Abstract

Recent research indicates that a simplified approach to urban planning in Sub-Saharan African cities can address the challenges of rapid urban growth. Current plans focus too heavily on the existing area of the city and offer unrealistic agendas for future urban growth, such as densification, containment, and high-rise development; plans are also often unreasonably complicated, lack sufficient integration across levels of government, and are too costly. In response, NYU Stern Urbanization Project and the Government of Ethiopia have created a program to deploy a simple methodology known as Making Room for Urban Expansion to assist eighteen Ethiopian cities that are experiencing rapid growth. This program is called the Ethiopia Urban Expansion Initiative. The Initiative set aside a number of standard planning objectives and instead focused only on expanding city boundaries to include adequate land for expansion, designing and protecting a network of arterial roads spaced approximately 1km apart, and identifying and protecting environmentally sensitive open spaces. These efforts focused on areas that have not yet been occupied by development. This paper reports on the preliminary results from the eighteen Ethiopian cities participating in the Initiative that began in 2013. The results from the first four participating cities show that simple plans can lead to the creation of large amounts of arterial, potentially bringing the available land supply in line with projected growth. This work can be done at the local level and implemented with limited support from consultants and from the regional and national government, and it requires minimal public investment.

Introduction

New research based on the analysis of satellite imagery shows that the typical Sub-Saharan African city grew at least 3-fold in area between 1990 and 2014. Over approximately the same time period the urban population doubled, increasing from 19% to 38% of the total (UN-Habitat 2014). The UN Population Division estimates that 55% of the population of the region will live in cities by 2050. In fact, almost one-third (32.6%) of all the projected urban population growth worldwide between 2015 and 2050 will be in Sub-Saharan Africa. In other words, the urban population in Sub-Saharan Africa is expected to triple in the coming thirty-five years (United Nations 2014). This means that the typical African city will most likely quadruple or more than quadruple its area during this period.

New research also indicates that these cities are doing a poor job of preparing for the arrival of their new residents. The recently released Atlas of Urban Expansion: 2016 Edition (Angel et al, 2016) shows that no more than 22% of the residential areas developed between 1990 and 2014 in Sub-Saharan Africa were formal and were planned in advance of development. The remainder of the growth consisted of atomistic and informal settlements. Only 73% of newly developed areas were found to be within walking distance of an arterial road.

These findings point to a critical gap in spatial planning methodologies (Watson 2002), implementation frameworks (Hyden, 1983, Berrisford 2014), or both, as many practitioners suspect. When comparing the Atlas findings by region, sub-Saharan Africa stands out as particularly deficient – a disturbing result, considering the high growth rates discussed earlier.

The need for quality spatial planning is made all the more urgent by the high poverty rate on the continent, and the reality of economic development - that the majority of non-subsistence, non-resource extraction economic activity in Africa takes place in cities
Mabogunje 1990), that potential economic returns in cities are higher than in rural areas, (Collier 2013) and that personal incomes in cities are often several times higher than incomes in rural areas (Sahn and Stifel 2003). To leverage this, cities must promote the formation of integrated metropolitan labor markets by designing efficient transport networks at an appropriate scale (Angel and Blei 2016), while also preserving livability and environmental sustainability by protecting a network of public open spaces.

Unfortunately, much of the planning that takes place in African cities today fails to tackle these issues in a way that addresses the unique difficulties the cities are facing – a combination of high rates of growth, low levels of income, and poor rule of law (State of African Cities Report 2014).

Watson (2002) notably highlighted the breakdown between urban planning theory and urban planning practice as one possible cause of the ongoing problems in Sub Saharan Africa. Hall (2014) echoes the critique, describing theorists as trapped in the ivory tower, and practitioners as isolated and hamstrung. Watson’s solution is simple: planners must collaborate with theoreticians in the production of in-depth case studies. This paper moves beyond that call, reporting on the results of a partnership in which a major university (New York University) actively partnered with a national government (GoE) to assist local planners in testing and implementing a new methodology. This methodology, entitled Making Room for Urban Expansion (Angel 2012) is the basis of two active programs – the Colombia Urban Expansion Initiative1 and the Ethiopia Urban Expansion Initiative. The preliminary outcomes from Ethiopia are reported on in this paper.

Making Room for Urban Expansion consists of a simple 4-point program:

1. The preparation of realistic maps based on forecasts of urban growth for the next 30 years;
2. The expansion of city boundaries so that the land necessary for that growth is under the control of one planning authority;
3. Securing land for a 1km x 1km grid of 30-meter-wide arterial roads; and
4. The selective protection of a hierarchy of public open spaces in the expansion zone.

Given immediate and pressing needs and scarce resources to devote to future planning, there is good reason for cities to prioritize these activities above most others. Open spaces and arterial roads are public goods that will not be adequately provided by the market, and they must be secured in adequate quantities by the public sector. The city must also have accurate projections of their probable urban expansion along with the authority to preserve land within that area for public goods. If this process is to be affordable and equitable, the work of securing that land must be completed before development occurs, when population densities are lower and land uses are less intense.

Making Room for Urban Expansion in Context

It is neither novel nor particularly innovative to call for the deployment of an unadorned orthogonal grid of large roads. Such practices can be traced back to the Greek philosopher Hippodamus at least (Kolb 1984 quoting Morris 1972), and most likely back to the

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Egyptians of the third millennium B.C. (Dalley 1989). The protection of environmentally sensitive public open spaces is also a relatively old idea, perhaps traceable to Ebenezer Howard’s Garden Cities (Hall and Jones 2010).

The call for a revival of this planning tradition has less to do with innovation and more to do with the desire to empower local planners to address the urgent problems of poverty, inequality, informality, rapid urbanization, and spatial fragmentation, as Vanessa Watson calls for in her 2009 paper “Seeing From the South: Refocusing Urban Planning on the Globe’s Central Urban Issues.” (Watson 2009a). With this approach, we hope to answer a fundamental question within the discipline of urban planning: What can urban planning do to help poor, rapidly growing cities?

A review of contemporary planning practices, both in the literature (Watson 2009b, Okpala 2009, and Buckley et al 2016) and as expressed in completed plans, indicates that the answer today is, "Nothing, or at best very little." Many earnest efforts are being made to create the African cities of tomorrow, but they are producing relatively little impact on the ground – far less than is needed. A recent article hinted that cities in Africa may be falling victim to “Ozymandius Syndrome,” or the pursuit of fantastical creations, at the expense of more modest and incremental improvements. While this is no doubt true in some cases (Nova Cidade de Kilamba, for example (Buire 2015)), the bigger story is less pernicious and more depressing. In Nairobi, Kenya, for example, planners worked with JICA for seven years to produce an updated master plan, completed in 2014 (the original plan, from 1973, expired in 2003). Unfortunately, the new Nairobi Integrated Development Master Plan is so complex that the designers themselves are concerned it will be impossible to enact (JICA 2015). This is not an isolated anecdote – similar situations have been reported in Lagos, Nigeria (Hedrick-Wong and Angelopulo 2011) and in Tanzania (Wisner et al 2014), and anecdotal evidence indicates that many more African cities are either “muddling through,” with no real attention to long-term needs, or are counting on the dubious effectiveness of Comprehensive Master Planning, spending funds and energy on the creation of plans that are beyond their capacity to implement, and that are in fact far too modest in scope to address the growth they are facing. The result in both cases seems to be the same - cities are growing chaotically, without enough land in streets, without adequate arterial road networks, and without an orderly layout of the territory.

In general, Making Room for Urban Expansion emphasizes physicalist planning, and is grounded in the knowledge that poor communities are often well-equipped to provide their own housing, as long as they are given the time and the legal framework to engage in incremental development. The creation of an orderly network of streets and roads and a hierarchy of public open spaces will ensure that even informal developments are part of a framework that will facilitate future normalization and servicing (Angel 2012, Baross and van der Linden 1990). It will also cheapen the installation of public transport and trunk infrastructure, encouraging the formation of a metropolitan labor market.

Many of us in the planning profession live in cities that also struggled with rapid growth, limited resources, and recalcitrant anti-urban movements – cities like New York, Barcelona, Buenos Aires, and Chicago, or smaller cities like Cleveland and Valencia. These cities eventually designed and implemented the same kind of plan that is proposed in this paper – a simple plan that uses public space to organize cities and increase the amount of land available for urban development, while still allowing the market to function (Glæsø 2012). It is worth remembering World Bank Chief Economist Paul Romer’s response to the
Pritchett test\(^2\) and noting that during most of the decades of doubling that eventually brought New York (for example) to greatness, there was no such thing as a Comprehensive Master Plan. In other words, simple plans can work by organizing public space to connect the city together, by making room for new residents to move to the city, and by creating public goods that the market will inevitably fail to provide.

It seems, then, that securing an orthogonal grid of roads and protecting environmentally sensitive spaces is novel simply because no one today is doing it, as UN Habitat Executive Director Joan Clos recently pointed out\(^3\). Perhaps one reason why this style of planning has fallen out of vogue is because no one believes it will be effective – it leaves out too many essential elements. This paper presents results in support of the argument that simplified planning techniques can quickly produce important results on the ground, and that even the poorest cities can afford to make and implement such simple plans.

A specific focus on Sub-Saharan Africa is appropriate because of the vast increase in urban population that is expected there, combined with a very low level of public sector capacity and a correspondingly great need for well-functioning and productive environments for people to live and work in. Making Room for Urban Expansion is a planning philosophy that is fundamentally about empowering planners to address these challenges. A recent paper issued by the Africa Research Institute asked, “Who will plan Africa’s cities?” (Watson and Agbola 2013). The answer we offer is an emphatic, “Africans!” but it will only happen if they have the tools to do so.

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\(^2\) \url{https://paulromer.net/urbanization-passes-the-pritchett-test/}

\(^3\) In remarks at a recent Habitat III Thematic Meeting in Barcelona, Spain.
**The Ethiopia Urban Expansion Initiative**

Within Sub-Saharan Africa, Ethiopia stands out as a country that is both rapidly urbanizing and particularly impoverished. The share of the population living in cities has increased from an estimated 7.1% in 1994 (Schmidt and Kedir 2009) to 16% in 2008 (FDRE 2008), and is expected to reach 60% by 2040 at the current annual growth rate of 3.5% (United Nations 2014). In other words, the next three decades are the ones in which Ethiopia will be building its cities – cities it may live with for many generations. Ethiopia faces this daunting task as one of the poorest countries on earth, with a per capita GDP of less than $600 – far below the 2014 average in Sub-Saharan Africa (excluding South Africa) of $1,699.

In 2013 NYU hired Dr. David DeGroot, former leader and originator of two major World Bank capacity building programs in Ethiopia (PSCAP and ULGDP I & II) to explore the possibility of assisting the Government of Ethiopia (GoE) through the creation of the Ethiopia Urban Expansion Initiative (UXI) that would implement the Making Room for Urban Expansion strategy.

His background review highlighted several factors that supported the appropriateness of this strategy.4 Among other things, all land in Ethiopia is formally owned by the state, and occupants hold long-term leases. As a result, the government has broad authority to obtain land for public purpose, with compensation paid based on a multiple of the production value of the land, plus the value of structures and other amenities. Leaseholders have the option to protest the amount of the compensation. In the case of this project, the total land to be taken amounts to a strip no more than 30-meters wide. In addition, the land is not immediately taken for use. The current leaseholders are able to continue using the land for its current purpose, with the understanding that it will eventually be used as the right-of-way for a road, and that any structures built on it in the future will not be compensated for. In this way, the expropriation system functions more like a title lien than a true taking, but with compensation to be paid immediately in order to avoid future claims. This describes the situation in lightly settled agricultural areas in which residents have formal leases. The other common scenario involves informally settled urban areas with dense populations and no formality. In this case, the tools exist to support land reconstitution and the realignment and recording of plot boundaries, supporting regularization of informal settlements while also making room for the arterial road network.

Initial exploratory work focused on site visits to assess the interest and capacity of municipal governments to undertake the necessary tasks, with an eye toward selecting several pilot cities. Meetings were held with officials from the Ministry of Urban Development Construction and Housing (formerly MUDC and currently MUDCho) to outline how the proposal would connect with the national-level urban sector plan. In addition, NYU researchers provided population growth rates and spatial growth rates for candidate cities. Ultimately, a decision was made to engage four rapidly growing regional capitals in a two-year pilot project, with technical support costs to be born by NYU and implementation costs

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4 A more detailed discussion of the Ethiopian context can be found in the 2014 report of Dr. Olga Kaganova entitled, “Land Management as a Factor of Urbanization.”
to be born by the municipalities, using ULGDP funds along with contributions from their respective regional governments.

This arrangement was confirmed through an MOU between the two parties that established the basic organizational structure of the project – NYU would hire and deploy international consultants (Dr. DeGroot, and Richard Martin) to support the cities in creating and implementing the plans. NYU would bring research scholars to conduct an initial workshop and to undertake monitoring in participating cities (Dr. Shlomo Angel and Patrick Lamson-Hall), and would engage a part-time country coordinator to liaise with the cities, organize field visits, and monitor progress (Tsigereda Tafesse). In addition, NYU would fund a portion of the cost of project-related city visits by top MUDC officials, would pay honorariums to local staff, and would cover basic costs arising from participation in the project for local officials, such as the cost of travel to meetings and conferences within Ethiopia. NYU would also provide city governments with projections of their spatial expansion of through 2040, and 2040 would be established as the planning threshold for the project.

The GoE helped form dedicated urban expansion teams in each city, housed within the existing urban planning bureau or land management bureau. Each team functions as a special project group within the bureau. Previously, planners focused on five to ten year rolling plans. These teams now incorporate the rolling plans into a broader vision for the city. This creates space for city planners to pivot away from fighting fires and to incorporate long-term planning into their agenda.

In architecture, a common question that is asked when a plan is shown is, “Who was pushing the pencil?” This is meant to distinguish between the entity that is getting credit for the work and the entity that actually did the work. In the case of the Ethiopia Urban Expansion Initiative, the Ethiopian city officials and technical staff push all the pencils. The role of the international consultants is to provide training in the techniques of planning for urban expansion, not to undertake actual plan creation. This helps avoid a familiar failure, which is the making of plans by people and organizations that are not responsible for implementing them on the ground. With this in mind, NYU also helped established a course in urban expansion for civil servants, first at the Ethiopia Civil Service University, and later at four major regional universities.

Eighteen cities are now participating in the UXI (Figure 1). The initiative started with a Phase I group of four cities – Awassa, Adama, Mekele and Bahir Dar. It then expanded to include a Phase II group that used the same methodology and strategy, with additional assistance provided by the regional universities. Both groups of cities were selected based on three criteria, following recommendations from the MUDCHO:

1) They could not be the primary city in the country;
2) They had to have populations greater than 100,000; and
3) They had to be growing at greater than 3% per year.

This paper reports specifically on the progress made in the Phase I Cities, with some mention of Phase II cities going forward.

**Informality and the Scarcity of Urban Land**

The GoE has identified urbanization in secondary cities as an important pole in its Growth and Transformation Plan II, which has a primary target of raising the national GDP
to lower-middle income status by 2025 (FDRE 2015). Urban expansion in most cities relies on a system of auctioning leases for serviced urban plots in new Local Development Plans. However, this system has proven to be fiscally untenable and has not been able to deliver land at scale, and cities are now ringed with informal settlements (Kaganova 2014, World Bank 2016).

It is difficult to measure the exact gap between supply and demand, but in Bahir Dar, for example, residential land sold for $380 per square meter at a recent auction – more than half a year’s salary. Scarcity in the formal sector means that the provision of urban land in Ethiopia is almost exclusively led by the informal sector. The work of building arterial road grids will, at least initially, lead to larger and more orderly informal settlements, as land holders continue to subdivide land and sell plots, but now do so within a framework of large roads.

Informality is, of course, undesirable. However, the standard policy of the Ethiopian government is to simply regularize informal settlements within three years of their construction. According to the head of the Awassa urban expansion team, Cherinet Filate, over 8,000 households have been regularized in that city in the past year, for example. When households are regularized they are given a lease document that entitles them to city services, and they are expected to make regular payments for the duration of the lease. In essence, this circumvents the onerous requirement that plots be acquired and serviced before they are leased. Cities are now also using the regularization process to adjust informal plot boundaries into a more orderly layout, something that we have documented in Awassa in particular.

In the long-term, the opening up of vast new territories on the urban fringe may merge with land reform and slowing population growth rates to allow city governments to “get out in front,” of informality, leading to a higher amount of formal development.

Falling Density, Rapid Growth

Projections prepared by NYU and provided to the GoE forecast remarkably rapid growth for the first four cities between 2010 and 2040, with the cities expected to more than triple their 2010 population by 2040: Awassa will grow to more than 6-fold its 2010 population by 2040, Mekele to almost 5-fold its 2010 population, and Adama and Bahir Dar to almost 4-fold their 2010 populations (see Table 1).

The built-up area of these cities is predicted to expand at an even faster rate than their population. This conclusion takes into account the findings of the 2010 Atlas of Urban Expansion (Angel et al, 2010). In general, the Atlas of Urban Expansion found that the built-up area per person (the inverse of ground-level population density) in a sample of 120 cities grew, on average, at 2% per year between 1990 and 2000, and 1.5% per year in a smaller sample of 30 cities between 1800 and 2000. It was therefore conservatively estimated that the built-up area per person in Ethiopian cities would grow by 1.5% per year.

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5 The Urban Expansion Initiatives are supported by a research agenda – also underway at NYU – entitled Monitoring Global Urban Expansion. This agenda focuses on the universe of 4,235 cities with populations greater than 100,000 in 2010. Within those 4,235 cities, a sample of 200 cities was drawn and used to study urban expansion between 1990 and 2014, the quality of urban layouts, and changes in population density. More information on the sample and the universe can be found at www.atlasofurbanexpansion.org
Based on this method of estimation, the area of the cities will grow quite dramatically: Awassa by almost 9-fold, Bahir Dar by over 6-fold, and Adama and Mekele by 5-fold, in comparison to their 2010 built-up areas (Table 1). Even given a large margin of error, the numbers speak for themselves as to the need to prepare for expansion. And as the historical expansion rates of other rapidly growing cities show, the rates proposed are not unrealistic or unreasonable. The historical expansion and future expansion of Mekele can be seen in Figure 2, for example.

Figure 2: The expansion of Mekele from 1984 – 2010 (left) and 2040 (right)
Plan Development

NYU provided information on the expected expansion of these cities to the MUDCho and the municipalities in March 2013. The purpose of those estimates was to give cities an approximate order of magnitude to base their plans on, with the understanding that the phasing of the plans could be revised later. The actual construction of infrastructure would not take place until shortly before development reached a given area, so the opportunity cost of overestimating the amount of growth is low, particularly when compared to the danger of making plans that underestimate the total amount of growth.

<table>
<thead>
<tr>
<th>City Label</th>
<th>Population 2010</th>
<th>Population 2040</th>
<th>Population 2040 as multiple of 2010</th>
<th>Area 2010</th>
<th>Area 2040</th>
<th>Area 2040 as multiple of 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mekele</td>
<td>254,000</td>
<td>1,235,000</td>
<td>4.9</td>
<td>3,932</td>
<td>20,000</td>
<td>5.1</td>
</tr>
<tr>
<td>Adama</td>
<td>253,000</td>
<td>954,000</td>
<td>3.8</td>
<td>2,429</td>
<td>12,100</td>
<td>5.0</td>
</tr>
<tr>
<td>Awassa</td>
<td>190,000</td>
<td>1,222,000</td>
<td>6.4</td>
<td>1,125</td>
<td>10,000</td>
<td>8.9</td>
</tr>
<tr>
<td>Bahir Dar</td>
<td>178,000</td>
<td>656,000</td>
<td>3.7</td>
<td>3,021</td>
<td>20,000</td>
<td>6.6</td>
</tr>
</tbody>
</table>

Table 1: Projected increases in the population and built-up areas of four rapidly growing Ethiopian cities, 2010 - 2040, assuming a 1.5% annual increase in built-up area per person

MUDCho then helped each city form urban expansion teams within the existing urban bureaus. Each team consists of an engineer, an urban planner, a finance expert, an environmental expert, and either the Mayor or the City Manager. This configuration allowed for rapid progress in response to the estimates from NYU. Officials had workable draft plans ready in only 3 months, and NYU organized a workshop in July 2013 to allow the cities to present their plans to regional government representatives and MUDCho.

The workshop lasted three days – the first day, the team from NYU presented the philosophy and research behind the strategy. The second day, the teams presented their plans to the Ministry officials and a design workshop was held in which the plans were improved (Figure 3). Former Minister Haile Mekuria used the occasion to formally launch the project, underscoring its importance.

The third day was dedicated to next steps and implementation. After some discussion, it was decided that the payment of compensation to farmers for the arterial road grid would be the top priority, and would be completed in no more than five years. Phasing plans were created for this purpose [Figure 4, left]. City leaders agreed to commit city funds, particularly funds from their ULGDP block grants, and regional representatives agreed to contribute additional moneys.

* As the architect Daniel Burnham famously said, “Make no little plans.”
The plans presented by the cities revealed that the total area needed for expansion was generally larger than the total area under the control of the city administration. To remedy this and ensure consistent implementation of the spatial plan, the regional governments convened the woredas, rural local authorities, to agree on a plan to expand the planning jurisdiction of the cities. The woredas, already facing significant urbanization, but lacking the resources to provide urban services, agreed to the plans for expansion. This process culminated in regional approval of new city boundaries in November 2013 (Figure 4 right).

With these new areas under their jurisdiction, the cities finalized the routes of their arterial grids. These 30-meter wide roads, spaced approximately 1km apart, would occupy an average of 8% of the newly developed areas. The land for these roads would be secured through the compensation of local leaseholders. The compensation would be paid in phases over five years. Plan specifications are shown in Table 2.

<table>
<thead>
<tr>
<th>Plan Area 2012</th>
<th>Built-up Area 2014</th>
<th>New Plan Area 2014</th>
<th>New Arterial Road Area</th>
<th>New Macroblock Area</th>
<th>Steep slopes and sensitive areas</th>
<th>New Area as multiple of existing area</th>
<th>% Built-up Area in Arterial Roads</th>
</tr>
</thead>
<tbody>
<tr>
<td>13,366</td>
<td>9,835</td>
<td>38,246</td>
<td>1,330</td>
<td>16,030</td>
<td>8,850</td>
<td>3.9</td>
<td>8%</td>
</tr>
<tr>
<td>15,455</td>
<td>6,238</td>
<td>34,584</td>
<td>2,331</td>
<td>26,015</td>
<td>8,569</td>
<td>5.5</td>
<td>9%</td>
</tr>
<tr>
<td>15,720</td>
<td>6,465</td>
<td>40,607</td>
<td>1,122</td>
<td>16,034</td>
<td>8,853</td>
<td>6.3</td>
<td>7%</td>
</tr>
<tr>
<td>19,682</td>
<td>8,850</td>
<td>45,811</td>
<td>1,376</td>
<td>23,370</td>
<td>2,759</td>
<td>5.2</td>
<td>6%</td>
</tr>
</tbody>
</table>

Table 3: Total area to be developed under new plan and data on existing plans and built up area.

NYU researchers accompanied the international consultants on a visit in November 2013 to train the local planning staff in a simple survey technique to quickly estimate the compensation cost for the roads. When this survey was completed, a budget for compensation was assembled and presented to Minister Mekuria and the regional heads, along with the finalized route plans. The requested amounts were reduced to match available funds and the plans were approved in February 2014. As Table 3 shows, the total cost of compensation to secure the grid land in three cities was approximately USD$40 million (data is not available for Bahir Dar, though it did participate in the budgeting process and receive an allocation).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Adama</td>
<td>$13,765,836</td>
<td>$2,753,167</td>
<td>$2,900,000</td>
</tr>
<tr>
<td>Bahir Dar</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Hawassa</td>
<td>$14,821,297</td>
<td>$2,964,259</td>
<td>$1,500,000</td>
</tr>
<tr>
<td>Mekele</td>
<td>$11,692,436</td>
<td>$2,338,487</td>
<td>$2,000,000</td>
</tr>
</tbody>
</table>

Table 3: Total compensation cost, budget request, and final allocation for arterial grid.
The Creation of an Arterial Road Grid

Budget allocations were received in mid-2014 and the project shifted into the implementation stage. This consisted primarily of finalizing surveys of the arterial road rights of ways, updating plans to match these new surveys, paying compensation for the land, and construction of an initial batch of arterial roads on the immediate periphery of the city.

As of early 2016, 4km of roads had been constructed in Adama, 15.5km in Bahir Dar, 65.8km in Awassa (Figure 5), and 61.5km in Mekele. $41 million was spent by the four cities. In other words, a total of 146.8km of roads (mainly dirt, but in some cases gravel and asphalt) was completed under the UXI in approximately 18 months. These roads were paid for primarily using city resources, including tax revenue and conditional transfers, with some funds contributed by the regional bureaus. By any standard, this is a remarkable achievement in a very short time, and is indicative of the great potential of a simplified methodology to empower planners and city leaders.

However, the goal here is not to judge the success or failure of a 30-year plan based on the results of the first 18 months. The available data raises meaningful questions for how these plans should be implemented in the future. Three main factors determined the different rates of progress:

1) The ability to reinvest land lease revenues into the creation of additional serviced urban land
2) The soil fertility and population density of the surrounding area
3) Whether or not the urban planning bureau was also in charge of implementation

The leasing of serviced urban land is a major potential source of revenue for cities participating in this scheme. However, Ethiopian law requires that land be provided with basic minimum services before it can be leased for urban use. This means compensation must be paid for the land, the land must be subdivided, roads must be built, water piped, and power lines strung, before any revenue can be generated. This creates cash flow problems at the municipal level (and is likely the main reason why the land leasing system has so stunningly failed to provide for the growth of Ethiopian cities (Kaganova 2014 and World Bank 2016)). The law attempts to address this issue by requiring municipalities to use lease revenues to develop additional land – a sort of revolving fund. However, Adama and Bahir Dar are located in regions where regional governments seize a large portion of the revenue. The exact amount is not known, but it is higher in Adama than it is in Bahir Dar. In Awassa and in Mekele, by contrast, the urban bureaus themselves are allowed to keep the majority of the lease revenues, creating a virtuous cycle that makes planning for urban expansion a net positive or net neutral financial proposition for the city government.

The urban bureau in Adama is particularly starved of funds, and is stretched thin by several additional development projects – a high-speed railroad, a new industrial park, and

Figure 5: A newly built arterial road in the expansion area of Awassa, Ethiopia.
and to avoid development around lakes and rivers or on steep slopes. However, until the

In 2014/15 the urban bureau of Bahir Dar focused its effort on a housing program – the development of cooperative housing for the middle class. This effort created 4,080 new plots in the expansion zone of the city in the macroblocks created by the first 15.5km of arterial roads. However, the inability to capture value from that development, and the high price of land meant that the city quickly exhausted its funds and will require a new allocation in order to resume compensation payments.

A counterexample can be found in the city of Awassa, which released data showing that the value of down payments collected from lease auctions doubled between 2012/13 and 2014/15 from $2,552,442 to $5,957,214. The cost to develop land in 2014/15 in Awassa, not including arterial roads, was $715,429, indicating that there is much money to be made from land leasing for the cities that can figure out how to deliver land at scale.

Awassa and Mekele city administrations used the additional resources generated from lease revenues to strengthen the urban bureaus. The bureaus created teams of surveyors, brought on mapping experts and compensation experts, employed sociologists and outreach workers to negotiate with landowners, and oversaw construction of new roads (in some cases this was done through a transparent bidding process, in other cases roads were constructed directly by the city).

Both cities also used other projects to catalyze the arterial grid work. Awassa negotiated with informal settlers to exchange land for formal leases, essentially turning a liability (extensive informality) into an asset (land for roads). Many of the arterial roads that have been constructed have, in fact, been “opened up” in congested informal settlements. Because of this ability to solve several policy problems at once, the regional government and the city have both dedicated additional capital funds to the program, above and beyond its official allocation. As a result, the city is on track to complete compensation of the arterial grid by 2019/20.

Mekele redesigned its arterial grid in order to take advantage of road construction and compensation funds available for a planned industrial park, enabling them to build more roads in the first year than their allocation would have allowed.

These innovative and farsighted actions have allowed the work to proceed more quickly. However, the slow rate of progress in Adama and Bahir Dar does not signify that the plans are inherently infeasible. The criticisms that emerged from the pilot process are an argument for more autonomy and more empowerment of existing government structures in Bahir Dar and Adama.

The Provision of Public Open Space

A secondary result to report is the progress made in securing environmentally sensitive open spaces. Only one of the cities has fully embraced this aspect of Making Room for Urban Expansion. In general, all of the cities are hoping to add small parks at the macroblock level and to avoid development around lakes and rivers or on steep slopes. However, until the
land is secure and compensation is paid, there is always a risk that informal settlers will occupy land designated for parks.

In Awassa, the mayor recently approved a plan for the creation of a 500ha park around Lake Awassa, to be called Adare Park. This will create a 100m buffer of land around the lake in the areas controlled by the city. It will serve as a passive environmental buffer that will help protect the lake from erosion and runoff and preserve vital fisheries. The Awassa city government and a team of Stern Signature Students at NYU developed the plan collaboratively. The land for the park will be acquired over the next six years, at an estimated cost of $6 million.

It is hoped that similar action will be taken elsewhere as the cities progress in their compensation payments for the arterial grid and begin to have more funds available.

Next Steps

In June 2014 the Ethiopia UXI was expanded to include 14 additional cities – the Phase II cities. These cities received projections and support from NYU through a grant provided by Cities Alliance. In general, these cities are less dependent on NYU than the original batch. The four Phase I cities have been providing technical support and assistance, and urban expansion courses have been established in each of the four major regional universities to facilitate the process. These courses are in addition to a course at the Ethiopian Civil Service University that was established in 2013 and has educated hundreds of future civil servants in the strategy of planning for urban expansion.

The 14 Phase II cities have used their projections to create evidence-based urban expansion plans. In November 2015 they received approval for city boundary expansions and they are planning to submit requests for first-year budget allocations in June 2016. These budget allocations will be used for surveying and compensation of the arterial road grid.

Additional follow-up will be done with these cities and with the four Phase I cities. NYU will continue to engage with the cities to develop credible plans for public open spaces and will also work with the MUDCho to advocate for the protection of environmentally sensitive areas.

Conclusion

It would be difficult to find another planning strategy that could produce such strong results in so short a time. Actual plan implementation started in mid-2014 with the receipt of the first funding allocations, and it is now possible to see results on the ground in Ethiopian cities (Figure 6). In total, the four cities had constructed at least 146.8km of arterial roads as of early 2016, opening up large amounts of land for urban expansion and creating a framework that will integrate newly developed areas and facilitate the creation of a metropolitan labor market. Importantly, the time horizon for planning has been lengthened and the process has been linked to accurate population and spatial extent estimates that can be periodically revised moving forward.

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7 Nicely described in a recent story in the Financial Times [https://www.ft.com/content/f027d588-d9b3-11e6-944b-e7eb37a6aa8e]
This system of planning does not directly address informality, which remains the main vehicle for land delivery in Ethiopia. However, the arterial roads are being demarcated as they are secured, and landowners are aware of their location. There is now a much better chance that even informal development is going to occur within a framework of arterial roads.

Some cities performed more slowly – particularly those that faced resource scarcity. MUDCho has directed these cities to scale up their efforts on urban expansion. Their success in doing so will be largely dependent on institutional reforms that allow the city to retain land lease revenues, and that empower the urban planning bureaus to implement the plan.

And empowerment is indeed a key result of this work – planners who had previously struggled to chart the long-term trajectory of their cities now have the tools (and the resources, in some cases) to organize the territory. This is largely due to the simplified nature of the plan – decisions can quickly be taken at the local level, without resorting to outside experts or expensive data gathering exercises. The role of NYU and the international experts was mainly consultative – we did not push the pencil. The UXI has also shown that it is possible to make very large plans without seizing large amounts of land (no more than 8% of the total expansion zone), and that the seizures can be done without disrupting the current inhabitants.

The cities did not require extensive support in order to undertake the work. In total, three consultants and one researcher undertook no more than ten visits over a three-year period. Local officials oversaw the design in its entirety, along with the surveying, payment of compensation, management of budgets, and eventual road construction. In some cases this necessitated the hiring of additional staff and the purchase of equipment, but this was on the scale of one road grader, or three surveyors, or a laptop.

Including these capacity improvements, the total cost of securing the land for the grid is about $13.3 million per city. This is a significant investment, but it has proven to be within the means of cities in Ethiopia provided they are able to spread the cost over five years. This finding is hopeful, as it indicates that cities may be able to pursue this methodology without requiring external funding. It is hoped that other cities will adopt this methodology as an alternative to Comprehensive Master Plans or other donor-funded planning exercises.

The purpose of this paper is not to assess the overall success or failure of the project – we are less than 1/8 of the way through the plan period. Rather, it is to present the story of the work so far, and to make an inference about the long-term feasibility of the effort based on current trends – a conclusion that is, in the opinion of the authors, overwhelmingly optimistic.

Bibliography


