Cities without High-Rises – From density to intensity in african urbanism
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ADDIS 2050 is a so-called ‘synergy project’ at the Future Cities Laboratory in Singapore. It combines the collective activities and collaborations within FCL and African partners over the last few years in Ethiopia, especially in its capital Addis Ababa. The title ADDIS 2050 is derived from an international conference in November 2012, where FCL, together with our partner, the Ethiopian Institute of Architecture, Building Construction and City Development EiABC, developed a vision for the city of Addis Ababa as well as the Ethiopian nation state at large. The research work conducted could be classified in three different scales applying similar tools and methodologies: UNIT, CITY and NATION. The UNIT scale deals with the question of construction materials and methods. Ethiopia will be confronted with a population increase of 45 million people over the next 15 years, along with increased demand for basic needs like food, water, safety, and shelter. Given this challenge, the project asks for appropriate modes of 21st century urbanization, rather than relying on out-dated models from the developed world or following luxury trends from the Arabian peninsula. The CITY scale discusses the future development of the city of Addis Ababa. Here, questions of urban design, infrastructure, production, and invention are on the foreground of investigation, while the NATION scale focuses mostly on future energy concepts for Ethiopia at large. The article at hand deals with the medium scale and future development of Ethiopia’s capital. It is an attempt to show alternative possibilities towards the dominating argument for high-rise buildings in Addis Ababa.
According to the numbers produced by ‘City Mayors’, a digital platform that analyses new challenges of urban governance and ranks the largest cities in the world by land area, population and density, in 2007 (the year of the last census) Mumbai was ranked the densest city worldwide with 296,500 people per square kilometre (City Mayors Foundation, 2014). Singapore found itself ranked in at number 29, while Addis Ababa would be positioned somewhere around the 50th place. Next to those mere figures of calculating people per area, Peter Newman and Jeffrey Kenworthy in their book Sustainability and Cities point out, that there is a very obvious relationship between density of cities and their energy consumption. They argue that “land use and urban form of cities are […] fundamentally shaped by priorities in transportation” (Newman and Kenworthy, 1999). Consequently, low-density cities also show a high percentage of transportation infrastructures and vice versa. Support of individual transportation systems like the automobile has proven to strengthen tendencies for urban sprawl and, therefore, a considerable increase in fuel consumption. Quality of life usually decreases at the same time, as public space for social interaction is being sacrificed for roads or other means of transportation. One of the common results is a significant decline of air quality in urban areas. Following this argumentation, questions of density need to be evaluated in connection with, for example, environmental issues and, in general, the quality of life. This includes the possibilities for social interactions usually referred to as ‘clustering of talent’ (Florida, 2004) as an important denominator of quality rather than quantity of density.

The question we want to discuss is how much information a number defining density provides about the way of life within a particular geographical location, or the quality of life respectively? We might need to shift from a global understanding of calculating density as an indication of growth and prosperity to a local definition of understanding intensity. Rather than thinking of inhabitants per square kilometre, as a first obvious step, we could begin reflecting on density as the amount and quality of open spaces, businesses, interactions, urban pockets, etc., depending on the social, cultural, economical and geographical necessities of the location. With such an understanding, the focus of planning would shift from an object driven process to a space driven process, whereby the possibility of social interaction between inhabitants defines the quality of design. Such a ranking would provide quite different results. African cities might find themselves at the top of the list, whilst so called ‘modern’ cities like Singapore, Dubai or Shanghai might not even be classified. Unfortunately, the current developments in large neighbourhoods of Addis Ababa like Lideta or Kasanches, where public space is treated merely as a leftover between high-rise objects, threaten the city’s position in such an intensity ranking.

**High-rise or low-rise?**

During the past years, the capital of Ethiopia has created several new planning tools to tackle the rapid growth of the city. A new Height Regulation Plan was introduced in 2011 and the new Master Plan Revision Office started its work in 2012. One of the main goals of planners and decision makers is to densify the inner city core. With this argumentation, hundreds of hectares of land are under redevelopment intentions, eradicating layers of the young urban history. Through analysing these instruments, one can obtain a strong impression that ideas and images of shiny high-rise cities are being copied, rather than contextual urban planning being achieved. Decisions seem to be influenced by global role models, which get transplanted into Addis Ababa, rather than the intention of finding and developing a unique and specific strategy for the capital. Main city corridors now require a minimum building height of 7 to 13 stories, inner city streets are widened to up to eight lanes (Fig. 02). Reflecting on Peter Newman and Jeffrey Kenworthy’s arguments, this act in itself is rather decreasing the density of the inner city and therefore counteracts the attempts of the City Government. In addition, more space has to be allocated for parking, which reduces public space necessary to cluster talent and create a vibrant pool of interaction and social bondage. On top, the unique heterogeneity of Addis Ababa, known as the Mix-City, is threatened by the introduction of functional segregation.

Addis Ababa’s captivation feeds to a great extent of the interaction of its inhabitants in outside spaces. The amount of smallest businesses and social interactions one encounters on every corner at any time of day is more than impressive. It is unquestionable that the estimated future growth of 5% annually, from today officially 2.8 million inhabitants (Population Census Commission, 2008) to possibly up to 12 million in 2060 (Central Intelligence Agency, 2014), requires visionary planning. However, should this vision be based on cities like Dubai, Shanghai or Singapore where most public space only exists in shopping malls? When we ask “How high should we build this city?”, it is important to remember that this is more a question of lifestyle, than a question of necessity, since both, a low-rise and a high-rise versions of Addis Ababa can equally provide space for its envisioned future growth.
Low-rise high-intensity

The country’s economy is largely based on small-scale enterprises run in backyards or from home. Most importantly, these businesses form networks, supporting and depending on each other. Their connection to the ground floor is essential: While some need the soil to grow plants, others depend on the walk-in client or the access to infrastructure and goods (Fig. 03). Approximately 40% of Addis Ababa’s businesses will have problems operating on a higher floor level. Although it is true that this dependency will decrease with the increasing development of the country, such a change cannot be forced without initially excluding a large portion of the population in the process.

An Ethiopian saying states “Your next door neighbour is more important than a distant relative” (Heisel and Kifle, 2011). Knowing your neighbour and sharing resources are substantial preconditions to build any society. Unfortunately, social ties usually decrease with growing wealth and the associated architectural representation, which comes with it. In this sense, the high-rise typology all over the world resembles a seemingly political as well as economical success story, whereby unique social and cultural values of different societies are left behind. Accepting its uniqueness and formulating an alternative aspiration of the term “modern”, not only Ethiopia but many other developing territories would have the chance to learn from their existing, intense, urban density and use it as a starting point to develop a ‘reverse modernism’, where the so-called “North” would start learning from the “South”. In our opinion, a low-rise environment could play an important role as part of the three-dimensional network of spaces necessary for such a development.
A play with numbers

Addis Ababa’s built up area, deducting infrastructure and services, is somewhere around 178 km$^2$, which equals to 63 m$^2$ per person on the ground. Assuming that 12 million people might live in the same area in 2050, every person would be entitled to 15 m$^2$ of ground floor space. For comparison, the inner-city, ‘slum-like’, ground floor housing areas in Addis Ababa are currently estimated at a density of 20 m$^2$ per person (Kifle, 2011).

Starting in 2004, the City Administration established the Grand Housing Development Program, a massive social housing scheme trying to battle the existing shortage with 50’000 new units per year. One of the bigger projects, the Gotera Condominiums (Fig. 04), now houses about 3’000 families in newly built condominiums (Sahle, 2010). This adds up to about 12 m$^2$ per person projected on the ground floor. While this five story housing complex would certainly provide room for the future growth of Addis Ababa, it only poorly addresses the social, cultural or economic questions raised earlier. Rather, it is simply a stack of one-dimensional housing units to meet the growing demand, missing the important element of the semi-private, the space between for human interaction. With great effort and over the course of several years, Gotera’s inhabitants managed to turn their Condominium site into a lively district. Even now however, except for the immediate streetscape, most of the open areas remain un- or underused, while business opportunities are a privilege of the ground floor tenants.

The condominium constructions show, that open and public spaces need to be designed as much as the buildings themselves, otherwise, they will be rejected by their intended users and only maintained, cleaned or repaired poorly. The feeling of identity and ownership is missing completely. And even when disregarding the un-designed or non-existing urban realm, the condominium housing blocks suggest, that a height of “only” five stories is already too much for the existing social and economic networks. In a way, the condominium layout occupies land without activating the ground.

Building a Mega-City – house by house

In addressing the cultural as well as economical questions raised, what would a possible alternative typology for Addis Ababa look like? As Tokyo demonstrates very impressively, a Mega-City can be composed out of double-story units. The Ethiopian Institute of Architecture, Building Construction and City Development (EiABC), together with its partners in Zurich, Germany and Singapore, has developed several proto-typologies during the past years, which address the facts and concerns mentioned earlier. One of them, the Sustainable Urban Dwelling Unit (SUDU), proposes a dense, two- or even three-story structure in a row house typology (Fig. 05–07). The idea is to offer inhabitants a possibility to construct their own houses without waiting for government programs or private/public developers. Furthermore, when constructed over a period of time, depending on the financial resources of its residents, smaller units like SUDU activate private capital for the housing sector.

In a similar approach, Elemental S.A. from Chile developed a scheme, where initially only one vertical half of each row house is being built. Later, the owners or tenants can decide to close the gap to their neighbours under the already existing roof according to their own capacity, identity or aesthetic wishes (Fig. 08). By minimizing the investment volume through small, flexible housing typologies, Ethiopians could be brought into the role of urban house builders, following clear sets of rules concerning health standards, material specifications, accessibility, and fire regulations.

The described process allows for a transformation of inner city slum areas from within, step by step, instead of the current ‘tabula rasa’ concept, which threatens the cultural, economic and social networks of the inhabitants. To enable economic activities, the SUDU proposal provides semi-public areas in the front and back of each unit. Undulating fences or walls create spaces towards the street, which could be used as small production
facilities. A parallel shift of the housing units would further increase the creation of human-scaled open spaces and small urban pockets for social events such as weddings or funerals.

Most of the estimated future growth of Ethiopia’s capital results from rural to urban migration. Presently, these migrants initially move in with relatives or friends, then attempt to find work, set up life, construct their own shelter and, finally, inform the rest of the family to follow. SUDU tries to accommodate such transformations by offering two open floors and one stair, placed in such a way, that it could separate each floor into smaller areas. This allows for occupancy by three or four smaller entities within the house, two mid-sized or one bigger family.

With 72 m$^2$ of living area on two floors, set upon a 70 m$^2$ plot of land, the SUDU typology provides shelter at 7.6 m$^2$ per person on the ground, based on an average household size of 4.2 members$^5$. Employing these estimates as a conceptual reference, Addis Ababa could house up to 23.4 million people on its 178 km$^2$, using only the ground and first floor. Assuming the availability of land for such a double story intervention would only be 50%, while the other half remains at today’s density, Addis Ababa’s footprint would house up to 13 million people. As the example of Chile shows, the argumentation to look deeply into existing local condition and possibilities for densification from within is not an exclusive African or Ethiopian one. Similar arguments can be found in projects carried out in most developing territories. SUDU has to be understood as one possible manifestation of a project in flux. The alternative density that we would like to discuss emerges out of a diversified economic ground condition that takes the informal sector and the micro-enterprise character of societies seriously, rather than imagining (as modernist development trajectories assume) that this ground is a kind of vestigial condition, that should be overcome and eradicated in the name of a developed, industrial economy.

Diverse building industry

To achieve the diversity required for an ‘intense’, urban city, it is essential to extend the responsibility for the provision of housing from governmental programs all the way to small and private investors. Providing incentives to private house builders and additional governmental agencies such as the kebeles$^3$ to build small and easy to handle housing units could help the Grand Housing Development Program not only to achieve its goals, but also to change the image of Addis Ababa back into a heterogeneous structure. Diversification, in this case, does not stop with construction. Moreover, it should include support programs for alternative building materials as well as new business and financial plans in order to activate private capital. Finding alternatives to imported steel and concrete construction materials or methods is a further step in bringing the value chains of the construction industry back into the country. The SUDU prototype, build out of local stones and mud bricks to minimize cost and activate local technical know-how, demonstrates in an exemplary way how this could work. However, hybrid models where traditional materials and
Methods are mixed with contemporary ones to be favoured and would even enhance the heterogeneity.

Many of the points mentioned above have been discussed in Addis Ababa recently. Partly as a result of the academic discourse held at EiABC and other institutions such as the ETH in Zürich or the Future Cities Laboratory in Singapore, one can observe slight changes in governmental decisions. In a recent Low-Cost Housing Competition, the AAHDP challenged architects and constructors for new approaches to the condominium typology. Most importantly, on a 200 hectare development site, participants were restricted to housing typologies with only two stories in height. Based on the success of this experiment, the so-called 70-30 rule has been introduced, whereby new condominium designs from now on require a mix of typologies, whereby 30% of buildings are between 7–13 stories, yet 70% only two stories or below. Following our argumentation, the implications of this planning regulation could be significant for the future growth of the city.

References


Endnotes

1 See: www.elementalchile.cl
2 According to CSA (2007), the number of people per household in the case of Addis Ababa is 4.2
3 Smallest administrative unit in Ethiopia with about 500 households
4 Addis Ababa Housing Development Program

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Fig. 09 Aerial view of the object-obsessed Grand Housing Development Program in Addis Ababa

Fig. 10 The current urban development of Addis Ababa is shaped by transportation demand
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