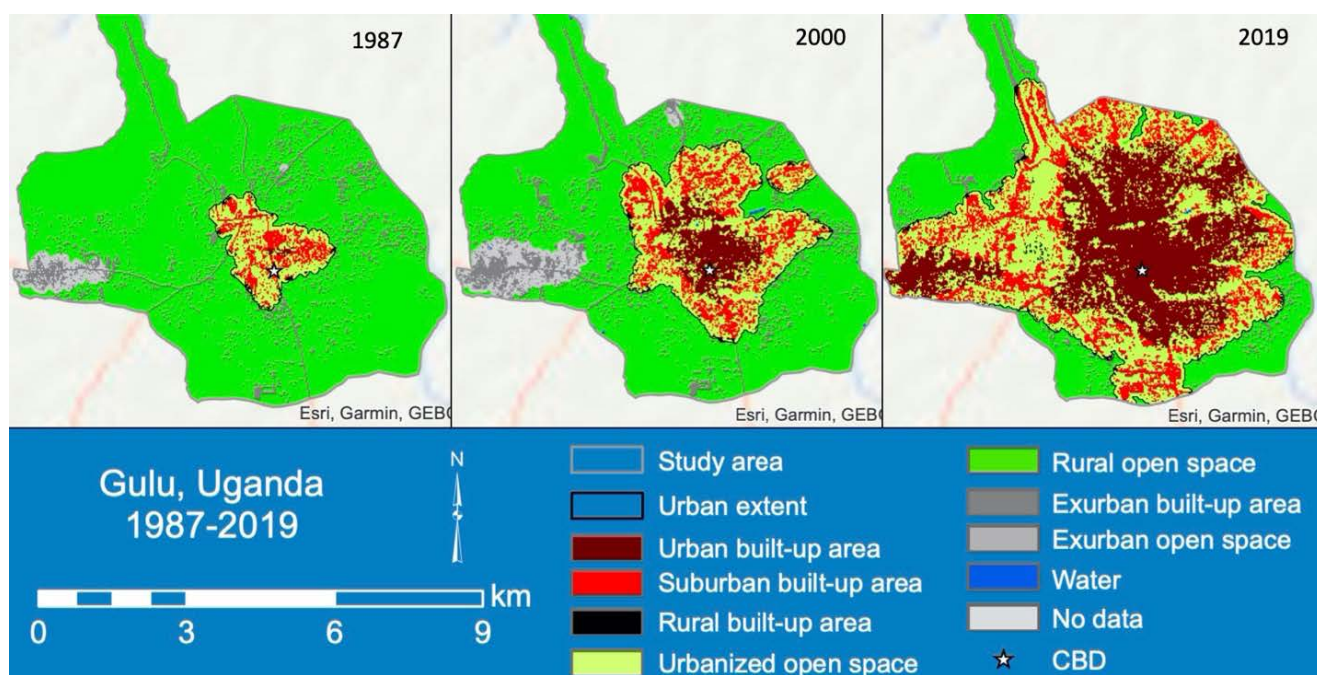






TABLE 5

The interpolation and extrapolation of the population of Gulu to match the satellite imagery and population data.

Estimating Population						
Year	Extrapolation 1987	Census 1992	Interpolation 2000	Census 2002	Census 2014	Extrapolation 2019
Total City Population	93,774	102,326	116,009	119,430	255,267	307,219

partner. This allowed them to map the growth of the city over time and say with confidence how much land was being used per capita, and how that figure was changing.

The international partner provided a template and technical support to help make these calculations, but the city urban expansion planning team did all the actual work. Their analysis revealed that the population of Gulu had increased 3.7-fold from 1989 to 2010, and its area had increased 4.2-fold, meaning population density in Gulu was declining.

With this result in hand, the team was able to forecast the trend for the next 30 years using projections from the national census agency, which were requested and furnished by the central government partner (Table 6).

With those forecasts and the trend of future land consumption, the city team then estimated the total number of arterial grid macroblocks that would be needed to accommodate the future population in an orderly manner and to also estimate the length and area of arterial roads needed to create those blocks (Table 7).

This empirically derived information, which was completely lacking at the beginning of the training process, formed the basis of Gulu's urban expansion plan and will later inform the investment programme to implement that plan. After completing this exercise, the town clerk presented the results to the mayor and city manager. The local government of Gulu was empowered by this data and is now better able to enact change on the urban periphery of their city.

Because the city team ultimately made the calculations themselves, they have a clear understanding of the procedure and have enough faith in the results to bring it to their political leadership. By setting their planning process on a firm foundation, the prediction of future growth sidesteps numerous obstacles that could derail the urban expansion plan, include accusations of alarmism or exaggeration. The math is relatively simple and quite transparent. The first thing that this new information allowed the team to do was answer a critical question that is explored in more detail in the subsequent case study: does the city have enough land to accommodate its projected growth through 2050?





**TABLE 6**

The expected changes in population, population density, and area in Gulu, Uganda to 2050 by five-year period, based on the observed trend from 1987 to 2014.

Population Projections								
Year	2014	2020	2025	2030	2035	2040	2045	2050
Population	255,267	328,311	381,043	457,147	548,451	657,991	789,408	947,073
Density	68	73	72	70	69	68	67	65
Total Area	3,743	4,497	5,316	6,496	7,938	9,700	11,853	14,483
Existing Area	-	3,743	4,497	5,316	6,496	7,938	9,700	11,853
New Area Needed	-	754	819	1,180	1,442	1,762	2,153	2,630

**TABLE 7**

The approximate total road area that will be needed for the 30m-wide arterial grid by five-year period to 2050.

Year	2014	2020	2025	2030	2035	2040	2045	2050
Population	255,267	328,311	381,043	457,147	548,451	657,991	789,408	947,073
New Area Needed	-	754	819	1,180	1,442	1,762	2,153	2,630
Macroblocks	-	8	8	12	14	18	22	26
Linear Kilometres of Road		22	22	31	37	45	57	67
Road Area In Hectares		66	66	93	111	135	171	201



**BECAUSE THE CITY TEAM  
ULTIMATELY MADE THE  
CALCULATIONS THEMSELVES,  
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PROCEDURE AND HAVE ENOUGH  
FAITH IN THE RESULTS TO BRING IT  
TO THEIR POLITICAL LEADERSHIP.**

# CONTROLLING THE EXPANSION AREA: DIRE DAWA, ETHIOPIA

**Key Goals:** Determine where new urban areas will be located, and how the city can gain planning authority over this new expansion area.

After calculating the future urban land needs of the city, the next task in urban expansion planning is to determine if the local government has enough land within its jurisdiction to accommodate that growth. For the final city to have a coherent street network and layout, the land for growth has to be contiguous with existing urban areas, in places where

growth is likely to occur, and under one planning authority.

Dire Dawa, a rapidly growing city on the eastern edge of the Rift Valley, is a destination or gateway city for surrounding rural residents, who travel to the city seeking economic opportunities and access to services (Teshome and Belete 2017). Dire Dawa municipality started preparing for urban expansion by making planning forecasts using the same technique used in Gulu, Uganda. The forecasts showed that future growth would quickly outstrip

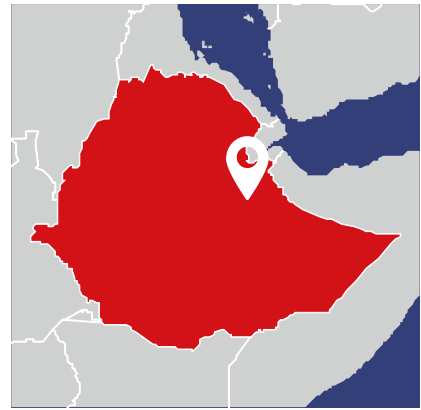
the land available within Dire Dawa's urban administrative boundary.

In total, the city will need to plan for 14,574 ha of growth to accommodate its future growth. Unfortunately, the urban kebeles only have a total area of 7,863 ha.<sup>6</sup> In addition, not all of this area is buildable, and some land has already been built on outside of the urban municipality, in the rural kebeles (Figure 25).

In other Ethiopian cities, regional and federal government bureaus have worked together to expand the municipal planning boundary. Dire Dawa is organised as a federal charter city. It sits on the border between the Somali and Oromia regions but is not a part of either region. Instead, the city administration reports directly to the federal Ministry of Urban Development and Construction (UN Habitat 2008).

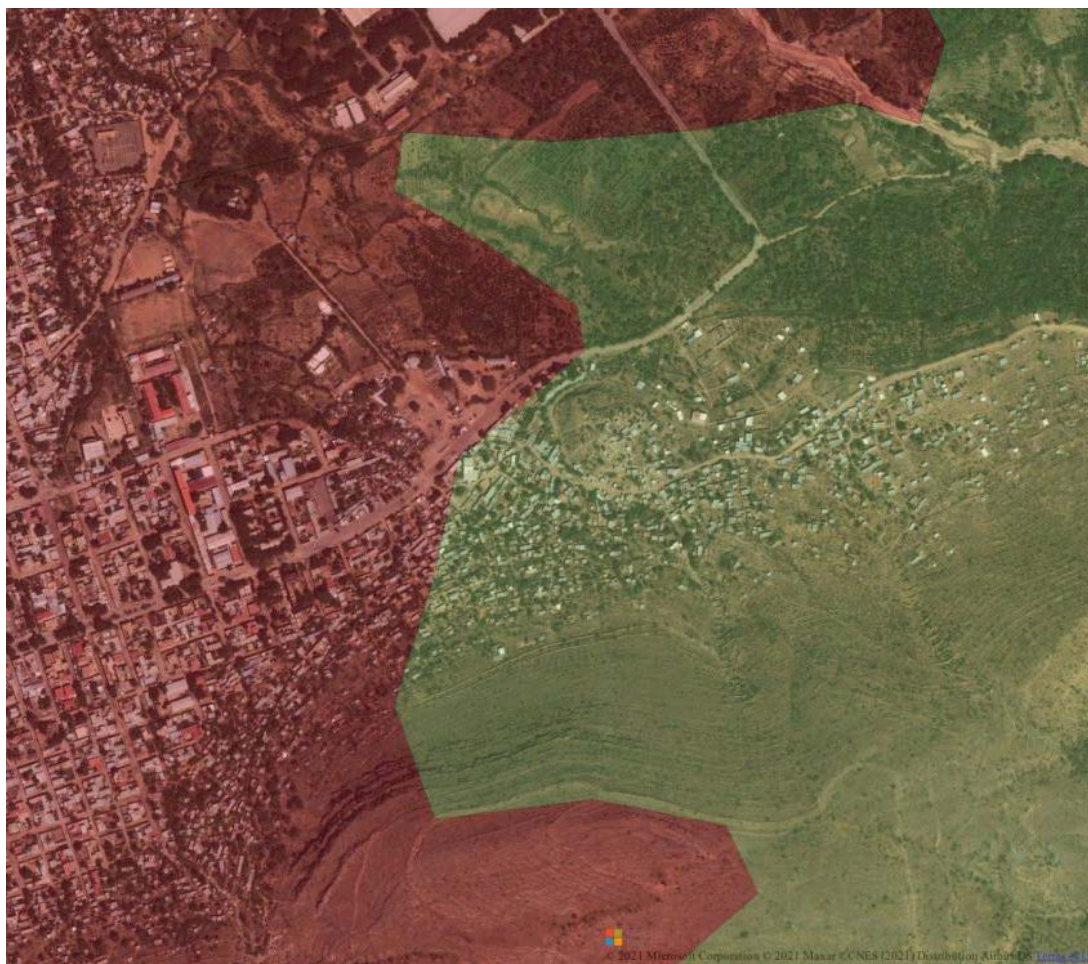
Dire Dawa also has two parallel systems of administration – a municipal administration that governs and services the urban built-up kebele areas, and a rural administration that governs rural kebeles (UN Habitat 2008). These kebeles were designated rural or urban in the city charter as a matter of statute, not function. Only the municipal administration had plan-making authority, but it was unclear in the charter if that authority extended to rural kebele lands (Figure 26).

<sup>6</sup> Calculated by the author using national administrative boundary shapefiles.



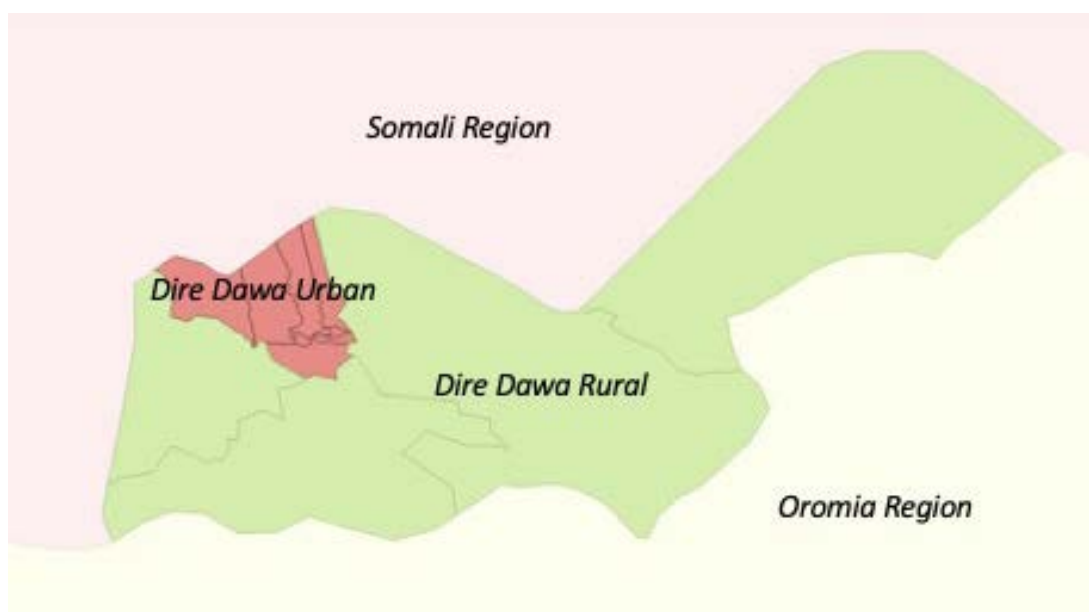
**FIGURE 25**

Unauthorised growth in rural kebeles (green), adjacent to and contiguous with the urban area inside the municipality (red). Source: Google. (n.d.)



**FIGURE 26**

The urban and rural kebeles of Dire Dawa, and the surrounding Oromia and Somali regions.





The urban expansion planning team shared the growth forecasts with the city leadership and explained the nature of the jurisdictional boundary problem. For the project to go forward, the City Council would either have to decide, on its own authority, to assume planning authority over the rural kebeles, or make a formal request to the MUDC for clarification of the charter. But the Council was reluctant to choose; incorrectly assuming authority over the kebeles could be politically costly at the local level and making an unnecessary request for clarification could be politically costly at the federal level.

To get around this impasse, the urban expansion planning team took advantage of a workshop that was attended by three leading MUDC officials. In addition to their expected presentation, which focused on the growth forecasts and their proposed arterial grid alignment, the team inserted a brief history of Dire Dawa and explained the challenge of expanding the planning boundary. Their goal was to gather informal feedback and clarification from the MUDC to decide if a formal request was necessary. They were informed that it was not, and that the City Council could move ahead.

The political leadership in Dire Dawa still face a local political challenge, but they are equipped to manage it. They plan to move forward by consulting with rural kebele leaders about the projections, the anticipated growth, and the urban expansion plan.

Their goal in these conversations is to gain the consent of the kebele leaders for the urban expansion plan. The simplified nature of the plan itself – with its narrow focus on arterial roads and environmentally sensitive areas – means that the discussion of planning authority can be similarly limited. Experiences in other cities indicate that rural leaders are likely already familiar with the challenge of informality and may also see the benefits in terms of rural-to-urban linkages.

The approach being taken in Dire Dawa reminds us that planning jurisdiction is, by its nature, a political matter that will have to be resolved creatively by political leaders. Technical inputs can help build local ownership over the problem, especially if they are generated and delivered by the local team. The informal relationships between levels of government were also critical, allowing the team to creatively engage with MUDC officials to seek clarification on the boundary issue; but this only happened because the team was actively trying to move the project forward.

Technical data and relationship building work in the same mode, by allowing local leaders to move on the politics of implementing urban expansion without the interference of international actors. When the stakes were well-framed and politically viable options were available, the city moved to secure its expansion area.





THE POLITICAL LEADERS IN DIRE DAWA STILL FACE A LOCAL POLITICAL CHALLENGE, BUT THEY ARE EQUIPPED TO MANAGE IT. THEY PLAN TO MOVE FORWARD BY CONSULTING WITH RURAL KEBELE LEADERS ABOUT THE PROJECTIONS, THE ANTICIPATED GROWTH, AND THE URBAN EXPANSION PLAN.



# PRESERVING ENVIRONMENTALLY SENSITIVE AREAS: BAHIR DAR, ETHIOPIA



**Key Goals:** Identify the environmentally sensitive and high-risk places within the expansion area and determine how to protect them from development.

After completing growth forecasts and securing the expansion area, attention turns to identifying environmentally sensitive and high-risk areas and protecting them from development. Bahir Dar, Ethiopia, chose and mapped its environmentally sensitive areas in 2013 (Figure 27), and has been developing realistic

strategies to prevent informal settlement in those places.

Bahir Dar is a regional capital that has been very successful in implementing urban expansion. Over the past seven years, the population has increased from 322,901 to an estimated 508,000. The city has constructed over 100 km of arterial roads, attracted \$121 million in investment to a locally built light industrial zone in the expansion planning area, and settled 25,000 to 40,000 people in new residential areas.

The 2013 Bahir Dar plan includes ambitious environmental reserves, mainly concentrated along the Blue Nile River, which runs through the centre of the city, and along Lake Tana, which borders the city to the north. It includes the Zege Peninsula, a zone of monasteries and churches, and extends as far as Tis Abay Falls on the Blue Nile. These reserves include swamps and marshland – critical environmentally sensitive areas that contribute to local water quality – as well as bluffs to the east that are unsuitable for development (Figure 28).

**FIGURE 27**

The Bahir Dar urban expansion team drafting the plan at a workshop in July 2013. Source: Author.

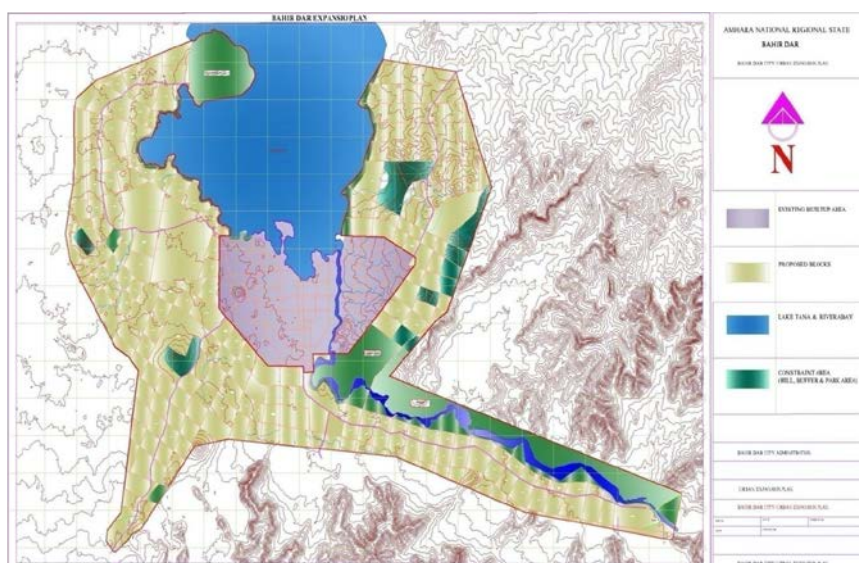




THE CITY MAPPED THESE SENSITIVE AREAS BEFORE DESIGNING THEIR ARTERIAL GRID. WITH PLAN APPROVAL, THESE AREAS ARE NOW LEGALLY PROTECTED FROM DEVELOPMENT. MANY MUNICIPALITIES HAVE SUCH LEGAL SYSTEMS IN PLACE AND CAN SHOW EXTENSIVE GREEN AREAS ON THEIR CITY MAPS. IN PRACTICE, MANY OF THESE AREAS EVENTUALLY BECOME SQUATTER SETTLEMENTS BECAUSE THE CITY AUTHORITIES LACK THE RESOURCES TO EFFECTIVELY PROTECT THEM (GELDENHUYS 2016 ON THE CASE OF SOUTH AFRICA, FOR EXAMPLE).

**FIGURE 28**

Environmentally sensitive areas, marked on this map as “constraint areas” in green.



In Bahir Dar, follow-up visits to the city made it clear that a number of the areas designated as green spaces were already occupied. Pressure for settlement was highest in areas with good access to jobs in the city, such as the floodplain of the river, which is adjacent to the city centre and the new expansion area. Areas further out were almost untouched.

The city government had limited resources to address squatting, but it needed to keep the floodplain clear because of the predictable risk of loss of life and property as well as water quality concerns. Previously, the city government had a policy of removing new migrant settlements in the floodplain, but people often returned. The urban expansion plan allowed them to offer a viable alternative location to the squatters. The new areas of settlement are well-connected by arterial roads to the city centre and near the local industrial area, where jobs are abundant.

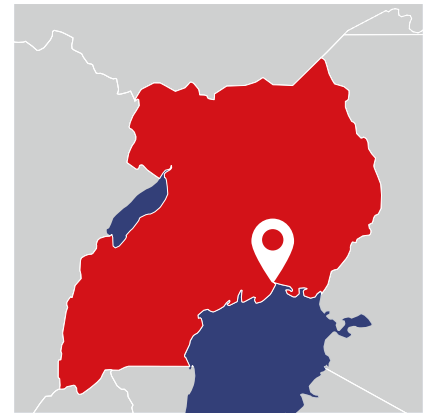
Near the river, the city has also set up a small number of simple public parks with walking and cycling paths and basic amenities and has publicised these places for the recreational use of residents. An extensive waterfront path along the

lake provides a critical ecological buffer and supports local tourism. This effort has been partially successful in reducing the need for active anti-squatting enforcement.

The other pillar of Bahir Dar's strategy, which appears to be working in more distant areas, is *diversion*. By implementing urban expansion, the city is working to ensure that enough urban land is available to give a better alternative to people considering settling in preservation zones or areas of high risk.

Bahir Dar's local leadership have internalised the idea that people make decisions about where to live based on access to jobs. On the far urban periphery, this means that settlers can be attracted away from environmentally sensitive areas simply by providing other areas that have better roads. Closer to the centre of the city, it is pragmatic to keep environmentally protected areas small because of the need for enforcement and resettlement in equally desirable areas, which are both costly. By taking this pragmatic approach, Bahir Dar demonstrates that environmentally sensitive protected areas can be green on the ground, not just on the map.

# PLANNING THE ARTERIAL GRID: JINJA, UGANDA



**Key Goal:** Design a network of 30m-wide arterial roads, spaced 1 km apart, to make the lands in the expansion area accessible for development.

Jinja, Uganda is an industrial city located on the shore of Lake Victoria. In 2020, the city was upgraded to municipality status, and the area the municipal government was responsible for managing increased from 6,400 to 21,560 ha. The annexation of adjacent rural areas also increased the city population from 99,044 to 307,413. The newly annexed areas lack services and have not been planned (data provided by Jinja City Council).

The current Jinja physical development plan covers the

6,400 ha that existed prior to annexation and has not been fully implemented. This plan was supported by UN-Habitat and much of the work was done by consultants.

City leaders, tasked with planning an additional 15,160 ha, in 2020 formed an urban expansion team that received training in the steps of urban expansion planning. They were motivated to invest resources in part because an urban expansion plan is simple to design and is within their capacity to implement, without requiring extensive outside expertise or resources after the initial training.

Growth forecasts produced by the Jinja urban expansion team show that the population will rise

to 1,037,519 by 2050, more than tripling. The predictions of future urban area indicate that the city is likely to grow by 15,359 ha by 2050, a fourfold increase over its current size (Table 8). Much of the land within the old boundary is vacant, and the city can accommodate this increase within its enlarged administrative boundary.

The team selected an expansion area within the administrative boundary and mapped environmentally sensitive lands. They then had all the information needed to produce an arterial grid plan on the urban periphery, forming macroblocks in the expansion area. The team in Jinja approached this problem with the idea that all residents of the

**TABLE 8**  
Showing the expected growth in Jinja, Uganda from 2020 to 2050.

Year	2020	2025	2030	2035	2040	2045	2050
Population	307,414	384,267	416,120	576,400	691,679	864,599	947,073
Density	59	58	56	55	54	52	51
Total Area	4,945	6,654	8,182	10,481	12,889	16,511	20,304
Existing Area	-	4,945	6,654	8,182	10,481	12,889	16,511
New Area Needed	-	1,709	1,529	2,299	2,408	3,621	3,793
Macroblocks	-	17	15	23	24	36	38

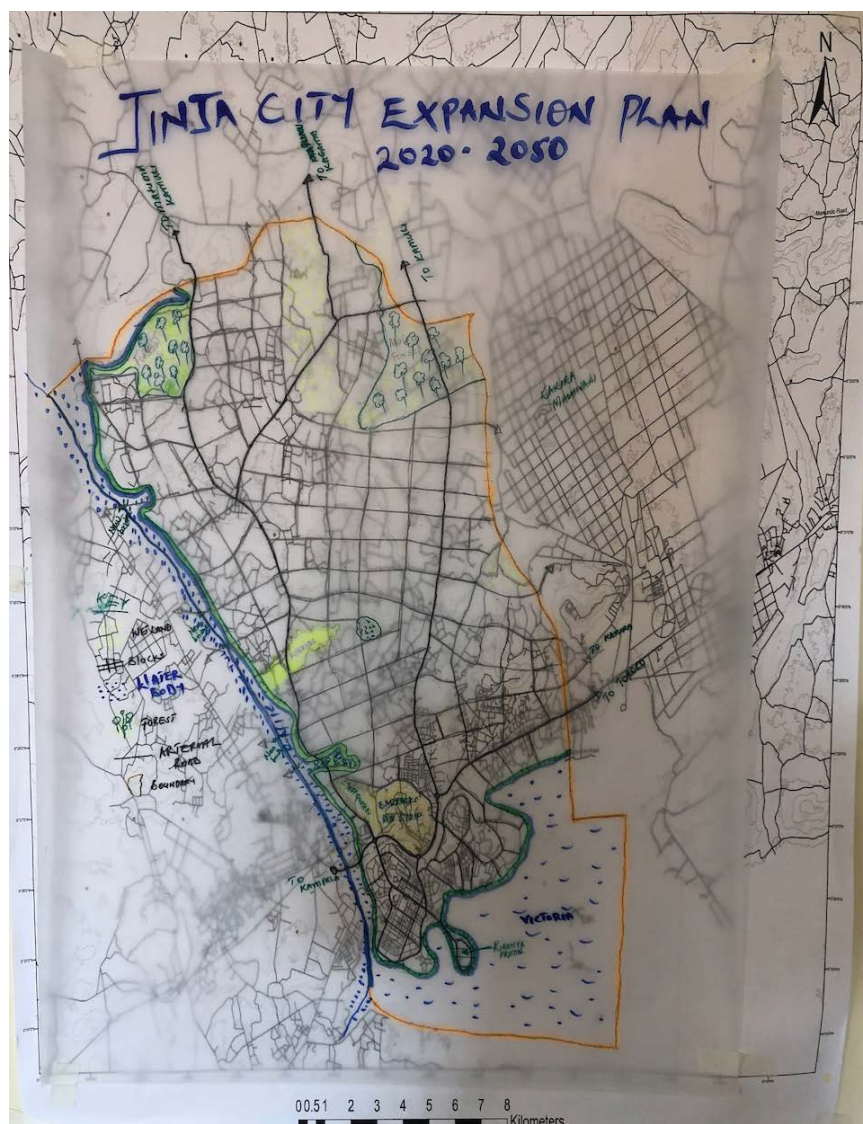






**FIGURE 29**

The proposed Jinja arterial grid plan, drawn by hand on tracing paper and imposed against an existing roads map. Source: Author.



expansion area should be within a 15-minute walk from a road that offers direct access to the rest of the city and is capable of carrying public transportation, major drainage, water, and other vital infrastructure (Figure 29).

If built, the Jinja arterial grid should have many benefits. It is easy to navigate, offering the shortest average route distance between any given points in the expansion area. It offers equity of access, making land accessible for building homes and businesses and tying the city together without privileging or prioritising any particular area. By making the city more accessible, it promotes the creation of a unified job market, an integrated housing market, and a market for goods and services, which undermines the formation of slums and ghettos and facilitates the eventual regularisation of informal settlements. On the urban periphery, the new roads create rural-to-urban linkages that benefit farmers and give residents of small villages easier access to urban jobs and services.

To implement the plan, the leaders in Jinja will have to view it as the guiding document of a 30-year investment programme. The programme must start by securing the corridors of land that are needed for the roads (not necessarily by financial means), and it will continue over time with the construction of the roads as demand warrants.

The team considered the ease of implementation and applied two principles in the design:

- › The grid connects with existing roads in the city. Where possible, the grid also runs along existing road rights-of-way.
- › The grid is laid out in a way that minimises the displacement of existing settlements and the destruction of existing buildings.

**GROWTH FORECASTS PRODUCED BY THE JINJA URBAN EXPANSION TEAM SHOW THAT THE POPULATION WILL RISE TO 1,037,519 BY 2050, MORE THAN TRIPLING.**



BY MAKING THE CITY MORE ACCESSIBLE, IT PROMOTES THE CREATION OF A UNIFIED JOB MARKET, AN INTEGRATED HOUSING MARKET, AND A MARKET FOR GOODS AND SERVICES, WHICH UNDERMINES THE FORMATION OF SLUMS AND GHETTOS AND FACILITATES THE EVENTUAL REGULARISATION OF INFORMAL SETTLEMENTS. ON THE URBAN PERIPHERY, THE NEW ROADS CREATE RURAL-TO-URBAN LINKAGES THAT BENEFIT FARMERS AND GIVE RESIDENTS OF SMALL VILLAGES EASIER ACCESS TO URBAN JOBS AND SERVICES.

On recommendation from the international technical team, they also chose to define a 30m right-of-way for the arterial grid. This was chosen because it is wide enough to eventually carry bus rapid transit, two car lanes, two bike lanes, and sidewalks (See Figure 21, for example).

This is not the only possible configuration; the experience in Ethiopia indicates that in the earlier years the road may not occupy the entire road right-of-way and uses may be completely undifferentiated. It may just be gravel. But in the long term, particularly in rapidly growing cities, it is critical that there be sufficient road space to accommodate public transportation and walking and cycling, since transportation evidence shows that these are the main modes used by residents of cities in developing countries.

Using urban expansion planning, the city of Jinja was able to produce a plan covering their entire area of expansion, encompassing lands for 30 years of growth, with limited technical support and no financial support. City leaders believe that they will be able to implement this plan on the ground, a topic explored in more detail in the next case study.

# PROTECTING THE LAND FOR THE ARTERIAL ROADS: HAWASSA, ETHIOPIA



**Key Goal:** Identify and deploy tools and resources to guard the arterial road rights-of-way against squatting and development, so that they are available in the future.

Simply marking roads on a plan, even if the plan has legislative approval, will not guarantee that the rights-of-way for the arterial roads will still

be open when the roads are needed. Unless the land is protected, the rights-of-way may be occupied by squatters, informal settlements, or even uncoordinated formal development projects. Protecting the roads requires the municipality to actually acquire control of the land underneath them and, ideally, mark them with stones or trees (Figure 30).

**FIGURE 30**

Trees planted in the right-of-way of a new arterial road in Monteria, Colombia (top). Eventually these trees will mature (centre) and will shade the sidewalks and streets of a fully developed arterial road (bottom).





Cities in Ethiopia are assumed to be unique in the ease with which they can do this. Hawassa, Ethiopia, is a best-practice case for the study of the protection of the arterial grid and a strong rebuttal of the myth of Ethiopian exceptionalism in land acquisition, showing that innovative local leadership is the real driver of success.

The city formed its urban expansion team in 2013. The population in 2010 was 184,082 and was forecast to increase to 1,879,000 by 2050. The urban area was 3,056 ha and was forecast to increase to 38,132 ha by 2050. The arterial grid plan for the expansion area of Hawassa contains 156 macroblocks, one km by one km each. The total length of arterial roads is 374 km, requiring the acquisition or protection of 1,222 ha of land (Figure 31).

The Hawassa urban expansion team, led by the city manager, conducted a survey of the arterial grid using simple GPS devices and a team of junior planners and surveyors on motorbikes. Slight modifications were made to the grid to avoid costly obstacles for compensation, and to avoid any land features (such as gullies) that would raise the future cost of construction.

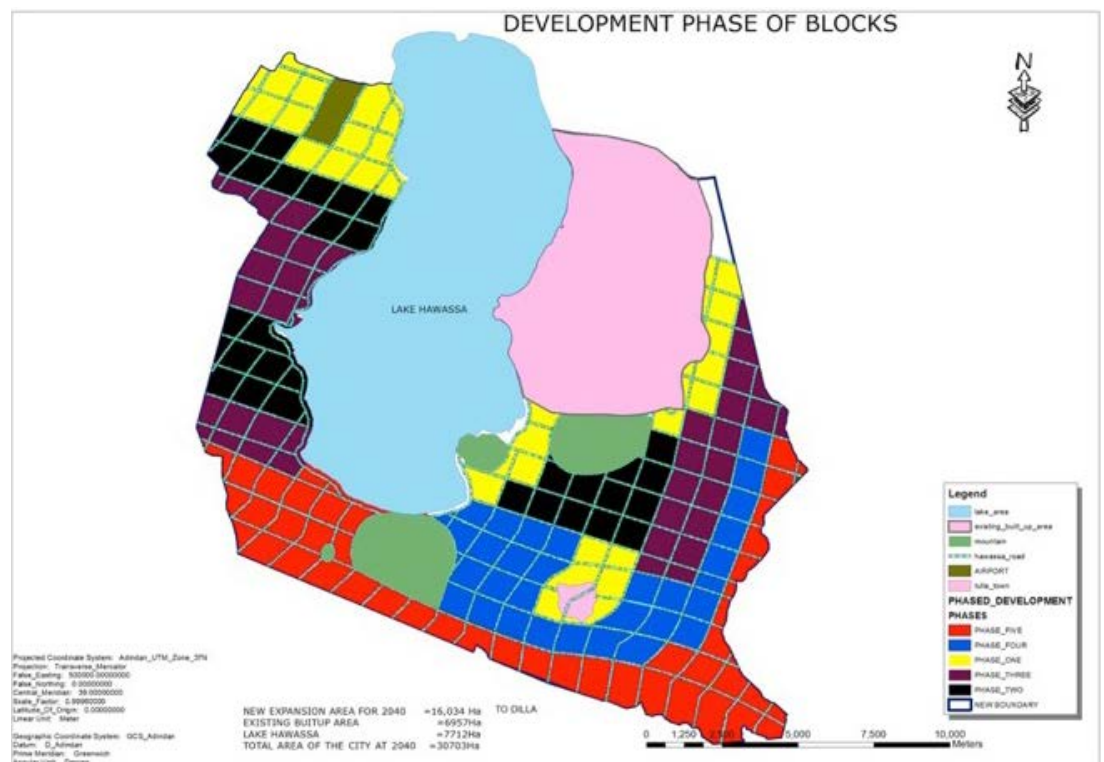
As in most countries, Ethiopian law allows the government to acquire land for public purpose. This requires payment of compensation based on the productivity of the land that is being acquired, plus additional costs for destruction of trees, houses, or other valuable artifacts, aid with resettlement if a household is being displaced, and other charges.

The city calculated the total cost of compensation for the arterial grid land at approximately \$6.4 million, to be paid over five years. The annual capital budget at that time was approximately \$5.7 million per year, meaning the total cost to secure the land for the arterial grid was equal to roughly 22 per cent of the capital budget for the city, over five years.

The city also receives money from the World Bank for infrastructure, but this cannot be used for land acquisition. They estimated that half this cost would need to be paid by the regional or federal government and agreed to pay the rest from own-source revenues – striking sign of the commitment of the city government to urban expansion planning. Unfortunately, regional government funding was insufficient, and the project faced a major gap.

**FIGURE 31**

Grid plan and phasing diagram of Hawassa, Ethiopia, circa 2014. Phases are marked, with Phase I shown in yellow. The existing built-up areas are shown in pink, and environmentally sensitive areas in green.







Under Ethiopian legislation current at the time, municipal governments were required to regularise or demolish informal settlements within six months of their establishment.

Using a novel strategy that relied on strong political leadership, the municipal government identified arterial road corridors that could pass through the informal settlements with minimum disruption and offered the residents the opportunity to regularise their land title in exchange for rearranging their fence lines and structures along the lines of the future grid. Land for several of the arterial roads in the expansion area was secured at no cost to the municipality, which simply surveyed the route and then provided legal lease documents indicating the road right-of-way to the informal settlers (Figure 32).



In a second novel and politically savvy move, the city administration added social outreach workers to the urban expansion team to travel the grid route and explain the plan to farmers in rural areas and local leaders. They helped control rumours, explaining that the plan only needed narrow strips of land and that farmers could continue to grow crops and graze cattle in the unbuilt road rights-of-way, minimising impact on their livelihoods. The social workers also explained the benefits of urban expansion planning – improved access to urban markets, more orderly growth, and higher rural land values. This helped avoid generating opposition to the urban expansion of the city, a problem that plagues other urban

development efforts in Ethiopia.

The net effect was to create extensive new lands for settlement on the urban periphery. This proved useful in 2016, when a new industrial park opened in Hawassa, bringing 40,000 to 50,000 jobs with it. The park was not planned when the urban expansion plans were developed, but the flexibility that the plans gave allowed city officials to quickly site the park along an arterial road. The rapid increase in employment has sparked massive rural-to-urban migration. City officials lack new census data, but believe the population now exceeds 500,000. Extensive new housing areas have been developed along the arterial grid, accommodating much of this influx in settlements

that are informal (Kaganova and Zenebe 2014), but well-connected to formal sector jobs in the industry park, markets in the city centre, health facilities, and schools.

Despite enabling national legislation, Hawassa had the same funding shortfalls most cities face when implementing urban development plans. City officials engaged with that challenge, committing local resources and working directly with local residents to come up with mutually beneficial solutions. Acquiring land for the arterial grids is a challenging process, and success depends on local political commitment to solving problems as they arise and substantial dialogue and coordination with other levels of government and stakeholders.

**FIGURE 32**

Surveyors in Hawassa working in a new informal settlement to mark the arterial road in 2015. Source: Author.





# URBAN EXPANSION BY OTHER MEANS: THE STRUCTURE PLAN OF ADAMA, ETHIOPIA



Adama, Ethiopia was one of the first four participating cities in the 2013–2016 Ethiopia Urban Expansion Initiative. The city prepared a draft plan and expressed initial enthusiasm for the methodology. However, field reports, the 2017 MUDC assessment, and the academic paper published on the initiative indicated that the city had approved the plan but failed to implement it on the ground.

The lack of implementation was ascribed to financial, institutional, political and strategic factors, comprising a laundry list of things that can go wrong with urban expansion plan implementation (Lamson-Hall et al. 2018):

1. **A shortage of funds occurred when the regional government shifted lease revenues from urban to rural areas, rather than reinvesting them in urban development.**
2. **Large-scale investment projects in the area led to the creation of a new land management office that was separate from the planning department. The new office had the authority and resources to implement the plan but had not helped create it and was focused on attracting industrial tenants.**

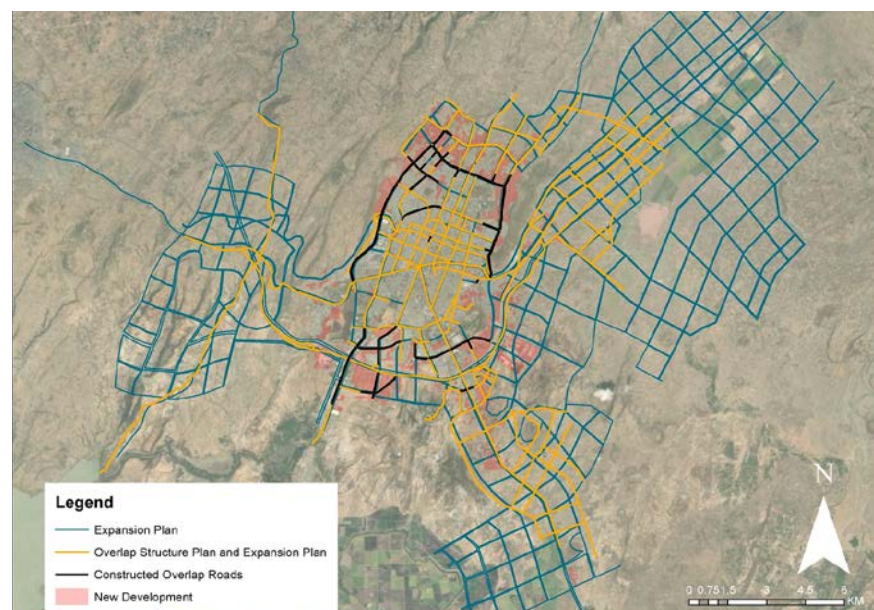
3. **Rapid, frequent changes of political leadership forced the urban expansion team to re-acquire political support at irregular intervals.**
4. **When the municipal authorities did build a portion of the arterial road grid, they made costly asphalt roads with concrete drains instead of the simple red-dirt roads built in other cities. This quickly exhausted their available funds.**

However, the local planning staff continued to see the relevance of the approach and, unknown to the international experts, incorporated elements of the urban expansion plan into their structure plan, a ten-year plan governing the development of the urban periphery that each Ethiopian city is required to prepare and submit in order to receive federal urban infrastructure funds.

With satellite imagery and maps of the approved urban expansion plan and structure plan, we can

**FIGURE 33**

Map of expansion plan, overlap between the expansion plan and the structure plan, new development, and constructed elements of the overlap in Adama, Ethiopia.





measure the extent to which the urban expansion plan influenced the structure plan, and the implementation on the ground that resulted from this influence. The results of this analysis are shown in Figure 33.

In total, 39.8 km of the expansion plan arterial roads were built under the structure plan. This is less than the originally forecasted 114.5 km that would have been developed in the first five-year phase of the urban expansion initiative. Overall, the structure plan contains 290.2 km of roads that match the urban expansion plan, amounting to almost 50 per cent of all of the road infrastructure in the structure plan. The total length of the arterial grid in the expansion plan is slightly greater, at 715.8 km, and it covers a much larger area because it is organised in macroblocks of 1 km<sup>2</sup>.

**THIS INDICATES THAT URBAN EXPANSION PLANNING, EVEN IN THE ABSENCE OF A FULLY SUCCESSFUL URBAN EXPANSION INITIATIVE, CAN HAVE POSITIVE EFFECTS ON EFFORTS TO PREPARE LAND FOR GROWTH, AND, AT LEAST IN THE CASE OF ADAMA, HEAVILY INFLUENCE FUTURE PLANNING DECISIONS.**

The specific mechanism by which this occurred was revealed in conversations between the authors of this report and the officials who designed the structure plan. Although changes in leadership and departmental reshufflings disrupted the lines of accountability of the urban expansion team, the team members remained in the local government, and having created their own population forecasts and future area projections, retained knowledge of the need to prepare lands for urban expansion. Despite more than six years elapsing between their initial training in 2013 and the creation of the structure plan, they remained convinced of the need to act, and applied their skills and knowledge to the structure planning exercise.

Lacking a counterfactual, it is difficult to say whether the city planned for more or less expansion than they otherwise would have; however, the inclusion of the urban expansion plan roads indicates that urban expansion planning methodology was useful to officials and provided necessary information that influenced decision making.

One assertion that is often made about urban expansion plans is that they facilitate the implementation of other plans. In this case, the existence of the urban expansion plan appears to have influenced both the layout of the structure plan and, most likely, the quantity of growth that it prescribes.

# A SURVEY OF HOUSEHOLD-LEVEL IMPACTS OF URBAN EXPANSION PLANNING IN HAWASSA, ETHIOPIA



Monitoring and evaluation of urban expansion planning has mainly measured success in four ways: (1) Did the city create and approve an urban expansion plan? (2) To what extent was the city able to secure the rights-of-way for the arterial road corridors indicated in the plan? (3) To what extent was the city able to construct any of the roads indicated in the plan? and (4) To what extent did the implementation of the urban expansion plan facilitate access to land in the city and reduce informality?

The conclusions in the case of Hawassa can be quickly summarised by stating that the municipality successfully created an expansion plan (Figure 1) and succeed in acquiring the right-of-way corridors for 60+ km of arterial roads. It then leveraged infrastructure funds to construct roads in the first phase of the project, starting from 2014. This resulted in reduced informality, new industrial development, and better accommodation of new urban residents.

These important outputs of the plan tell us little about impacts at the household level. In theory, peripheral areas with arterial road access should have shorter travel times, better access to employment, better access to central areas, and better access to services than peripheral areas without those roads. If true, these benefits would help justify the necessary investment in technical assistance and far larger

investment in infrastructure that urban expansion planning requires. This section of the report presents results of a new survey conducted in Hawassa in mid-2021 that measured these impacts and other outcomes at the household level. Plans to expand this survey to more cities have been blocked by the security situation in Ethiopia, but the promising results of this exercise indicate that it would be worth pursuing in the future.

Development in Hawassa continues to include a mix of formal and informal housing. Much of the informal development is taking place in areas that have been serviced with arterial roads, but some is not. The same can be said of formal development; while most of it has occurred in areas that have been serviced with arterial roads, some has not. The survey focused on the differences between households living in areas built since 2014 that are adjacent to arterial roads built through the plan, and households living in areas built since 2014 that are not adjacent to arterial roads.

Using similar techniques to those described in the Adama case study, LANDSAT imagery and Google Earth were used to map new development since 2014. The city's 2013 urban expansion plan was overlaid against the newly built areas to identify which of the proposed roads had actually been constructed in the ensuing years. Newly built areas were classified as either *planned* or *unplanned* based on whether or not the proposed urban expansion

plan roads for those areas had been put in place. This yielded a map of areas that had benefited from the urban expansion plan and areas that had not (Figure 34).

Households in both planned and unplanned areas were randomly selected to participate in the survey. Researchers overlaid points from a Halton Sequence (Halton, 1964) on the geographic extent of the city, then clipped to only include planned and unplanned areas built since 2014. Surveyors were given a map of the selected points, and the residents of the house nearest a given point were invited to participate in a short survey. If they declined, then the next closest house was sampled. A total of 54 surveys were collected from *unplanned* areas and 48 from *planned* areas, for an *N* of 102. Surveys were conducted in the language of the respondent and results were translated into English by the surveyor collector.

An initial set of questions was collected on baseline data that should not be affected by the presence of an urban expansion plan. Questions were asked about household size, years of education of respondent, years the respondent has lived in the city, and school-aged children in the household (Table 9).

Sampled households in both groups are not statistically different in household size, number of school-aged children, years of education of respondent, or years in the city.



A next round of questions addressed socio-economic characteristics that may be impacted by the presence of an arterial grid, such as the number of working people in the house and household income. This also included questions about respondents' place of origin before moving to the city (Table 10).

Significant differences were found in the number of working people in the household ( $1.77 \pm 0.17$  vs.  $1.41 \pm 0.17$ ), monthly household income ( $7,863 \pm 1,709$  vs.  $4,956 \pm 984$  birr), "moved to city from rural area" ( $29 \pm 13$  per cent vs.  $59 \pm 14$  per cent), and "came to city from another urban centre" ( $40 \pm 14$  per cent vs.  $9 \pm 8$  per cent).

Questions were then asked about housing characteristics that may be indirectly impacted by urban expansion planning - home ownership versus renting, existence of formal land tenure, possession of a title deed, and monthly housing cost (Table 11). These factors, while not directly related to urban expansion planning, would have different values if urban expansion planning facilitates formal development, as some city leaders reported in the 2017 study.

**FIGURE 34**

Map of Hawassa showing the planned arterial grid, arterial roads that were built, survey points, new growth areas that were serviced by the arterial road plan, and new growth areas that were not.



**TABLE 9**

Responses to four survey questions in planned and unplanned areas.

Question	Planned Mean	N=48 Confidence.t	Unplanned Mean	N=54 Confidence.t	Significant?
How many people live in your household?	6.27	0.67	5.72	0.59	
How many school-age children are living in your household?	3.00	0.61	2.52	0.53	
How many years of education do you have?	9.55	1.90	8.06	1.36	
For how many years have you lived in the city?	18.20	4.13	16.63	3.50	

TABLE 10

Socio-economic characteristics of respondents in planned and unplanned areas.

Question	Planned Mean	N=48 Confidence.t	Unplanned Mean	N=54 Confidence.t	Significant?
How many people in the house are working?	1.77	0.17	1.41	0.17	**
How much is your total household income?	7,863	1,709	4,956	9,84	**
Moved to the city from a rural area?	0.29	0.13	0.59	0.14	**
Came to the city from another urban centre?	0.40	0.14	0.09	0.08	**

No significant difference was found in home ownership rates or in housing costs. Significant differences were found in formal land tenure ( $29\pm 13$  per cent vs.  $7\pm 7$  per cent) and, at the 90th percentile, possession of a title deed ( $27\pm 11$  per cent vs.  $7\pm 6$  per cent).

The final set of questions (Table 12) addressed household characteristics that could be directly affected by proximity to an arterial road – access to water and electricity, and travel times and costs to the city centre and place of work.

The survey found significant differences in access to piped water ( $52\pm 13$  per cent vs.  $13\pm 9$  per cent), access to formal, metered electricity ( $31\pm 14$  per cent vs.  $4\pm 5$  per cent), travel times to the city centre ( $24.3\pm 3.6$  minutes vs.  $37\pm 5.5$  minutes) and cost of travel to the city centre ( $9.3\pm 1.9$  birr vs.  $15.9\pm 2.2$  birr). No differences were found in travel time to place of work or cost of travel to place of work. No differences were found in the share of households with all school-aged children attending school. No differences were found in travel times to school.

Overall, the survey finds that areas that have benefited from the implementation of urban expansion plans have more working people in

the household, higher household income, and are more likely to host people who have migrated from other urban centres compared to rural areas. Households in those areas are no more or less likely to own their homes (ownership is highly prevalent in both cases), but they are more likely to have formal title or land tenure. They are also roughly four times as likely to have piped drinking water and seven times as likely to have formal, metered electricity. Finally, households in areas connected to the arterial road network have shorter travel times to the city centre and lower travel costs.

An interesting additional finding has to do with the relationship between higher incomes and more working adults in planned areas. This is correlated with shorter travel times to the city centre, but not with shorter travel times to place of employment. The explanation comes from urban economic theory: the city centre is a fixed location, but jobs are distributed throughout the urban area. There is no significant difference in distance to the city centre among planned and unplanned areas. The logical explanation for the shorter travel times to the city centre is that the arterial roads enable residents of planned areas to travel *faster*. Since travel times to their place of work

are similar to those of people from unplanned areas, then people in planned areas are traveling *further* when seeking work. If this is true, then people living near arterial roads have access to a larger pool of possible workplaces within a reasonable commute. These results support the work of Nicodemus and Ness (2010), who found that the income and wealth gains of peri-urban residents are directly related to the provision of infrastructure on the urban periphery.

**The results of this survey in planned and unplanned areas in Hawassa offers some provisional insight into the possible benefits of urban expansion planning for households: proximity to arterial roads increases access to services and may improve access to employment; it reduces some travel costs and travel times; and it is associated with lower levels of informality. It is also possible that proximity to arterial roads improves access to the metropolitan labour market, leading to higher incomes and higher levels of employment.**

**TABLE 11**

Tenure characteristics and housing costs of respondents' homes in planned and unplanned areas.

Question	Planned Mean	N=48 Confidence.t	Unplanned Mean	N=54 Confidence.t	Significant?
Do you own your home, or do you rent from a landlord?	0.71	0.13	0.81	0.11	
Do you have formal land tenure?	0.29	0.13	0.07	0.07	**
Do you have a title deed?	0.27	0.11	0.07	0.06	*
How much do you pay monthly for your house?	376.68	202.51	189.72	155.82	

**TABLE 12**

Access to water and electricity, school attendance, and travel characteristics of respondents in planned and unplanned areas.

Question	Planned Mean	N=48 Confidence.t	Unplanned Mean	N=54 Confidence.t	Significant?
Do you have piped drinking water in your home?	0.52	0.15	0.13	0.09	**
Do you have an electric meter and formal electrical connection in your home?	0.31	0.14	0.04	0.05	**
How many minutes does it normally take you to get to the city centre?	24.34	3.61	36.96	5.51	**
How much does it cost to travel to the city centre?	9.25	1.87	15.89	2.20	
How many minutes does it take for you to travel to your place of work?	24.81	6.11	29.50	6.55	
How much does it cost to travel one-way to your place of work?	6.86	3.50	4.33	2.02	
Do all school-aged children in your house attend school?	0.82	0.12	0.74	6.55	
How long does it take the youngest child to travel to school (in minutes)?	16.52	4.10	16.22	3.64	



# WHY URBAN EXPANSION PLANNING SOMETIMES SUCCEEDS



Urban expansion planning has enormous potential to make cities more welcoming, to improve socio-economic outcomes, to address pressing environmental challenges, and to do so at a scale and on a timeline that reflects the current rapid urbanisation being driven by rural-urban migration. The case studies highlight common challenges that cities face when planning for urban expansion and illustrate that those challenges can be overcome. The next section discusses the key lessons that emerge from those case studies.

Successful cities built local ownership around urban expansion planning and leaders took steps to acquire the necessary resources, in part because they saw the plans as realistic and attainable. They worked to involve all key stakeholders in the making and review of the plans, seeking to identify benefits for those stakeholders. They also took steps to establish forward and backward links to other plans and capital investment programmes. This signified an attentiveness to politics and governance issues and reflected their realism about available human and financial resources. The process was supported by international experts who provided training and strengthened political buy-in.



## Evidence and data

The strong commitment of local officials was partly enabled by the simple and direct data used in the planning process. This keeps data gathering requirements, analysis requirements, and technical needs low, making the plan easy to explain to stakeholders and allowing them to lead in designing and approving it.

City leaders were already aware of the challenge of informal settlement on the urban periphery, and they had some sense of the scale of growth that they were facing. This was confirmed and quantified in the growth forecasts that were generated in Step 1, and these forecasts provided a strong foundation for city leaders to seek resources and allies.



### Minimal and realistic planning

Complementing the simplicity of the data is the simplicity of the plans themselves. By limiting the plans to top-level siting of the arterial road grid and environmentally sensitive areas, city leaders can easily explain the ideas to stakeholders and other officials.

This is not meant to overlook or minimise the importance of other elements of planning. Urban expansion planning provides a framework for growth. More detailed land use planning, including the location of different facilities as well as local roads, public squares, small parks, markets, industrial parks, and commercial areas, can be done later, closer to the time of construction, and will benefit from this framework.



### Judicious use of government resources

In part because plan elements are kept to a minimum, urban expansion plans are more realistic in their demands on government resources for planning and acquisition. The plans can be prepared by local officials in three to six months. The arterial grid should only occupy six per cent of the total land in the expansion area, making it more affordable and easier to implement.

The plans can also be easily linked to other agendas, such as industrial park development, helping build alliances with other initiatives without increasing the amount of coordination that is required with other bureaus, departments, and administrations. By leveraging other planned investments, some cities were able to complete portions of the urban expansion plans very quickly.



### Short-term actions, long-term impact

Implementation of an urban expansion plan is vouchsafed at the beginning of the 30-year term of the plan, typically in the first five years. This is the period in which the land for the arterial grids is secured under the control of the city administration. Emphasising this implementation action above all others means that the same team that prepares the plan can oversee the most critical implementation actions.

This short-term action is often missing from other plans, but it is a large part of what ensures successful long-term implementation in contexts with limited enforcement capacity. Simply relying on the regulatory power of the plan can lead to squatting in arterial road corridors and settlement in environmentally sensitive areas, both of which are difficult or impossible to remedy after the fact.

# THE ROLE OF INTERNATIONAL SUPPORT



**All cities were supported by the capacity building efforts of the international partners. This consisted of trainings and briefings for political leaders and administrators, as well as more complicated and in-depth training for technical staff focused on the steps described in the case studies. It also included making sure local political leaders had full knowledge of the plans and that leaders and technical staff were familiar with the planning rationale. The capacity building sought to put the local staff in charge of making the plan and to create linkages between the technical staff and the political leadership.**

Cities that successfully implemented urban expansion plans requested and received more international, national, and sub-national support than those that did not. This support included additional visits from international experts, frequent and informal communication with those experts to work through technical issues, follow-ups from sub-national leaders, and communication and contact with national authorities who provided accountability for tasks and additional advising. The heightened engagement laid the groundwork for supportive funding from national and sub-national governments but did not include funding or material assistance from international partners.

## Local Ownership

International support seeks to build local ownership, which all successful cities exhibited. Urban expansion plans are minimal and realistic, backed by evidence and data, judicious in their use of government services, and front-loaded with critical actions in the early implementation stage. These structural features of the urban expansion plans mean that officials can take control of the planning process, as the example of Adama clearly illustrates. There are some elements that require outside technical support, such as the creation of accurate growth forecasts, but an urban expansion plan is simple enough that even fairly weak municipal governments can manage to produce one using local staff and resources. This is a sharp contrast with comprehensive plans, for example, which require a much higher level of expertise that cannot be expected to exist locally.

In architecture, there is an important question about the ownership of plans: “Who is holding the pencil?” It is crucial that the answer to this question should be: “It is the locals who are holding the pencil at all times.” This allows them to take ownership of the urban expansion plans and use that knowledge to ease communication with stakeholders, create political buy-in, facilitate implementation, and ultimately lead to innovative financing and linkages with the capital budget of the city. That is what makes things happen on the ground.







### Political Buy-In

Although not directly highlighted in the case studies, one factor that supported successful cities was political buy-in at higher levels of government, developed by international partners. All of the activities involved in urban expansion planning require resources and time, and some of the activities, such as gaining planning authority over rural lands on the urban periphery, may require actual legislative changes or agreements with leaders in surrounding areas. Political buy-in has occurred when leaders are willing to invest resources in politically challenging obstacles to plan development or implementation. Without political buy-in, implementation is impossible.

Building political buy-in starts with trust. Building this trust is somewhat easier because urban expansion plans cover the entire urban periphery and not only a segment which may favour this or that landowner or developer. In addition, implementation of the expansion plan requires small investments over a very large area rather than intensive investments over a small one. In that sense, they tend not to favour one group or area over another.

Successful international programmes to support urban expansion planning engage local personnel who have strong pre-existing relationships with stakeholders. This gives the groundwork that makes it possible to

share the idea. When the idea is being shared, it has to be presented clearly and in a way that enables the policymakers to see how it fits in to their other agendas. This requires some local knowledge in order to tailor the information that is shared. If there is interest, presentations are often followed by a formalisation of support from the government, including the commitment of the time of local officials (such as the urban expansion team members, or the ministerial representatives who often accompany the missions). In successful cities, these vital relationships are reinforced with every visit or activity.

When political buy-in and local ownership were established in successful cities, city leaders often chose to hold consultations with stakeholders in the expansion area, such as landowners, informal land developers, and politicians in adjacent areas. The purpose of these consultations was essentially recruitment; possible opponents of the plan were persuaded to support it by explaining how the plan would work for them. People were often scared that the new plans would result in a loss of autonomy or would actually lead to them losing their lands. This is not the case. In fact, expansion plans promote rural-to-urban linkages, benefit farmers, and help rural administrations address the challenge of disorderly growth. These things are not self-evident, however. Municipalities that had a robust communication strategy were able to acquire land more easily, avoiding much opposition.

**PLANS HAVE TO BE DULY REGISTERED, AND A MECHANISM HAS TO BE PUT IN PLACE TO BRIEF NEW OFFICIALS AND CITY STAFF ABOUT THE EXISTING PLANS. THIS INFORMATION SHOULD ALSO BE TRANSPARENT AND AVAILABLE TO ORDINARY CITIZENS, PARTICULARLY DEVELOPERS AND RESIDENTS OF THE PLANNED AREAS.**



### **Institutionalisation**

Although not discussed in the case studies, international partners also work to support institutionalisation of the plans, which can help with their long-term success. Institutionalisation aims to ensure that the plan will continue to move forward even after its political champions move on. All of the appropriate officials have to be informed about the plan, its genesis, and its key elements. This group of officials has to include local officials as well as regional/provincial and national officials. Plans have to be duly registered, and a mechanism has to be put in place to brief new officials and city staff about the existing plans. This information should also be transparent and available to ordinary citizens, particularly developers and residents of the planned areas.

Although it has not yet occurred in either Ethiopia or Uganda, institutionalisation should also eventually include incorporating urban expansion planning into the legislative framework, with urban expansion plans placed at the top of the planning hierarchy; these are the plans that are the least detailed but have the longest timeline. As in the case of Adama, other shorter-term plans can be nested within the urban expansion plan. This is easier to accomplish once the rights-of-way for the arterial roads are secured.

Another step has been to regularise the training of government officials (especially mid-career professionals) in the methodology. This was the rationale for establishing a training course on urban expansion at the Ethiopia Civil Service University, for example. Officials in Uganda are considering the creation of a similar course at Makerere University.

### **Peer-to-peer learning**

International partners can also assist with decentralised learning mechanisms that allow cities to share knowledge and experience. Direct exchanges, educational visits, and events can promote sharing of knowledge. The challenges of urban expansion planning are common from city to city and across regions, but solutions may vary considerably. Peer-to-peer learning can stimulate creative problem solving, foster competition between cities, and facilitate the dissemination of effective practices.

### Links to capital budgeting

The final and most important action that successful cities took was to link their plans to capital budgets. This is, in some sense, the culmination of all the previously described success factors, and it is the only way to make a change on the ground. Capital budgeting allocated resources for surveying, compensation, and marking of the rights-of-way of the arterial road grid.

In most countries, harmonising the city capital budget to include the expansion plan requires some endorsement or support from higher levels of government – and often from different government agencies, e.g., the Ministry of Transport – that may need to approve the municipal budget plan as well as approve and oversee transfers from the central government. This support was evident in the cities in Ethiopia that were able to secure large amounts of arterial roads, all of which received approval to link their expansion plan to their capital budgets.

Existing capital budgets may be sufficient for creating the urban expansion plans and securing rights-of-way for the arterial grids. But financing considerations do not stop when the grid is secured. The process of urban development is costly, and many cities lack efficient mechanisms to pay for growth or capture any of the value increase that comes from the placement of infrastructure in a new area. Finance is sufficiently complex that the next section is dedicated in its entirety to ideas for how to pay for urban expansion.





# FINANCING FOR URBAN EXPANSION PLANNING



Cities that have established political buy-in and local ownership and made links to capital budget still will likely need additional sources of financing. The cost of preparing and implementing an urban expansion plan is estimated at \$13.3 million per city, on average. This includes investments in capacity building by international partners, administrative costs for the city, the cost of acquiring and marking arterial road corridors, and acquisition of a small number of environmentally sensitive areas.



Although urban expansion planning only requires financing for the plan-making process and the payment of compensation for the arterial roads and open spaces, actually developing land on the urban periphery incurs considerable additional costs that have to be factored into any financing scheme. This section outlines suggestions for how to finance urban expansion planning in the context of rapid urbanisation.

In many places, urban land development is viewed as a fiscal loser, with the cost of developing land exceeding the likely revenues. But the development of urban land generates tremendous increase in value for private landholders – the key is to capture, at a minimum, enough of this value increase to finance the land development process and ensure that it is managed sustainably.

The key costs the municipalities will face to prepare for urban expansion are the following:

- › Surveying and demarcating the entire expansion area and arterial grids
- › Compensation:
  - › The land for the arterial grid – within five years
  - › The remaining lands that may need to be acquired for environmental protection, public open spaces, and other civic uses
- › Manpower and equipment to enhance land supply capacities
- › Basic infrastructure (roads, drainage, water supply, electricity)



Secondary cities in developing countries are typically very dependent on central government transfer payments, with some limited own-source revenue coming from fees and local taxes, including local property taxes in some cases. The breakdown of municipal revenue sources in Ethiopia is shown in Figure 35.

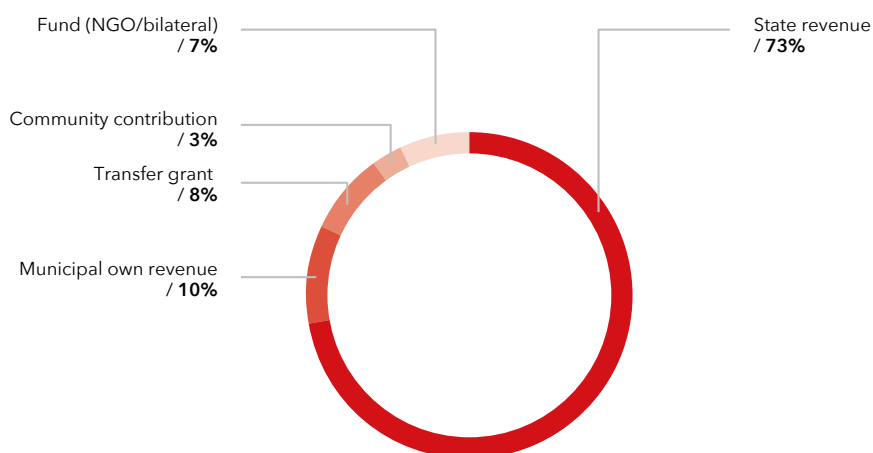
However, urban land development itself can provide a source of revenue. Based on standard macroblock designs used in Ethiopia, each macroblock will yield about 60 per cent net area for lease, around 6,000 sqm. Public lands can be opened up for urban expansion, and this land can be leased or sold. Property taxes and betterment levies can provide an additional source of revenue.

In Ethiopia, the formal land development process assumes that the municipality will take possession of rural land and service it before it is leased for urban use, and the informal land development process also requires the municipality to eventually regularise and bring in services. The municipal government receives lease revenues, which can be seen as analogous to a flat property tax, in that it is meant to cover the costs of municipal services and provide additional revenue. The municipal government is responsible for paying the upfront cost of compensation and the cost of improving the land with roads and basic services, but it also stands to gain lease revenues, which can include a down payment.

**IN MANY PLACES, URBAN LAND DEVELOPMENT IS VIEWED AS A FISCAL LOSER, WITH THE COST OF DEVELOPING LAND EXCEEDING THE LIKELY REVENUES. BUT THE DEVELOPMENT OF URBAN LAND GENERATES TREMENDOUS INCREASE IN VALUE FOR PRIVATE LANDHOLDERS - THE KEY IS TO CAPTURE, AT A MINIMUM, ENOUGH OF THIS VALUE INCREASE TO FINANCE THE LAND DEVELOPMENT PROCESS AND ENSURE THAT IT IS MANAGED SUSTAINABLY.**

**FIGURE 35**

The breakdown of municipal revenue sources in Ethiopia in 2014 (from an unpublished survey data gathered by the authors), showing a strong reliance on transfers and weak municipal revenue generation.




In Ethiopia, leases are typically payable over 20 to 50 years, with a down payment of ten to 20 per cent at the beginning of the lease term (considering this as a kind of property tax, which would imply an initial taxation rate of between two and five per cent of the sale value of the property per year, but with no possibility of a reassessment). When informal housing is regularised, no down payment is collected, but it does become possible to collect lease revenues. On average, it takes ten to 12 years for lease revenues to exceed land development costs (again, this implies that the cost of developing the land is between 20 and 60 per cent of the sale price of the land). At that point, urban expansion becomes self-financing.

IN A SYSTEM BASED ON PROPERTY TAXES, IT MAY BE POSSIBLE TO SHORTEN THAT TIMEFRAME IF THE VALUE OF THE LAND INCREASES AND THE PROPERTY IS REASSESSED. IN A LEASE-BASED SYSTEM, IT MAY BE POSSIBLE TO SHORTEN THE TIMEFRAME BY REQUIRING A LARGER DOWN PAYMENT (THOUGH THIS WILL CERTAINLY INCREASE THE BARRIER TO ENTRY FOR OWNING LAND). REGARDLESS, THE SITUATION POSES A MAJOR CASHFLOW CHALLENGE FOR MUNICIPALITIES, WHO OFTEN FACE IMMENSE PRESSURE FROM FISCAL DEFICITS.

The international team working in Ethiopia in 2013–2016 developed a simple financial model to help cities anticipate costs and revenues from urban development. The model included compensation and development costs, income from the down payments, annual lease payments, grants from the regional or federal government, and a differential land pricing system to calculate lease revenue.

These models can also be developed for cities in Uganda and Somalia and updated for cities in Ethiopia. The key finding of the models in Ethiopian cities is that urban expansion plans can be financially viable, and that returns on investment for municipalities can be high, although cities will require at least five years of financing before the growth process begins to unlock revenue. In addition, the models only work if revenue from leases is actually reinvested in land development. If the money is used for other purposes, urban expansion is no longer able to be self-sustaining.





There are several different ways for cities to improve the fiscal picture with regard to urban expansion planning and implementation. This includes revenue enhancement, cost reduction, municipal and regional financing facilities, and several options that may require changes in the legal framework in order to be viable.



# REVENUE ENHANCEMENT OPTIONS

In Ethiopia, cities can charge higher down payments to wealthier citizens and commercial entities that may have access to financing. Higher down payments can also be charged for land in better locations, such as along the arterial grids versus in the interior of a block. Down payments can and should be kept low for small and medium-sized enterprises (SMEs) and low-income citizens. The same principle can be applied to property taxation.

Municipalities should ensure that land sales and leases cover the cost of land development in order to maintain fiscal sustainability. This should be extended to include land that is allocated for government use. Government users in property taxation systems should be encouraged to sign PILOT (Payment in Lieu of Taxes) agreements with the municipality. These agreements are widely used in developed countries to offset the negative revenue effects of hosting government facilities (Kenyon and Langley 2010).

A variety of residential lots of varying sizes (ranging from perhaps 50 sqm to 500 sqm) should be produced and priced differently based on their location, with more desirable sites priced higher. The same principle of differential pricing should be applied to commercial, small industrial, and other services. Small plots for low-income citizens can be subsidised through the higher prices from bigger plots, and this will provide an incentive for people who would otherwise look to the informal sector for their housing, reducing future regularisation costs.

Considering that much of the urban land development problem is due to cashflow, early payments should be incentivised. This is also important because leases tend not to be adjusted for inflation, so real revenues will be much lower than projected. A discount for early payments up to the rate of inflation would still be advantageous for cities because they will save on many years of collection and administration costs. Buyers will avoid decades of interest charges.

Cities that do not already have property taxation systems should use the urban expansion areas as pilot zones for the establishment of such systems. This should be simpler than implementing property taxes in areas that are already developed, because the cadastre in the expansion zone will be up-to-date and the owners will be known. Cities with existing property taxation systems should extend them concurrent with the development, charging property taxes in the first year that a parcel is occupied.







## Cost Reduction Options

Cities can also try to reduce the cost of building out the grid, using clever and locally sensitive solutions to reduce the need for compensation and minimise outlays on road construction in the earlier phases. Some options to reduce costs have already been discussed. Such options mainly come down to design, negotiation, and phasing.

With regard to design, municipalities should consider using existing road rights-of-way whenever possible to reduce compensation costs. Road design should minimise crossings of waterways or gullies to reduce construction costs, be laid out to try and avoid reducing the usefulness of rural land parcels, and avoid structures for which compensation must be paid.

When securing the road rights-of-way, municipalities should first attempt to negotiate with property owners to obtain easements at low or no cost in exchange for guaranteed road construction. In informal settlements, negotiation in exchange for titling and basic services can be used to encourage plot readjustment that will create space for the arterial road alignments. In both cases, the negotiations have to be conducted in good faith, with the municipality prepared to carry out its end of the bargain.

Another strategy that can gain the support of rural residents and local political leaders is to pay compensation and then quickly put in place a small number of roads that will establish linkages with rural areas. This gives farmers access to markets and connects villages to the city, which will also have a positive impact on their livelihoods. These roads need not be full-sized or asphalted; simple graded dirt or gravel roads will provide some benefits. Heavy construction vehicles will be going back and forth as structures are being built, and these vehicles would damage asphalt roads which would then need to be repaired at great expense. It is much cheaper and easier to maintain a gravel road or a dirt road, as long as drainage is not neglected. These roads can be upgraded in the future if and when demand warrants it.



# FINANCING FACILITIES

To address the major cashflow issue around implementing urban expansion, cities should consider establishing City Expansion Revolving Funds (CERFs). The purpose of these funds would be to guarantee the reinvestment of lease revenues and down payments into land development. The funds would receive all down payments and early payments, and 75 per cent of lease revenues for the first ten years. When lease revenues comfortably exceed expansion investment costs, a higher percentage of revenues can be diverted to the general budget. These funds should also be the vessels for receipt and disbursement of the proposed first five years of funding for urban development.

The justification for this initial payment, which would need to come from the regional or the national government, has to do with the role of cities in national development. Cities, and secondary cities in particular, provide services to a much broader population than just their residents. As demonstrated above, secondary cities in particular are a destination for rural-urban migrants, and these rural-urban linkages are an important part of rural economies. The burden of developing urban areas should be shared, with payment of compensation in expansion areas including industrial parks and zones supported by higher levels of government. This will help cities to accumulate development capital more rapidly to successfully implement expansion plans.

**CITIES SHOULD ALSO BE PERMITTED TO USE CAPACITY AND INFRASTRUCTURE DEVELOPMENT FINANCING FACILITIES FOR URBAN EXPANSION. CURRENTLY, MOST FUNDS FROM THESE FACILITIES ARE CHanneled INTO INNER CITY INFRASTRUCTURE PROJECTS. STRATEGIC INVESTMENTS IN THE OPENING OF ARTERIAL GRIDS CAN OFFER LONG-TERM RETURNS. THESE FUNDS CAN ALSO SUPPORT CAPACITY DEVELOPMENT THAT IS NEEDED FOR URBAN EXPANSION PLANNING, PARTICULARLY STAFFING AND EQUIPMENT PURCHASES.**





## LEGISLATIVE CHANGES

Although urban expansion planning is meant to take place within the existing planning system with no legal changes necessary, it can be useful to lay out some options for financing that could be pursued that may require legislative changes in some jurisdictions. These include public-private partnerships (PPPs), changes in revenue assignments for cities, and the introduction of municipal borrowing.

Public-private partnerships are legal in some jurisdictions. They allow the government to partner with real estate developers to build new areas of the city and can improve revenue flows to the city by addressing the constraint in investment capital. The success of PPPs is highly dependent on the capacity of the city to ensure that the private sector partner conforms to the requirements of the development plan and remits all funds in a proper manner.

**CHANGES IN REVENUE ASSIGNMENTS MAY ALLOW CITIES TO AUTONOMOUSLY REVISE TAXES AND FEES, COULD CHANGE THE ALLOCATION OF REVENUE FROM THE CENTRE TO THE CITIES, OR MAY SIMPLY ALLOW CITY GOVERNMENTS TO KEEP A HIGHER PERCENTAGE OF THE TAX REVENUE THAT THEY COLLECT ON BEHALF OF THE STATE OR NATIONAL GOVERNMENT. ADDITIONAL REVENUE COULD ALSO BE USED TO UPGRADE TAX COLLECTION INFRASTRUCTURE, WHICH IN MANY CITIES IS INSUFFICIENTLY CAPACITATED TO FINANCE MAJOR INFRASTRUCTURE INVESTMENTS.**

Finally, municipal bonds may allow some cities to meet the cost of urban land development. These markets enable local governments to raise money to fund public projects, paying bondholders interest for the loan. Until recently, cities in sub-Saharan Africa (outside of some large South African cities) were unable to borrow in commercial markets. However, improved fiscal management practices and growing revenue streams have opened this option to more cities.

These financing options are not conclusive, and there are many more proactive mechanisms that cities can discover in order to address these constraints. By laying out a menu of options, this list will support local political leaders in inventing solutions that are contextually appropriate and implementable and should help establish the basic principle that urban growth can be a great investment for cities.

# CONCLUSION



**There is now evidence to show that rapid urban expansion in sub-Saharan Africa is driven by migrants, that this trend is beneficial, and that secondary cities have a major role to play as cities of welcome for these same migrants.**

Urban expansion planning has a critical role to play in helping secondary cities in sub-Saharan Africa accommodate new migrants and manage spatial expansion. Small investments allow cities to take control of peripheral growth for 30 years, organising it into a framework that is economically and socially inclusive and more environmentally sustainable.

The methodology described in this report is simple and has been embraced by local leaders and national governments as a pragmatic means of addressing incipient and long-term challenges. It is not comprehensive, but that is part of its strength. It focuses on arterial grid planning and preservation of environmentally sensitive open spaces because they are the things that must be done before growth occurs. This intuitively obvious approach has catalysed local leaders to invest political capital and material resources to a degree that is rarely seen in other planning projects in secondary cities.

The intervention is timely and necessary. Total urban population in sub-Saharan Africa is now increasing in absolute terms at the fastest pace in history, and most of the new residents will continue to settle on the peripheries of cities, where land is cheaper. The vast informal and poorly served settlements that developed in the last three decades have dire implications for the inclusion of rural-urban migrants and is also very challenging for urban natives. Both groups struggle to find decent housing in locations that provide good access to jobs and services.

On a macroeconomic level, urbanisation has tremendous potential to hasten economic growth and human development. However, disorderly spatial expansion can retard that growth and impede the development of efficient and well-functioning service economies. In sub-Saharan Africa, where many people rely on informal sector entrepreneurship to get by, this can lessen the formation of robust markets for goods and services. In the medium term, disorderly and chaotic expansion patterns increase vehicle kilometres traveled and make the provision of public transportation more difficult, impacting sustainability.

**THIS NEED NOT BE THE CASE, IF CITIES FOCUS PLANNING EFFORTS ON PERIPHERAL AREAS THAT HAVE NOT YET BEEN DEVELOPED. URBAN EXPANSION PLANNING HAS ALREADY LED TO SIGNIFICANT RESULTS ON THE GROUND IN ETHIOPIA, AND CITIES ARE MAKING STRIDES IN UGANDA AND SOMALIA. THIS CAN PRODUCE AN ABUNDANT SUPPLY OF ACCESSIBLE LAND FOR URBANISATION, RESPONDING TO THE NEEDS OF MIGRANTS AND URBAN NATIVES. THE LAND WILL BE LAID OUT WITH A CONNECTIVITY NETWORK THAT PROMOTES THE PROVISION OF BASIC SERVICES AND PUBLIC TRANSPORTATION AND ALLOWS RESIDENTS TO ACCESS JOBS AND SERVICES IN ALL PARTS OF THE CITY.**









This flagship report presents data and evidence showing that: urban expansion planning is accepted, and even desired, by city officials; it is capable of being implemented on the ground in a variety of contexts by municipalities with limited resources; this implementation leads to reduced informality, more housing, and greater control over the development process; and, in a new and important finding, this implementation can actually improve outcomes for households living in planned areas, both in terms of access to services, tenure security, and access to the metropolitan labour market.

AS THE CASE STUDIES  
DETAIL, CITIES THAT  
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VACUUM, AND  
INTERNATIONAL  
PARTNERS HAVE TO  
PROVIDE KNOWLEDGE,  
TRAINING, AND SUPPORT  
FOR  
INSTITUTIONALISATION,  
WHILE ALSO BUILDING  
FORWARD AND  
BACKWARD LINKAGES  
THAT CREATE POLITICAL  
BUY-IN.

There are hundreds of cities in sub-Saharan Africa that are facing rapid growth. Urban expansion planning may be beneficial for many of them, but it is unlikely that they will adopt the strategy on their own. As with any new planning approach, cities will need basic technical support to make the plans and will benefit from political support in their negotiations with surrounding local governments and with national ministries. One possible way to address the massive challenge of scaling up is to institutionalise the approach by embedding it in policy and by creating cohorts of skilled urban expansion planners through the development of training programmes in regional colleges and universities.

Approaches for implementing urban expansion planning will necessarily vary based on the legal, social, and political context. Ultimately, the success of urban expansion planning on the ground depends on the protection of the land for the arterial roads. This requires negotiation and stakeholder engagement as well as funds. Capital budget requests from local officials can cover the cost of surveying and land acquisition, but cities and countries also have to identify sustainable financing mechanisms to provide infrastructure for urban development.

Urban expansion plans are a viable option to change the urban development paradigm in the region from one that is slow and insufficient to one that is quick and impactful, allowing sub-Saharan Africa to embrace the productive benefits of urbanisation, driving improvements in quality of life for urban natives, and creating cities of welcome for rural-to-urban migrants.





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