Urban Expansion Program Concept Note

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Introduction

Rural-urban migration is leading to rapid increases in the populations of secondary cities, causing massive urban expansion. Between 2000 and 2020, the total urban population in less-developed countries grew by 70%, or 1.39 billion people (United Nations 2018). This growth is driven both by natural increase and rural-urban migration (Keyfitz 2010).

Rapid population growth during this period has led to a quadrupling of the built-up area of cities in less-developed countries (Pesaresi et al. 2016). In particular, secondary cities in Sub-Saharan Africa doubled their population and increased their extents by a factor of 2.5 during this period (Angel et al. 2016). Much of this urban expansion took place in areas without adequate infrastructure, often extending into environmentally sensitive areas (Friesen et al. 2019; Lamson-Hall et al. 2018).

Cities are engines of human productivity. No country has industrialized without urbanizing, and no country has developed without industrialization. In cities, firms have more access to suppliers, workers, and customers and are more resilient to economic shocks, and workers have more access to jobs that suit their skills and ambitions. By bringing people closer together, cities encourage learning and skill sharing. The net effect of all of this learning and trading is a tremendous increase in productivity in cities compared to rural settlements (Glaeser 2011).

To realize this potential, workers have to be able to access all of the firms in their city, and firms have to be able to access all workers. This works best when all locations in the city are accessible to all other locations. For this to happen, infrastructure must be laid out in an orderly way, with enough land allocated to streets and roads so that public transportation can work efficiently (Gerritse & Arribas-Bel 2018). This is difficult when cities are growing informally and with little planning. Large swaths of the urban periphery may remain largely inaccessible as is happening now in many developing countries.

Moving beyond this informal development pattern requires city leaders to recognize a basic reality of urban development: cities in low-income countries that are in the early stages of urbanization and industrialization often grow horizontally rather than vertically, because most residents have incomes that are too low to underwrite vertical development; domestic savings is often quite low, and neither commercial banks nor governments are able to finance the construction of tall residential buildings at a scale that corresponds to the demand for housing in the context of rapid urbanization.

Importantly, this horizontal growth is a necessary stage in the development process, but not the final one. Rapidly growing cities can double their populations in a decade or less, creating tremendous demand for living and working space. Supporting horizontal development in the medium-term makes room for more people to take part in the urbanization project and allows businesses to grow and expand. Over time, urbanization itself leads to higher incomes and more consolidated growth, enabling more-vertical development both in and away from the urban core.

If cities—and citizens—are going to address this challenge, cities must be trained and empowered to control and manage their urban peripheries. One tested and cost-effective strategy for doing so is "Making Room for Urban Expansion" (Angel et al. 2012). The approach uses rudimentary actions to prepare for the next thirty years of growth, by securing the rights-of-way for a grid of arterial roads and identifying and protecting environmentally sensitive areas. These two features—arterial roads and public open spaces—are combined into an evidence-based Urban Expansion Plan—a new type of plan that dramatically simplifies the process of planning for growth, putting it within reach of cities in developing countries.

How to Make Room for Urban Expansion

1. Study historical satellite imagery and demographics to forecast the amount of land cities will be likely to consume in the next 30 years.
2. Use this information to designate for each city an expansion area that is likely to be urbanized.
3. Incorporate the expansion area into the city administrative area so that planning and land preparation can take place.
4. Design a grid of arterial roads in the expansion area. The roads should be spaced roughly one kilometer apart and should be no less than 30 meters wide. Such a grid will require six percent of the total land in the expansion area.
5. Map environmentally sensitive areas. Incorporate these areas into a public open space plan, protecting them from development and creating a network of parks in the expansion area.
6. Acquire all of the land for the grid over the first five years of the 30-year plan and mark the roads—either with markers or with trees—to protect them from settlement or the construction of buildings. Much of the grid land is far from the center and can continue in its current use until urbanization arrives, at which time the roads will be built.

This simple program integrates data collection into plan preparation and includes implementation as part of its mandate—the work is not considered complete if the land has not been secured through purchase, liens, eminent domain, or other means.

The argument for taking these actions (out of all possible actions) is a simple one—the key tool that government has to guide and manage urban growth is the strategic acquisition of public lands in advance of development, but government capacity is limited. To plan for growth at the correct scale, government must minimize the amount of land that must be acquired to properly organize urban development in a given expansion area before development gets there. The arterial-road grid, consisting of 30-meter wide strips of land, spaced one kilometer apart, amounts to only six percent of the expansion area. Public open spaces can be acquired based on the remaining capacity for land acquisition. The total demand on government revenue and the impact on farmers and other residents of the urban periphery is minimal, but the benefits of having an arterial-road grid are substantial in terms of providing adequate lands for trunk infrastructure, organizing future residential and industrial areas, and creating a productive landscape for firms and workers. The key to success is the realization that government has to secure the land for the arterial grid and open spaces now, before any other development occurs. This keeps the cost of compensation manageable.

History of the Ethiopia Urban Expansion Programme

The Ethiopia Urban Expansion Programme was a collaborative technical-assistance program between New York University, the Ministry of Urban Development and Construction of the Government of Ethiopia, and the Cities Alliance. From 2013 to 2016, the program helped rapidly growing secondary cities in Ethiopia increase the supply of urban land available for housing, commercial, and industrial uses, by developing an orderly and well-connected road layout in areas of future growth.

Cities were chosen based on three criteria: They could not be the primary city in the country, they had to have a population of at least 100,000 as of 2010, and they had to be growing at a rate of at least three percent per year. Additionally, the program selected regional capitals due to their strong technical capacity and potential to serve as hubs for future program activities.

Phase I of the project started in February 2013. Training was provided to city leaders in Adama, Bahir Dar, Mekele, and Hawassa. This phase concluded in November 2014 and, with funding from the Cities Alliance, was immediately followed by Phase II, which expanded the capacity building to fourteen additional cities. Phase II concluded in April 2016.

A distinctive feature of the Ethiopian Urban Expansion Programme is a new land revenue-and-expenditure projection model that forecasts the net surplus of the cities in each implementation phase of the expansion plan. Revenue projections consider an all-inclusive estimated cost of land development, including compensation payments, cost of infrastructure, and the cost of the arterial grids within the expansion areas, as a basis for estimating investment costs.

The model forecasts the lease revenue of the city from the expansion areas based on the base lease prices. While auction-based lease prices are typically higher than the base price or initial offer price, the revenue-projection model opted to use the base price to estimate the minimum revenue of the city from new land leases. The revenue projection excluded several types of land—lands allocated for social services, federal industry zones, roads, and green areas that could not be developed due to geographic features—from the revenue estimate.

Calculated on the basis of minimum lease revenue, the land revenue-and-expenditure projection models for all Ethiopian pilot cities showed a large surplus in each implementation phase of the expansion plans. From this surplus, cities would generate the resources needed for investments in social and economic activities that further boost development.

That said, achieving this surplus required an initial investment to develop urban land. The Ethiopian Urban Expansion Programme proposed a number of creative approaches to secure the initial investment and maximize the annual land and land-related revenue of the participating cities. One of the proposals was the establishment of a revolving fund that cities could draw from to pay compensation costs and to develop leasable land quickly and efficiently.

Main Activities of the Ethiopia Urban Expansion Programme

- Estimating future urban expansion and designating an expansion area;
- Expanding city boundaries to include this expansion area;
- Designing a 1 km × 1 km grid of 30-meter wide arterial roads in the expansion area;
- Identifying a hierarchy of public open spaces;
- Calculating compensation for the land for the arterial-road grid;
- Calculating compensation for the land for public open spaces; and
- Constructing roads in the arterial-grid plan in the expansion area, starting with those closest to the existing city.

Main Outcomes

- Population and area projections from 2010–2040 have been created for participating Ethiopian cities using internationally validated methodologies, allowing Ethiopian cities for the first time ever to visualize their future expansion.
- Urban-expansion teams have been created in every participating city. These teams were tasked with developing and implementing the strategies of the initiative and incorporating the existing

structural plans into a 30-year planning framework.

- City boundaries have been expanded to accommodate future growth through 2040.
- Grids of arterial roads and networks of public open spaces have been designed for these expansion areas.
- As of 2018, a total of 570 linear kilometers of arterial roads have been constructed or secured in the expansion areas of Hawassa, Bahir Dar, Mekele, and Adama.
- As of 2018, a total of US$77 million worth of leases have been sold in the expansion areas of these four cities, opening up a major new revenue stream for municipal governments.
- City officials in these cities report a *reduction in informality*, as new urban residents are able to lease plots in the expansion areas.
- Existing informal settlements in expansion areas are being regularized to accommodate the arterial-road network as well, notably in Hawassa, where 7,000 informal urban residents have been resettled and given formal leases in the expansion area.
- A course for municipal officials in Managing Urban Expansion has been developed and is in regular use at the Ethiopian Civil Service University.
- Local urban bureaus have been capacitated to greatly increase their ability to plan and manage urban expansion at scale.
- Ethiopian cities now have much greater flexibility to plan and supply land. Importantly, the provision of urban land has now been linked to economic growth plans and population projections.

Return on Investment

Supporting the preparation of urban-expansion plans had a high rate of return on investment. In Ethiopia, an initial commitment of US$500 thousand from New York University and a second investment made by the Cities Alliance of USD$200 thousand led four Ethiopian cities to build over 500 km of arterial roads. At least 26,000 jobs and 140,000 new residents are now located in those areas. Arterial-road construction and land acquisition for the grid has required the cities to invest a combined total of about US$35 million, spread over five years. This money came from the local ULGDP II allocations (the current similar program is UIIDP). The total cost was roughly 50 percent of the infrastructure-construction budget in each city over the five-year period—a considerable investment, but within their fiscal and administrative capacity.

Additionally, implementation of these urban expansion plans supported several strategic goals of the Government of Ethiopia, including supporting urbanization in small and mid-sized cities, reducing or eliminating informal development, providing additional affordable housing, protecting environmentally sensitive areas from development, and developing strong regional economic corridors. It will also support several ongoing donor-funded projects and programs, including recent activities by the Cities Alliance's Cities and Migration Programme to increase the capacity of cities to accommodate refugees and migrants.

Additional Reading

A New Plan for African Cities working paper
marroninstitute.nyu.edu/uploads/content/A_New_Plan_for_African_Cities_Oct_19_2015.pdf

Marron Institute of Urban Management Urban Expansion Initiative
marroninstitute.nyu.edu/programs/urban-expansion

Planning for Resilient Urban Growth
local2030.org/library/535/100RC-Handbook-Planning-for-Resilient-Urban-Growth.pdf

Urban expansion in Colombia
economist.com/international/2014/06/21/roads-of-redemption

The Urbanization Project
www.youtube.com/watch?v=yWZhBOmcdHU

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