

African New Towns

An adaptive, principle-based
planning approach

Rachel Keeton



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African New Towns

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planning approach

Dissertation

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“In your text, treat Africa as if it were one country.
It is hot and dusty with rolling grasslands and huge herds of animals
and tall, thin people who are starving.
Or it is hot and steamy with very short people who eat primates.
Don’t get bogged down with precise descriptions...
If you are a woman, treat Africa as a man who wears a bush jacket
and disappears off into the sunset.
Africa is to be pitied, worshipped or dominated.
Whichever angle you take, be sure to leave the strong impression
that without your intervention and your important book, Africa is doomed...
Always end your book with Nelson Mandela saying something
about rainbows or renaissances.
Because you care.”

Binyavanga Wainaina (2005) “How to Write about Africa”. Granta 92.

“One writes out of one thing only – one’s own experience.
Everything depends on how relentlessly one forces from this experience
the last drop, sweet or bitter, it can possibly give.”

James Baldwin (1955) Notes of a Native Son. Boston: Beacon Press

Preface

This study is written from the perspective of a white, female, American and Dutch urbanist. It is informed by the implicit biases, privileges, and naïvetés attached to this background. As an outsider in the African contexts described here, I have sometimes struggled with how to position myself as a researcher. In that struggle, I have benefitted from Lyn Johnstone’s examination of positionality as a mutable and ever-changing aspect of empirical fieldwork, and found myself nodding at her simple observation that “who we are shapes what we research and the knowledge we produce”* (Johnstone, 2018: 3).

Much of the knowledge brought together in this study stems from interactions with people: semi-structured interviews, casual conversations, and deeper discussions that sometimes extended long into the night. I am deeply grateful to the people who openly shared their ideas, experiences, and observations. People often went out of their way to introduce me to other relevant experts, and I am reminded that like this research, life is ultimately about human connections. Urban design is about the spaces that support these connections.

To further drive home this point, the reader will find another narrative laced into this study. The photographs that are used as breaks between chapters show residents of current New Towns, as well as residents of rural areas that will become New Towns over the next few years. These are the people that directly benefit from better New Town planning. They are the ones that will live in the New Towns initiated by politicians and developers. Their voices belong in the planning process.

This study would not have been possible without the generous sharing of time, insights and reflections from many people in many places. While some have chosen anonymity, I would like to personally thank: Abena Ntori, Adriano de Silvo, Allan Cain, Anas Aladdin, António Gameiro, António Teixeira Flor, Ato Kefyalew Hailu, Ato Tsegaye Biadgign, Bassem Fahmy, Bizuayehu Jembere, David Sims, Ewout Dorman, Fasil Giorgis, Franz Oswald, Gayatri Mujumdar, Grazia Tona, Isabel Potworowski, Israel Marques, Jose Chong, Laura Petrella, Ma Baowen, Manuel Zanguí, Mastewal Chane, Megan Bentzin, Nazih Hallouda, Participants of the 2017 Adaptive Principles Workshop at TU Delft, Participants of the 2018 Design Workshop at Tatu City, Participants of the 2019 Design Workshop at Mahonda, René Boer, Rogier van den Berg, Thomaz Ramalho, TJ Zhai, Wiebe Ruitenbergh, and many many others.

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My friend and former colleague at the International New Town Institute, Michelle Provoost deserves thanks on many fronts. Without her original argument that UN-Habitat's *New Urban Agenda* left out these unique urban forms altogether, this investigation would never have come about. Without her expertise and editorial magic, our book *To Build a City in Africa: A history and a manual* (nai010, 2019) would never have arrived in the world. This study owes much to that book, and to her personally.

Finally, I am so grateful for the love and constancy of my parents, Pres and Paula Keeton, my siblings Caitlin, Will, and Josephine Keeton, and my in-laws Anne Kienhuis and Ans van Eekelen, Gert Bokkers and Karien Buijvoets.

And to the loves of my life, Tom and Odette Bokkers, let me say: every day with you two is a joyful adventure. I love being your mama, Bug, always and forever. Tom, *ik hou van jou*; your steadfastness gives me the courage to roam the earth and always come home to you.



A family arrives at a villa in Sheikh Zayed City, Egypt. Source: Author, 2016

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A landscaper in Sheikh Zayed City, Egypt maintains open spaces within a gated community. Source: Author, 2016

Summary

The New Towns (mixed use urban developments planned and built from scratch) initiated across the African continent since 1990 are overwhelmingly designed and built according to urban planning models from the previous century (Watson 2013; Marcinkowski 2018; Keeton and Provoost 2019). This has produced a generation of New Towns with rigid physical infrastructure and strict building regulations, that do not support the spatial manifestations of the 'informal' sector. As a result, these New Towns may become insular enclaves and informal settlements may develop adjacently to them. Residents of these adjacent areas may not have access to the services and amenities offered within the New Towns (Keeton and Provoost 2019). Coupled with the implicit vulnerabilities of emerging and threshold economies, the contextual mismatch of the imported urban models exacerbates spatial segregation at an urban scale. Additionally, contemporary New Town models often do not take current climate variability or future climate change threats into account. As implemented in the African context, they rarely respond effectively to surrounding natural landscapes or environmental sensitivities (Keeton and Nijhuis 2019).

Building on the arguments that (1) equal access to resources is a key component of sustainable development and that (2) urban planning benefits from new linkages between critical social theory and environmental science, this research proposes that applying adaptive urban planning principles to New Towns in the African context can increase ecological sustainability and social inclusivity (WCED 1987; Fainstein and Campbell 2012). The objective of this research is therefore to address the spatial challenges of African New Towns by developing an alternative planning and design approach that acknowledges both social and environmental dimensions, as well as the constant state of change that all cities exhibit. This is done by addressing four main research questions: (1) What are the spatial problems of African New Towns caused by the application of common planning approaches? (2) What are the principles of a more adaptive and sustainable planning and design approach and how can they address these problems? (3) How and to what extent can the adaptive planning and design principles be improved and applied? And finally, (4) As a result of the findings, how can adaptive planning approaches and the related principles be implemented?

The research first identifies the spatial challenges specific to contemporary African New Towns through a combination of empirical data collection and literature review. The research moves forward to bring these shared spatial challenges together with a set of guidelines for New Towns originally written by Michelle Provoost as an addition to UN-Habitat's New Urban Agenda (Provoost 2016). The analysis of shared spatial challenges is used to revise, expand and refine these guidelines into a set of adaptive planning and design principles specific to African New Towns. The resulting principles are then tested by applying them through case study analysis of three existing New Towns to establish their universality as well as their ability to acknowledge local specificities.

In the final phase of the research, two short-term workshops validate the results by testing implementation of the principles in two African New Towns (Tatu City, Kenya and Mahonda, Zanzibar). The research concludes that the adaptive planning and design principles can be an effective starting point for stakeholders involved in the development of New Towns across Africa. It furthermore concludes that these principles must be adapted locally to meet the individual urgencies of different sites.

This research contributes to the existing body of literature on contemporary African New Towns (Watson 2014; Murray 2017; Van Noorloos and Kloosterboer 2018; Keeton and Provoost 2019). Notably, most authors working on this topic primarily employ internet sources or a single case study to build their arguments, which can be problematic in the African context where remotely-sourced data is often unreliable and New Towns as a group exhibit vast divergences that may limit the transferability of results from individual case studies. This research therefore fills a knowledge gap by bringing together empirical evidence acquired during fieldwork in Angola, Egypt, Ethiopia, Ghana, Kenya, Morocco, and Tanzania, combined with literature review and the results of interdisciplinary workshops to support its claims. It also contributes to the current debate on normative assumptions regarding planning in the Global South (Watson 2002; Watson 2016; Cirolia and Berrisford 2017), and directly addresses the disconnect between academia and practice regarding contemporary African New Towns (Grubbaur 2019; Keeton and Provoost 2019). Finally, this study aims to provide an alternative approach for planners, developers and decision-makers initiating tomorrow's New Towns in Africa.

Samenvatting

De New Towns (gepland steden en dorpen) die sinds 1990 op het Afrikaanse continent in ontwikkeling zijn, zijn overwegend ontworpen en gebouwd volgens stedenbouwkundige modellen uit de vorige eeuw (Watson 2013; Marcinkowski 2018; Keeton en Provoost 2019). Dit heeft geleid tot een generatie New Towns met een rigide fysieke infrastructuur en strikte bouwvoorschriften, die de ruimtelijke manifestaties van de 'informele' sector niet ondersteunen. Als gevolg hiervan kunnen deze New Towns exclusieve enclaves worden en ontwikkelen zich informele nederzettingen ernaast, maar zonder toegang tot de diensten en voorzieningen die in de New Towns worden aangeboden (Keeton en Provoost 2019). In combinatie met de impliciete kwetsbaarheden van opkomende economieën en drempel economieën, verergert de contextuele mismatch van de geïmporteerde stedelijke modellen de ruimtelijke segregatie op stedelijke schaal. Bovendien houden hedendaagse New Town-modellen vaak geen rekening met de nieuwe extremen in klimaat of toekomstige bedreigingen van klimaatverandering. De hedendaagse Afrikaanse New Towns reageren zelden effectief op omliggende natuurlijke landschappen of omgevingsgevoeligheden (Keeton en Nijhuis 2019).

Voortbouwend op de argumenten (1) dat gelijke toegang tot hulpbronnen een sleutelcomponent is van duurzame ontwikkeling (WCED 1987), en (2) dat stadsplanning profiteert van nieuwe verbanden tussen kritische sociale theorie en milieukunde (Fainstein en Campbell 2012), beargumenteerd dit onderzoek dat de toepassing van adaptieve stedenbouwkundige principes op New Towns in de Afrikaanse context ecologische duurzaamheid en sociale inclusiviteit kan laten toenemen. Het doel van dit onderzoek is daarom om de ruimtelijke uitdagingen van Afrikaanse nieuwe steden aan te pakken door een alternatieve plan- en ontwerpbenadering te ontwikkelen die zowel sociale als ecologische dimensies erkent, zoals de constante staat van verandering die alle steden vertonen. Dit wordt gedaan door vier hoofdvragen te beantwoorden: (1) Wat zijn de ruimtelijke problemen van Afrikaanse nieuwe steden die worden veroorzaakt door de toepassing van blauwdruk planningsbenaderingen? (2) Wat zijn de principes van een meer adaptieve en duurzame planning- en ontwerpbenadering en hoe kunnen ze deze problemen aanpakken? (3) Hoe en in welke mate kunnen de adaptieve plannings- en ontwerpprincipes worden verbeterd en toegepast? En tot slot, (4) hoe kunnen adaptieve planningsbenaderingen en de bijbehorende principes als resultaat van de bevindingen worden geïmplementeerd?

Het onderzoek identificeert eerst de ruimtelijke uitdagingen die specifiek zijn voor hedendaagse Afrikaanse New Towns door een combinatie van empirische gegevensverzameling en literatuuronderzoek. Vervolgens brengt het onderzoek de gedeelde ruimtelijke uitdagingen samen met een reeks richtlijnen voor New Towns, oorspronkelijk geschreven door Michelle Provoost als aanvulling op de New Urban Agenda van UN-Habitat (Provoost 2016). De analyse van gedeelde ruimtelijke uitdagingen wordt gebruikt om deze richtlijnen te herzien, uit te breiden en te verfijnen tot een reeks adaptieve plannings- en ontwerpprincipes die specifiek zijn voor Afrikaanse nieuwe steden. De resulterende principes worden vervolgens getest door ze toe te passen door middel van een case study-analyse van drie bestaande New Towns om hun algemene toepasbaarheid vast te stellen, evenals hun vermogen om lokale karakteristieken te erkennen.

In de laatste fase van het onderzoek valideren twee korte-termijn workshops de resultaten door de implementatie van de principes te testen in twee Afrikaanse New Towns (Tatu City, Kenia en Mahonda, Zanzibar). Het onderzoek concludeert dat de adaptieve planning- en ontwerpprincipes een effectief startpunt kunnen zijn voor belanghebbenden die betrokken zijn bij de ontwikkeling van nieuwe steden in heel Afrika. Het concludeert verder dat deze principes lokaal moeten worden aangepast om te voldoen aan de individuele urgenties van verschillende locaties.

Dit onderzoek draagt bij aan de bestaande literatuur over hedendaagse Afrikaanse New Towns (Watson 2014; Murray 2017; Van Noorloos en Kloosterboer 2018; Keeton en Provoost 2019). Met name de meeste auteurs die aan dit onderwerp werken, gebruiken voornamelijk internetbronnen of een enkele casestudy om hun argumenten op te bouwen, wat problematisch kan zijn in de Afrikaanse context, waar op afstand verkregen gegevens vaak onbetrouwbaar zijn en New Towns als groep enorme verschillen vertonen die de overdraagbaarheid van resultaten uit individuele case studies kunnen beperken. Dit onderzoek vult daarom een kenniskloof, door empirisch bewijs samen te brengen dat is verkregen tijdens veldwerk in Angola, Egypte, Ethiopië, Ghana, Kenia, Marokko en Tanzania, gecombineerd met literatuuronderzoek en de resultaten van interdisciplinaire workshops om de beweringen te ondersteunen. Het draagt ook bij aan het huidige debat over normatieve veronderstellingen met betrekking tot planning in het Zuiden (Watson 2002; Watson 2016; Cirolia en Berrisford 2017), en behandelt rechtstreeks de kloof tussen de academische wereld en de praktijk met betrekking tot hedendaagse Afrikaanse nieuwe steden (Grubbaur 2019; Keeton en Provoost 2019). Ten slotte beoogt deze studie een alternatieve aanpak te bieden voor planners, ontwikkelaars en besluitvormers die de nieuwe steden van morgen in Afrika initiëren.







Young residents pose in 10th of Ramadan, Egypt. Source: Author, 2016

1 Introduction

1.1 Introduction: The Imperative to Imagine an Adaptive Alternative

Adugna lives eighty kilometers north of Bahir Dar, Ethiopia, in the rural community of Bura. Bura is a farming community, where changes come slowly and men trudge after oxen and plows in much the same the way their ancestors did. Through public meetings and the community grapevine, Adugna heard about a new project, a new plan for Bura. Architects from Addis Ababa and Zurich, Switzerland proposed to transform Bura into a New Town: BuraNEST, or 'New Ethiopian Sustainable Town'. Government representatives came to explain coming changes in the shade of the flowering *cordia africana* tree.

Adugna followed the proposal with interest. She argued with her husband over the opportunities the New Town could bring their family. Eventually, unable to compromise, she divorced her husband and signed on to be one of the first homeowners in the New Town. She moved into a traditional house with her three children just a hundred meters from where her new home was under construction. Every day they watched the eucalyptus frame rising, the sun-baked brick walls growing higher. Adugna gave up the security of her marriage for the promise of this alien architecture. She envisioned a design for a ground floor shop to sell dry goods to her neighbors. She planned the layout of the first floor living quarters, and noted which crops she would plant behind the house.

Adugna sees financial security in an urban plan that will bring density and trade to the Bura community (Keeton, 2017). She sees opportunities for her children to have a better education, to open a shop and increase her income, to live in a modern house, with a private well and private sanitation facilities, to have a better connection to other areas through new paved roads and electricity. In short, she sees the benefits of planning and how they can change her life. New Towns are ultimately

places where people live; they shape and are shaped by their residents. They are much more than a collection of street patterns or architectural typologies. This study looks at contemporary New Towns across the African continent, a huge and varied group, with a total number of residents in the tens of millions (Keeton and Provoost, 2019). If one conclusion can be confidently drawn about this nebulous company, it is what Aduigna could see without any data at all: that planning – good planning – has the ability to increase residents’ quality of life. However, as this research aims to show, the current New Town planning paradigm in Africa doesn’t live up to this promise, and an alternative planning approach is needed.



FIG. 1.1 Future New Town resident
Aduigna sits in her current home, looking towards the first buildings of BuraNEST. Source: Author, 2016..

Africa is currently urbanizing faster than any other continent in the world, and this surge is expected to continue into the next century (World Bank, 2016).[1] In fact, the UN predicts that by 2100, one quarter of the world will be African urbanites (UN, 2014). Most of those urbanites will be living in mid-sized cities, and in informal communities, without access to the benefits of planning (Pieterse, 2015; UN, 2014). New Towns are just a small part of the story of an urbanizing Africa, but they have the capacity to play a major role in delivering the urban housing, services,

and amenities that are urgently needed across the continent. However, instead of responding to the extreme (affordable) housing shortages, limited access to housing finance, and projections for increasingly destructive natural disasters due to climate change, contemporary New Towns developers seem more intent on capitalizing on the dreams of the African elite (El-hadj, et al., 2018; Salinger, Sivakumar and Motha, 2005).

The New Towns in this study appear almost as a collective response to the combination of neoliberal economic policies at the national scale coupled with the unfettered growth of informal communities at the urban scale (Watson, 2014; van Noorloos and Kloosterboer, 2018; Keeton and Provoost, 2019). Rather than the BuraNEST model, which follows a careful, slow, and complicated process of participatory planning, the vast majority of contemporary New Towns in Africa are suburban satellite cities initiated by international developers and targeting high income groups (Watson, 2014; Keeton and Provoost, 2019). To attract wealthy buyers, these New Towns offer a range of luxurious amenities, but the overwhelming majority are not designed to be responsive to changing (internal or external) contexts. This study finds that instead, they are predominately planned as complete products, with a single vision for a future that may or may not materialize. This approach creates New Towns that lack the capacity to adapt to the inevitable environmental and demographic changes that accompany any urban development. The adaptive approach advocated in this study provides an alternative: a framework for conceptualizing New Towns that are responsive to change rather than vulnerable to it.

Of course, discussing 'contemporary African New Towns'—a varied and diverse collection numbering in the hundreds—requires some generalization. By beginning with an overview of 146 African New Towns planned since 1960 and following with a comparative analysis of three case studies (chosen to illustrate the diversity of conditions across the continent), this research aims to arrive at useful conclusions in the form of planning principles, while acknowledging the inherent specificities of individual cities. As discussed in the following chapters, this research hypothesizes that the spatial challenges exhibited by African New Towns can be more effectively addressed by applying adaptive planning principles, and explores steps towards implementation.

In academic and public discourses, New Towns often carry a stigma. This is true of North American and European post-war New Towns as well as contemporary Asian and African New Towns (Galanty, 1975; Watson, 2014; Keeton, 2011). They are usually deeply connected to large, vibrant, 'mother' cities, and therefore implicitly conceptualized as 'children' cities: not yet mature, not yet autonomous. This conception is often reinforced by a paucity of urban amenities, a lack of job

opportunities, homogeneous housing stock and limited demographics (Galantay, 1975; Burby and Weiss, 1976; Bloom, 2001; Sorenson, 2001;). For their residents, however, suburban New Towns are often seen as oases or safe escapes from the bustling chaos of larger urban centers (Hall, 2014; Mumford, 1961). In Africa, the relationship between ‘mother’ city and satellite city is often characterized by huge income disparities between the established city and its satellite city, exacerbating the contrast between the two. Setting African New Towns in opposition to their ‘mother’ cities also highlights the difference between the (perceived) security and predictability offered by the planned enclave and the vibrant, if unpredictable and potentially unsafe nature of the existing city. As these disparities become more visible, the extreme opposition between entitled wealthy groups and disadvantaged urban poor may lead to increased violence, political instability within African countries, and ultimately affect global networks and processes (Sassen, 1999; Watson, 2014).

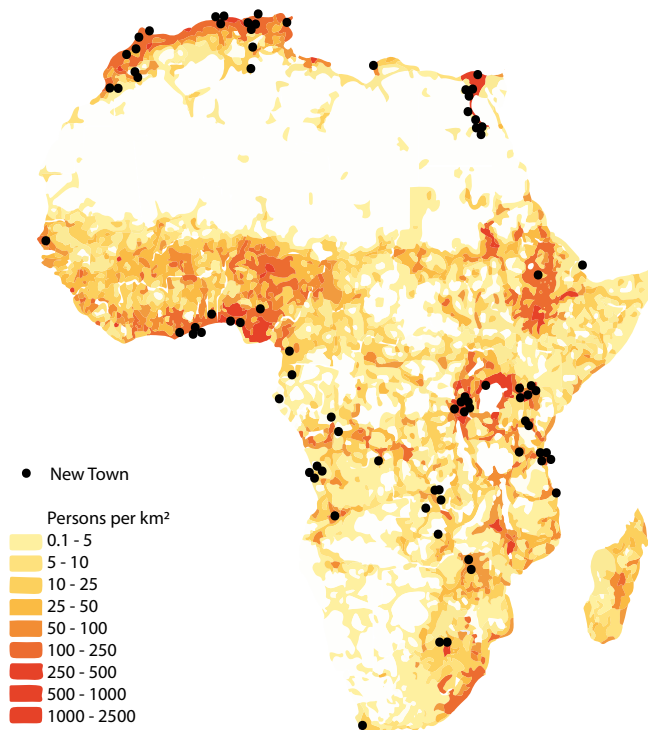


FIG. 1.2 Population density in Africa and New Towns since 1990

New Towns are commonly planned as satellite cities to existing major cities in Africa, with the notable exceptions of planned new capitals and regional growth nodes. Source: Author, after INTI/ARCHIS, 2017 and UNEP, 2000.

African New Towns have the potential, however, to be extremely useful tools in the continent's current shift from rural to urban landscapes. This research argues that by applying adaptive planning principles that translate spatial challenges into potentials, these cities can become more inclusive, ecologically sustainable, and as a result: better able to adapt to diverse stimuli at different scales and over different time periods.

It does so by proposing a set of adaptive planning and design principles as an alternative approach to the traditional blueprint model widely used in contemporary New Town construction. In this introductory chapter, the study aims to provide some background to the problem through a short description of the evolution of 'historical' African cities, and contrasts this with African New Towns as a unique urban form. Weaving together these closely related but sovereign topics locates contemporary African New Towns within a complex and layered socio-historical context. The chapter continues with the problem statement. The scope, limitations, and relevance of the research are discussed in three subsequent sections. The chapter concludes with a description of the study's structure and main Research Questions.

1.2 Background to the problem

Even a cursory reading through relevant literature on vernacular African urban forms reveals an overwhelming diversity of urban design principles and building techniques still in use across the African continent (Vellinga, Oliver and Bridge 2007; Elleh 1997; Bourdier and Minh-ha 1985; Coquery-Vidrovitch 2005; White, Pienaar and Serfontein 2015). For this reason, literature on African urbanization tends to either heavily generalize urban 'types' (White, Pienaar and Serfontein 2015), or outright reject the idea of a single, representative 'African city' and focus on idiosyncratic identities (Myers 2011; Coquery-Vidrovitch 2005).¹

¹ Acknowledging the incompleteness of generalizations, this research resists the urge to organize contemporary African New Towns into typologies, and instead builds three case studies from diverse geographic, social and historical contexts to illustrate both the heterogeneity and shared characteristics of African New Towns.

In the last decade, some authors have taken the creative leap from analysis of past urban forms to projected urban futures, as exemplified by Garth Myers' (2011) suggestion of an African 'postmetropolis', AbdouMaliq Simone's (2004) hopeful 'multiplex' reading of African cities and Edgar Pieterse's (2008) amorphous 'relational city'. Carlos Nuñez Silva expands on these projections, stating, "future urban planning in the continent should address the new African urbanities, which are no longer traditional and which in general do not correspond to European stereotypes. In other words, African urban planning will have to address and adapt to the needs of the citizens living in African cities and to be more cautious about imported urban models (2015a: xxi)."

This mandate is echoed in recent literature on African cities that condemns the import of foreign urban planning models (Elleh, 1997; Watson, 2002, 2014; Provoost and Keeton, 2020). Nnamdi Elleh carries this argument furthest, pointing out that even at the architectural scale, the import of prefabricated materials and techniques increases the vulnerability of African construction industries (1997). This dismissal of foreign models and materials has much to do with the complex legacies of colonial planning policies and is perhaps best summarized by Gwendolyn Wright in her reflection on French colonial urbanism in Africa: "[There is a] need to always raise issues about what any urbanistic project will do to the economy of a region, the social life of residents, their understanding of the past, and the political engagement of all groups in their collective future... We [can] learn to ask relevant questions about the diverse meanings and potential implications of any architectural style or urban policy, whatever the setting" (1991: 313). Other authors critique the western bias that has historically contributed to the import of these models: "consciously or not, but always implicitly, there is a presupposition that the only fully developed urban model is the Western standard of reference" (Coquery-Vidrovitch, 2005: 13). There appears to be growing consensus that current urban models (particularly those used in New Towns) increase spatial segregation, implicitly feed the growth of 'informal'² settlements and ignore environmental realities (Njoh, 2009; Watson, 2014; Provoost and Keeton, 2020).

² A note on the use of the term 'informal': although I find it problematic to engage this term and thus implicitly condone a formal-informal dichotomy which is reductionist at best and disingenuous at worst, it is used here to refer to urban areas that function independently of the 'formal' (regulated) economy. In other words, the residents do not pay taxes and multiple levels of government have limited modes of intervention. An alternative term might be 'slum', which is defined by UN-Habitat as: "a group of individuals living under one roof lacking one or more of the following conditions: access to improved water; access to improved sanitation facilities; sufficient living area (not more than three people sharing the same room); structural quality and durability of dwellings; and security of tenure" (UN 2008: 92).

Recognizing these shortcomings, there have been increasingly vocal calls for a new urban form that recognizes what Elleh calls the “triple cultural heritage of Africa”—one that has yet to find a “harmonized expression in architecture” (1997: 354).³

Not only imported urban forms, but also imported urban theories have been called into question in recent years. Urban theorists from the African Centre for Cities (ACC) in South Africa have led this charge, among them Vanessa Watson, who astutely points out that the “unspoken assumption that [planning theories from the global north] are of universal value” often conflicts with the realities of African cities (2016: 32). She argues that a shift is currently taking place in planning theory “as new perspectives question some of the fundamental assumptions of previous planning ideas” (Watson, 2016: 32-33). Southern planning theory, then, differs distinctly from its northern counterpart in its recognition of different forms of governance, civil society and relationships to land, as well as the acknowledgment by some authors that, in the global south⁴, “planning cannot be divorced from postcolonialism or coloniality” (Watson, 2002; Watson, 2016: 35-36; MirafTAB, 2009; Parnell and Oldfield, 2014). Although western theorists provide some strong footholds for this research, it is necessary to view these ideas through the contexts in which they were conceived—namely, highly developed capitalist economies in the global North (Yiftachel, 2006a, 2006b; Watson, 2016).

³ Elleh (1997) is referring here to the compound nature of African cities that have evolved from African medieval cities, through Islamic expansion beginning in the 800s, and finally through colonial influence, which began in the mid-fifteenth century and entirely transformed the trajectory of African urban development in the nineteenth and twentieth centuries. Thirty years on, we might be better served to consider a ‘quadruple heritage’, with an additional layer that adds developments of the post-independence era to this framework.

⁴ ‘The global south’ commonly refers to what the 1987 Brundtland Commission identified as ‘Third World’ countries. As Sue Parnell and Sophie Oldfield remind us, however: “for urban scholars in general, the notion of the global south is fluid and increasingly contested, both geographically and conceptually” (2014: 5).

1.2.1 Ancient African cities and towns

Against this contemporary debate, it is possible to look back towards historical African cities with a deeper understanding of the complex processes that have stalked urban development across the continent. Such cities have been well-documented by archaeologists and anthropologists, but only come to the attention of urbanists more recently.⁵ In fact, until the 1990s, urban studies in Africa were almost exclusively the domain of sociologists (Coquery-Vidrovitch, 2005). Since then, however, there has been an outpouring of scholarship related to African urban studies, frequently from a combined urban theory and planning perspective (e.g. Simone, 2004; Nuttall and Mbembe, 2008; Pieterse, 2008, 2010; Myers, 2011).

Regarding this recent scholarship, twentieth century African urban studies frequently take a single or multiple case studies approach, to the extent that Catherine Coquery-Vidrovitch (2005: ix) refers to a “monographic bias [that] hinders the development of a thematic understanding of the problems” related to urbanization in Africa. This bias has shifted considerably over the last two decades, with authors like Myers (2003, 2006, 2011), Pieterse (2010) and Nuñez Silva (2015a) returning to broad comparative analyses that point to systemic urban challenges as well as new potentials. For example, Bill Freund (2007) embraces a great diversity of urban forms, cultures, and politics by taking a continent-wide approach to African cities. Ambitiously, he traces an evolution from the origins of urban life some five thousand years ago, to the time of writing. Freund’s evolutionary model of urban forms as increasingly complex agglomerations indicates a tangled layering over time related to external and internal influences. Coquery-Vidrovitch also refers to the *hybridity* of African cities, pointing to the superimposition of medieval trade cities, precolonial Islamic urban design influences, and both destructive and constructive colonial forces (2005).

⁵ With exceptions such as Jean-Paul Bourdier and Trinh Minh-ha (1985). For examples of anthropologists working on African cities see: John Peel on the Nigerian Yoruba urban settlements, and more recently: Filip de Boeck on Kinshasa.

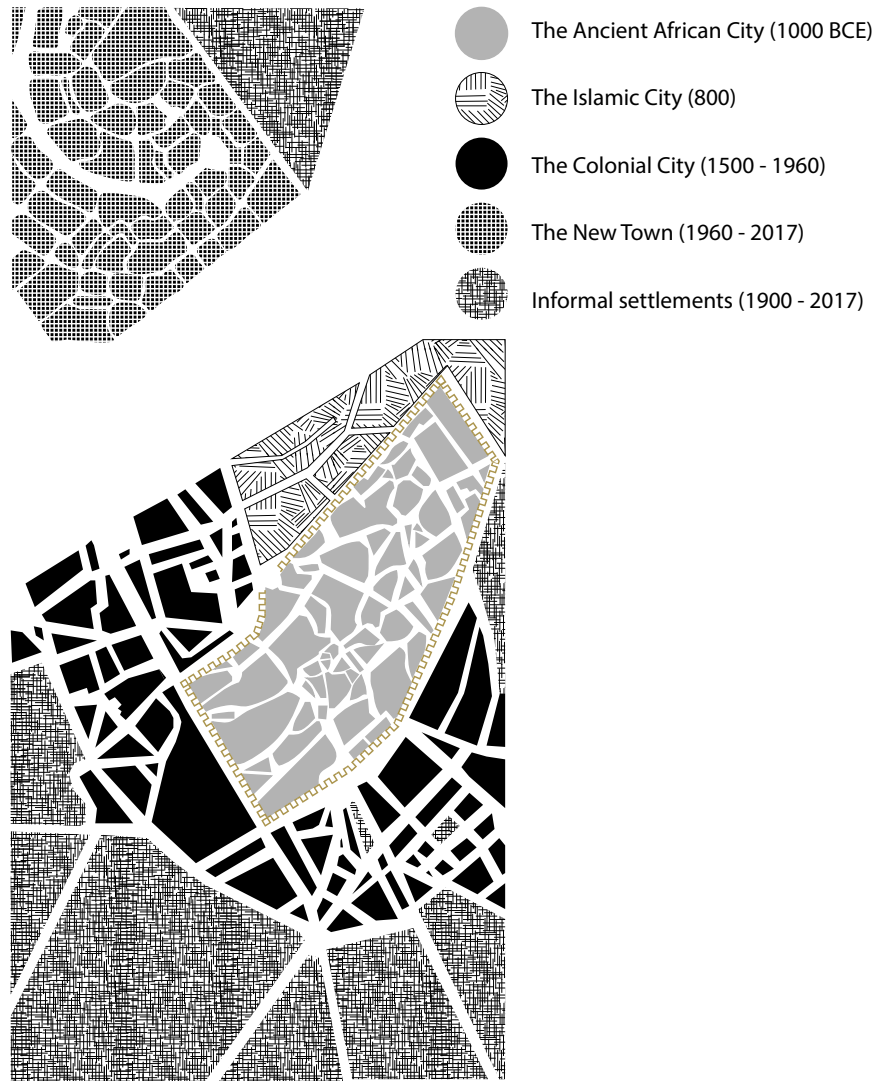


FIG. 1.3 A hybrid African city and New Town

A diagrammatic interpretation of contemporary 'hybrid' African cities and their satellite New Towns illustrates the different spatial organizations characterizing different periods of influence. Source: Author, after: Elleh, N. (1996) *African Architecture*. New York: McGraw-Hill Professional Publishing. P. 74.

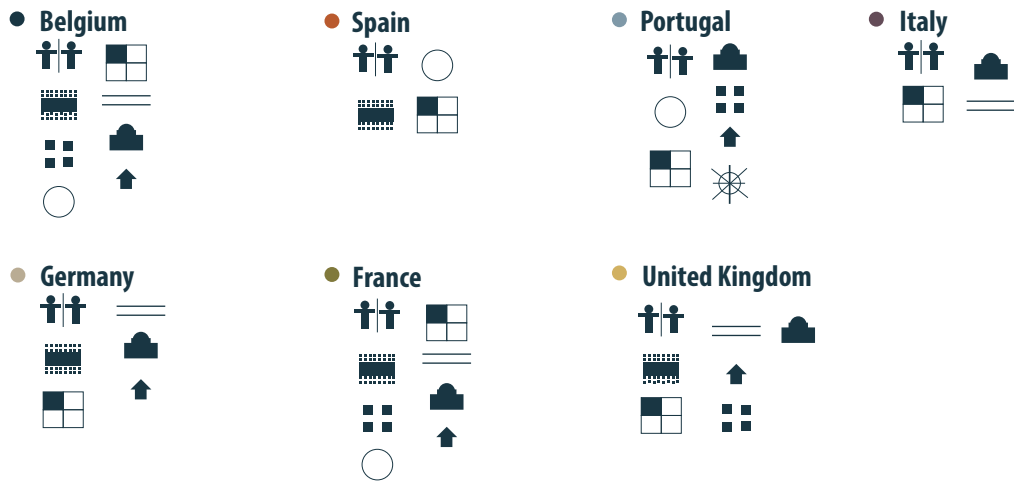
1.2.2 Colonial urbanization in Africa

The colonial period⁶ largely inverted the concept of urban life in Africa and has rightly been the subject of considerable urban design research (Avermaete, Karakayali and von Osten, 2010; Njoh, 2009; Myers, 2003). Instead of the centuries-old trading cities that once dominated inland Africa, colonial occupiers replaced (and often destroyed) these centers of commerce with coastal port cities that facilitated the export of natural resources.

Colonial urban models varied greatly among respective colonial occupiers. Each colonial government brought its own design theories, planners trained in specific academic traditions, and underlying goals with specific spatial implications.

Despite the resulting diversity of forms, all colonial governments that engaged in urban planning used it as tool to enforce racial segregationist policies (Njoh, 2009). However, this was never solely a process of top-down application. As Nuñez Silva points out, there were “highly complex two-way exchanges in numerous aspects of the urban planning process in Africa” (2015a: 3). Colonial planning policies continue to influence contemporary planning policy in many African countries today. These complicated and contested histories are addressed in more detail in Chapter 3 and in the case studies discussed in Chapter 5.

⁶ Colonization began in Africa long before 1884 and lasted in many places longer than 1960. However, in reference to the continent, this period is generally understood as the time between the Berlin Conference (1884) and the ‘Year of Africa’ (1960). The Berlin Conference marked the European regularization of the ‘scramble for Africa’, and 1960 saw the independence of 17 Sub-Saharan African countries, and the retreat of colonial occupiers across the continent.



LEGEND

- Racially exclusive residential and commercial areas for indigenous and colonial residents
- Greenbelt no-build zones for 'health' reasons (*cordon sanitaire*)
- Low-density residential areas
- Representative open spaces
- Functional zoning
- Broad, straight, tree-lined roads and *boulevards*
- Monumental public buildings
- Poor infrastructure and housing provision in native areas
- Radial and axial compositions

FIG. 1.4 Colonial urban planning design principles

It is possible to identify a number of planning and design principles in the urban designs implemented during the colonial period. Different colonial occupiers emphasized different spatial constructions, but every colonial power employed urban planning as a tool to control local populations and enforce racial segregation (Hege, 2015; Silva, 2015; Milheiro, 2012). Source: Author, 2017.

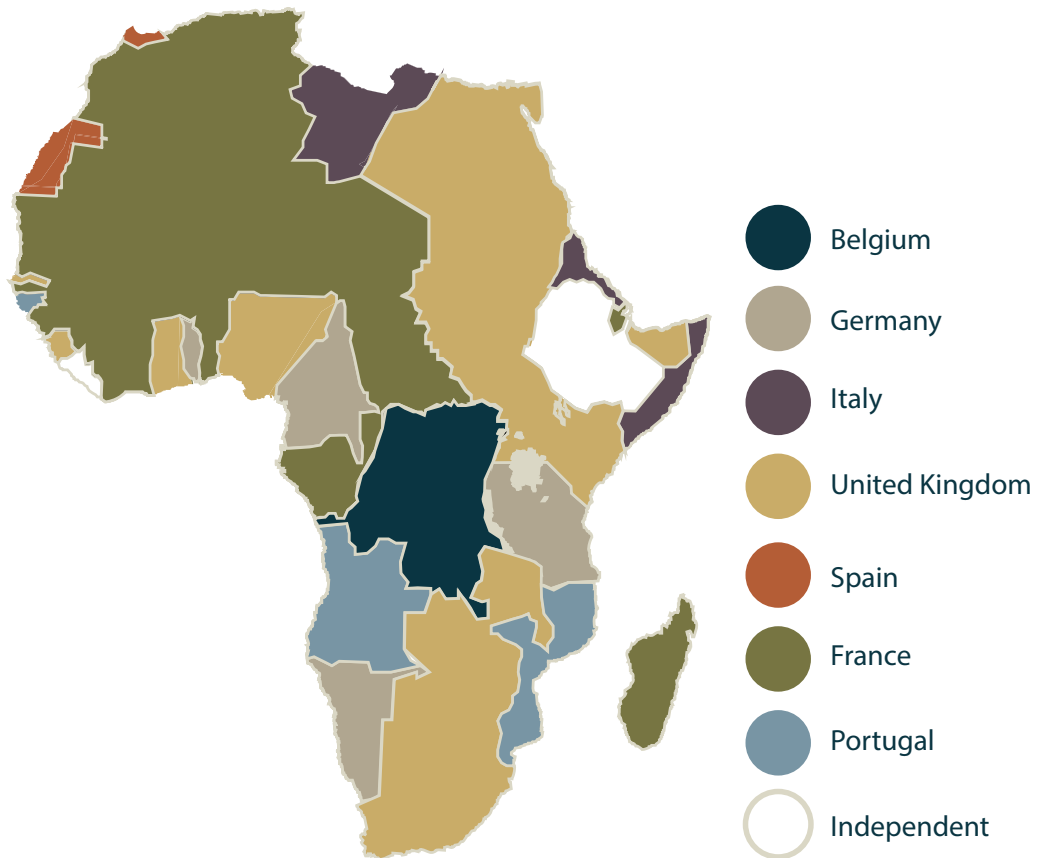


FIG. 1.5 Colonial occupation in Africa, 1911
 By the eve of the First World War, almost 90% of the African continent was under colonial rule. Only Ethiopia and Liberia remained independent. Source: Author, 2017, after *Carte General de L'Afrique* (1911)

1.2.3 African New Towns as a unique urban form

Coquery-Vidrovitch (2005: 26) reminds her reader: “All African cities are hybrids.” African New Towns, however, are the exception to this rule, having neither the historical layering, nor the aggregating influence of ‘informal’ urbanization within their borders, as a general rule. In this study, following the parameters set by Keeton and Provoost, New Towns are defined as mixed-use, greenfield, urban developments designed for more than 10,000 residents, with political leadership at an urban scale (2019).

Planning theory related to New Towns as a unique urban form can be stretched back to the utopian tradition of Plato, and forward through the writings of Thomas More, Charles Fourier, and Robert Owen, but for this research it is more relevant to begin at the turn of the twentieth century with Ebenezer Howard's influential treatise *To-Morrow: A Peaceful Path to Real Reform* (1898). Using a diagram of three magnets, Howard defines New Towns as the great compromise between the "Foul Air", "Slums and Gin Palaces" of existing cities and the "Land Lying Idle" of the countryside (1898: 8). His writing directly inspired the British Garden City Movement, led by Raymond Unwin, which in turn inspired a similar movement in the United States pioneered by Clarence Stein and Lewis Mumford, among others. Both movements resulted in the construction of master-planned New Towns based on the Garden City model that linked spatial design to social motives (Galantay, 1975).

Despite these noble origins, however, New Towns often struggle to meet their ambitions. For example, New Towns offer notoriously homogeneous housing stock and, as a result, generally lack demographic diversity (Provoost, 2010; Bloom, 2001). Because they are planned and constructed at a single moment in time, they often age poorly, with maintenance and upgrades left too late, rather than the constant (re) development that characterizes organically grown cities (Provoost, 2010).

Although this academic lineage is largely 'Western', comprehensively planned cities have been present in Africa for a millennia. Although largely destroyed by colonial wars and plunder, ancient Africa had cities of grand scale that were extensively planned: El-Lahun (alternatively *Kahun* or *Ro-hent*), Egypt is perhaps the oldest master planned urban settlement currently known in the continent. Archaeologists have dated its walls to 1897 BC. Roman Carthage, Tunisia was rebuilt after destruction as a gridded city by Julius Caesar in 146 BC and enclosed by massive (inhabitable) city walls. Further south, medieval planned African cities had some of the most developed social welfare systems, craftsmen, and political organization in the world for their time (Fauvelle, 2018). Eleventh century Edo (Benin City), Nigeria, for example, was designed based on fractals, and had underground drainage as well as a centralized and sophisticated bureaucracy. Tragically, almost of all of these grand planned cities were destroyed by colonial occupiers between 1500 - 1900 in an effort to erase and subdue existing communities. Edo itself was burned to the ground by British troops in 1897, after looting the famous Benin bronzes and some 3000 other artworks (Koutonin, 2016).

It was also British colonials who introduced the New Town in its revised Garden City form. Other European colonizing powers employed similar design principles (radial or grid compositions, low density residential areas, monumental public buildings, and functional zoning), but did not call their projects Garden Cities (Bigon, 2013).

Remarkably, every colonizing power planned for racially exclusive spaces, dividing each city into two: an area for colonial residents and an area for indigenous populations (Silva 2015). Often, these spaces were further separated by a greenbelt *cordon sanitaire* that was intended to act as a buffer zone between the two urban areas. Invariably, the areas for indigenous residents had poorer infrastructure and insufficient housing provisions.

Contemporary New Towns across the continent tend to perpetuate this spatial division – replacing racial bias with economic bias. With the exception of state-led national housing projects in countries such as Ethiopia, Egypt and Morocco, most contemporary African satellite cities are master planned cities developed by private (often international) companies (Watson 2014; Marcinkowski, 2017; van Noorloos and Kloosterboer, 2018; Keeton and Provoost, 2019). The developers in question target the so-called African middle class, offering an urban experience that is ‘family-oriented’⁷, highly planned, ‘safe’ and ‘clean’.⁸ The current situation presents a challenge for developers: how to accommodate real estate market demand while still ensuring (socially, environmentally, economically) sustainable urban centers? Broadly speaking, this conflict of interests is met by ignoring long-term implications and streamlining planning processes to produce short term profits. Developers purchase land from a government, tribal representative or private owner, finance the infrastructure, then sell off plots of varying sizes to private individuals or sub-developers.⁹ Their involvement and responsibility for the project may end as soon as construction is completed (Watson, 2014). This process leaves completed New Towns vulnerable to poor maintenance, ineffective urban management, and devaluation over time. Adjacent informal settlements may grow in tandem with the New Towns, creating spatially divided, but economically interdependent communities.

7 African families outside of the highest earning bracket, however, are often female-headed and multi-generational extended family units. This is frequently the result of premature deaths within families, the prevalence of HIV/AIDS, and the increased economic power and social support afforded by combined living arrangements. As Milazzo and Van der Walle have recently shown, one in four African households is led by a female, and that number is increasing (Milazzo and Van der Walle: 2015).

8 Marketing materials on websites from these developments use strikingly similar vocabulary to indicate family values and high-quality living space. They promise: “your dream home in a unique and serene environment for you and your family” (Appolonia, Ghana); “a home for you and your family, with all that is expected from 21st century comforts and convenience” (Eko-Atlantic, Nigeria); and “you will be sure to find a serene and well-planned space dedicated to you” (Tatu City, Kenya).

9 There are other ways of organizing this process, but this is the most common. Alternatively, developers may construct and maintain management of a satellite city, or purchase the land, have it retitled, and resell before financing infrastructure. The government’s role will also vary. Some governments supply road, water, and energy networks, while others do not.

1.3 Problem Statement

The multitude of shared urban challenges in African countries are well documented (Freund 2007; Rakodi 2005; Myers 2011; Parnell and Oldfield 2014). Carol Rakodi, for example, identifies a number of threats present in varying degrees throughout the continent: (1) Rapid population growth, unaccompanied by industrialization or economic growth; (2) Lack of economic dynamism; (3) Governance failures; (4) Severe infrastructure and service deficiencies; (5) Inadequate land administration; and finally: (6) Poverty and social breakdown (2005: 47-49). In his foreword to the document *The State of Planning in Africa*, Chairperson of the African Planning Association, Waheed Kadiri writes, “The report, while recognizing good practice and innovation in various dimensions taking place within the continent, also identified great challenges ahead. Rising urbanization and changing demographic dynamics without adequate infrastructure are the greatest of these” (APA and UN-Habitat, 2013: 5). Different authors trace the historical source of these challenges back to the colonial planning policies that first segregated African cities:

“[F]rom a bird’s eye perspective, the major problems of African cities do not appear to be very dissimilar from each other today...the situation of cities is analogous: everywhere its centers are congested as a result of the explosion of urban population growth. Housing and mass transportation are falling far behind... If we add to this the ever-growing number of cars...it is clear that the economic centers of cities become more difficult to reach for the less fortunate of the country. The urban poor try to do as they have always done: to slip into a habitat that is hyperdense but as close as possible to their work...The persistence of slums is connected to the history of colonial policies and its uneven allocation of resources, reinforced by legal or informal residential segregation, when most of the urban land surface was reserved for the European quarters and the Africans received little to none” (Coquery-Vidrovitch 2007: 282)

These challenges contribute to the inefficiency and complexity of African cities, and while many African New Towns aspire to be isolated enclaves, they are inevitably woven back into their broader socio-political contexts. As Freund writes: “the decline of modernist planning has led to the opening of opportunities accruing to the rich and privileged by the collapse of conventional state planning controls. In the ensuing mayhem, the rich are often well able to care for themselves and to strike out on development paths that divide some African cities more dramatically and ferociously along class lines than in colonial times” (Freund, 2007: 254).

In addition to economically-driven spatial segregation, many regions in Africa already face extreme climatic conditions, and increasing climate variability is expanding the Sahara Desert into previously arable farmland, driving rural-to-urban migration (Salinger, Sivakumar and Motha, 2005). Coupled with deforestation, climate variability is increasing the frequency of flooding, and coastal erosion threatens many cities and New Towns along the African coastline (Salinger, Sivakumar and Motha, 2005).

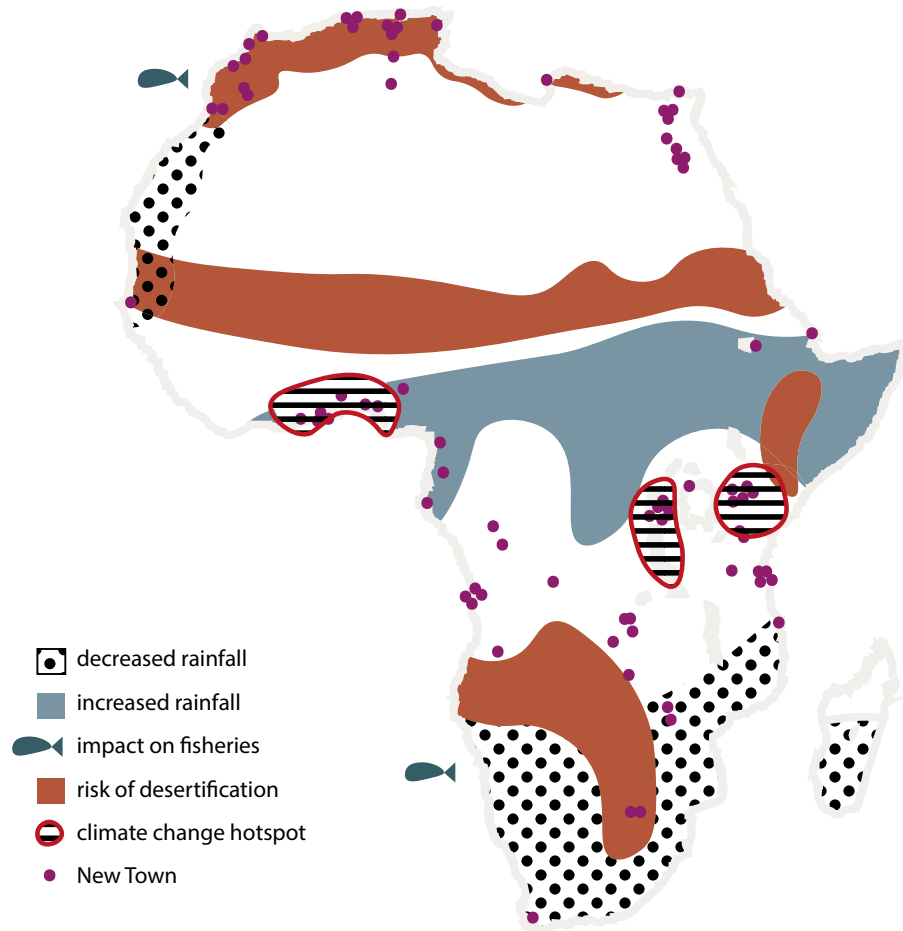


FIG. 1.6 Climate change threats
 Many New Towns are located in areas facing increasing threats from climate change and climate variability.
 Source: Author, 2018; after: INTI/ARCHIS 2017, UNEP 2000; ZOI Environment Network 2014.

Additionally, the Internal Displacement Monitoring Center reports that natural hazards initiated by climate change forced a record 1.1 million Africans from their homes in 2015 (IDMC 2016). The report also links an increase in conflicts to effects of climate change such as the loss of agricultural land and resulting food shortages (IDMC, 2016).

Countries with less money available to earmark for natural disasters or humanitarian crises are inherently less adaptable because of economic limitations. Insufficient operating budgets for municipalities often prevent local authorities from acting pre-emptively or constructing expensive preventative infrastructures. Fragile institutional frameworks compound the problems by further weakening already low adaptive capacities (Kithiia, 2011). Even when a country may have funds available to engage an issue, corruption often prevents those funds from reaching their intended destinations (Pieterse, 2015).

To compound the problem, African countries face some of the most extreme housing deficits in the world. Continent-wide, the housing deficit is estimated to be around 56 million (Xinhua, 2019). According to the pan-African finance institute, Shelter Afrique, of the total deficit, 90% is needed for affordable housing (Xinhua, 2019). While many contemporary New Towns are developed by private developers who claim to be combatting housing deficits, it is clear that the housing developed for middle- and upper-income groups does very little to address the urgent need for affordable housing.

In short, most contemporary African New Towns are developed with a single target: short-term financial profit. As a result of this myopic focus, they are neither socially inclusive nor ecologically sustainable as a group. The cumulative effect of contemporary African New Towns, then, is to exacerbate social and ecological challenges rather than alleviate them. Returning to the original definition of sustainable development as planning for future generations (WCED, 1987), and understanding the urgency of rapid (informal) urban growth coupled with increasing climate threats, it is critical to consider an alternative planning approach.

1.4 Research questions and structure of this study

The objective of this research is to provide an alternative approach for New Town development in Africa. It defines a set of adaptive planning and design principles for the development of adaptive New Towns that allow for the inevitable intersections of formal and informal, regulated and unregulated, framework and infill. To define this strategy, this research establishes the extent to which general principles can be applied to spatially organize contemporary New Towns, and to what extent specific contexts must be allowed to inform the infill.

Through adaptive planning principles with the potential for real world application, it defines a transdisciplinary roadmap for inclusive, sustainable, future African New Towns. These planning principles are specific to New Towns as an urban form, but general enough to be applied across the varied and diverse African continent. By identifying the shortcomings of contemporary practice and translating these into new potentials, the resulting principles identify how African New Town planning can be improved to be more inclusive, ecologically sustainable, and as a result, adaptive over the long term. The methodology, methods, and tools used to arrive at this goal are described in Chapter 2. Each of the following chapters addresses one of the four main research questions.

Chapter 3 looks at the history of New Town planning across the African continent between 1898-2018, and builds from a historical perspective to an analysis of the spatial challenges endemic to contemporary New Towns. It attempts to answer the question: *What are the spatial challenges of African New Towns caused by the application of common planning approaches?*

Chapter 4 defines a set of adaptive planning and design principles and traces their development over the course of the study. This chapter provides an overview of existing principles used in African contexts and discusses why principles are an effective way to address uncertain futures. It addresses the question: *What are the principles of a more adaptive and sustainable planning and design approach and how can they address these problems?*

Chapter 5 applies the principles to three African New Town case studies and aims to answer the question: *How and to what extent can general adaptive planning principles be applied in all African New Towns, and to what extent should specific adaptive planning principles be developed for each case, related to the specific social and physical context?*

Chapter 6 discusses the serious gaming and Research Through Design methods used to explore implementation of the principles. It attempts to answer the question: *As a result of the findings, how can adaptive planning approaches and the related principles be implemented?*

Finally, Chapter 7 examines whether the research questions were effectively answered, scientific and technical implications of the study, and directions for future research. It concludes with a discussion of the main objective of this study and evaluates its success in achieving this aim.

1.5 Scope and Limitations

This research focuses on developing and applying adaptive planning principles to African New Towns planned after 1990. Africa is home to an incredible range of cities, but New Towns are a very specific urban form with a number of shared characteristics, as discussed earlier in this chapter (Provoost 2010; Galantay 1975). As it is impossible to fully research all contemporary New Towns in Africa, the New Towns taken as case studies in this research reflect both that specificity as well as the diversity of New Towns across the continent. The case studies are chosen precisely because they exhibit traditional New Town characteristics as well as the colonial, topographic, vernacular, and climatic variabilities of the continent. The research therefore takes the entire continent of Africa into account in order to illustrate the applicability of the resulting planning principles across a varied group of New Towns. This approach embraces Freund's argument that discarding the traditional idea of sub-Saharan Africa and including all African countries in a single portrait "may help in the task of deracializing the way readers look at this enormous continent and stress the human variety that can be found in... Africa" (Freund 2007: ix).

This research examines African New Towns through the lens of urban design. It acknowledges that New Town design and planning questions are inseparable from financial issues, however it does not include a financial analysis of New Towns as a group. In the case studies presented in Chapter 5, residential unit costs and targeted economic groups are discussed in detail. Due to the diversity of the 146 New Towns identified in the database, however, it was not possible to make more general conclusions about the financial structures of New Towns as a group.

The three case studies used in this research date from 1995 (Sheikh Zayed City, Egypt), 2007 (BuraNEST, Ethiopia) and 2008 (Kilamba, Angola). This research does, however, take a longer historical context into account, beginning in 1960. By limiting the historical scope to the postcolonial era, it becomes possible to situate contemporary New Towns within a half-century of independent urban development patterns, including the groundbreaking and idealistic new capitals of the 1960s. Although this historical context informs the research, the most vitally relevant period is the post-1990s neoliberal era. All of the New Towns considered in this research are heirs to the great ideological shift that pushed most African governments from socialism (in various forms) to the free market policies that have made room for private developers today.

The current generation of New Towns differs fundamentally in intent from the early-independence era New Towns (Keeton and Provoost, 2019). This research therefore does not consider colonial histories other than the planning policies and physical urban structures that remain visible from this period. It does not examine historical African cities in depth, except in the case of 'mother' cities related to the case study New Towns (Luanda, Angola; Cairo, Egypt and Bahir Dar, Ethiopia).

The case study New Towns are analyzed within their regional contexts: the existing cities, systems and design principles that are relevant to their urban processes are closely considered. As elaborated in Chapter 2, the methods and tools employed in this study were chosen as a pragmatic combination to allow for triangulation of multiple sources of data. Throughout the study, peer review is used to validate intermediate conclusions.

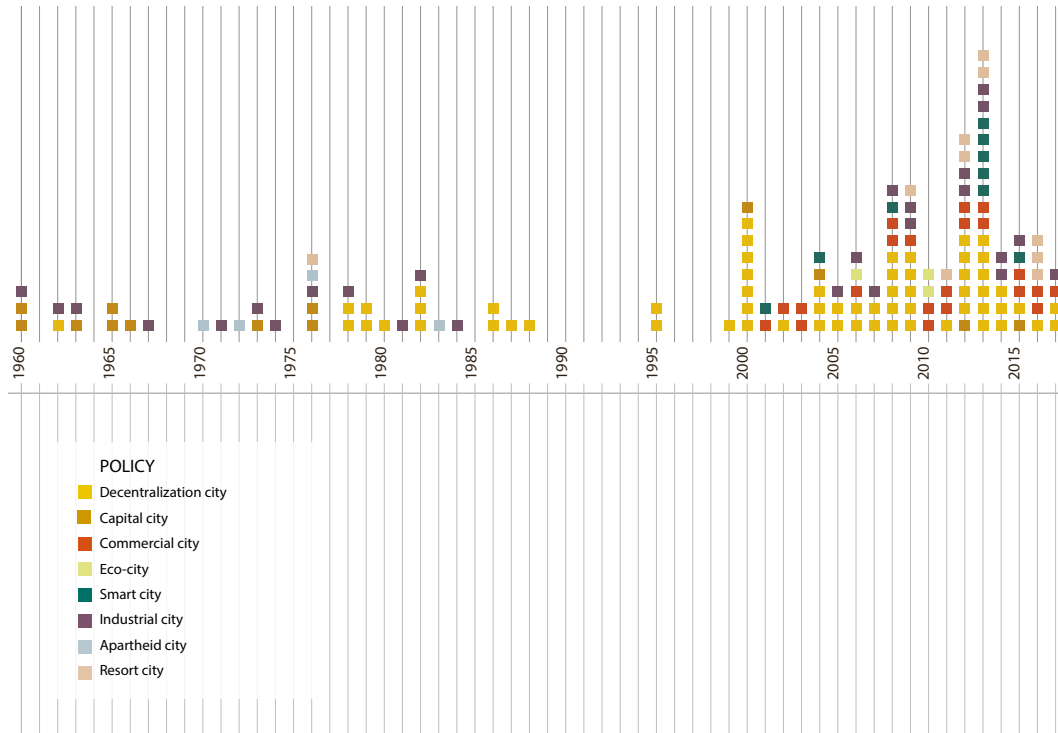


FIG. 1.7 Types of New Towns 1960-2018

By categorizing the 146 New Towns identified in the database (1960-2018) and placing these along a timeline, it becomes clear that more New Towns are being built than ever before. What is also striking is the difference in intent between the New Towns built from 1960 - 1980, when national governments were mainly responsible for initiating New Towns. This difference becomes more explicit in the following diagram. Source: Author/INTI, 2019

FOR WHOM WAS THE NEW TOWN BUILT:

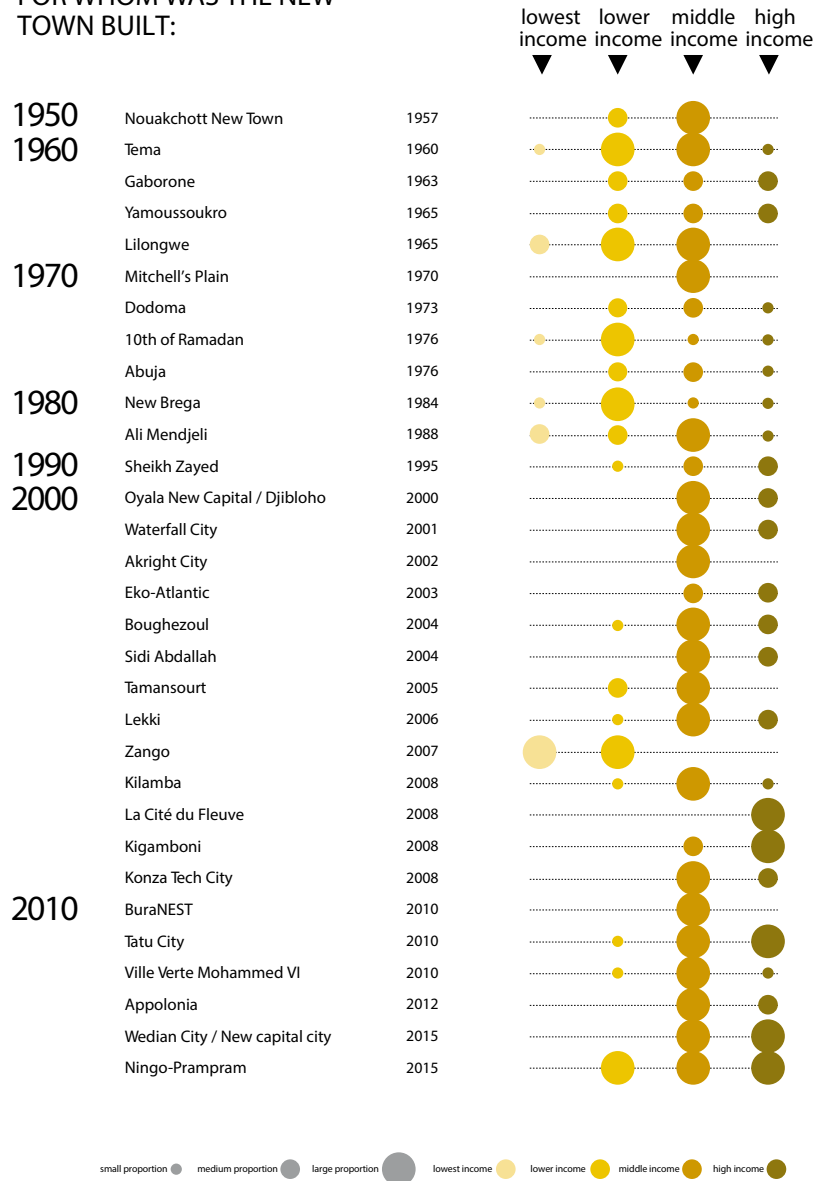
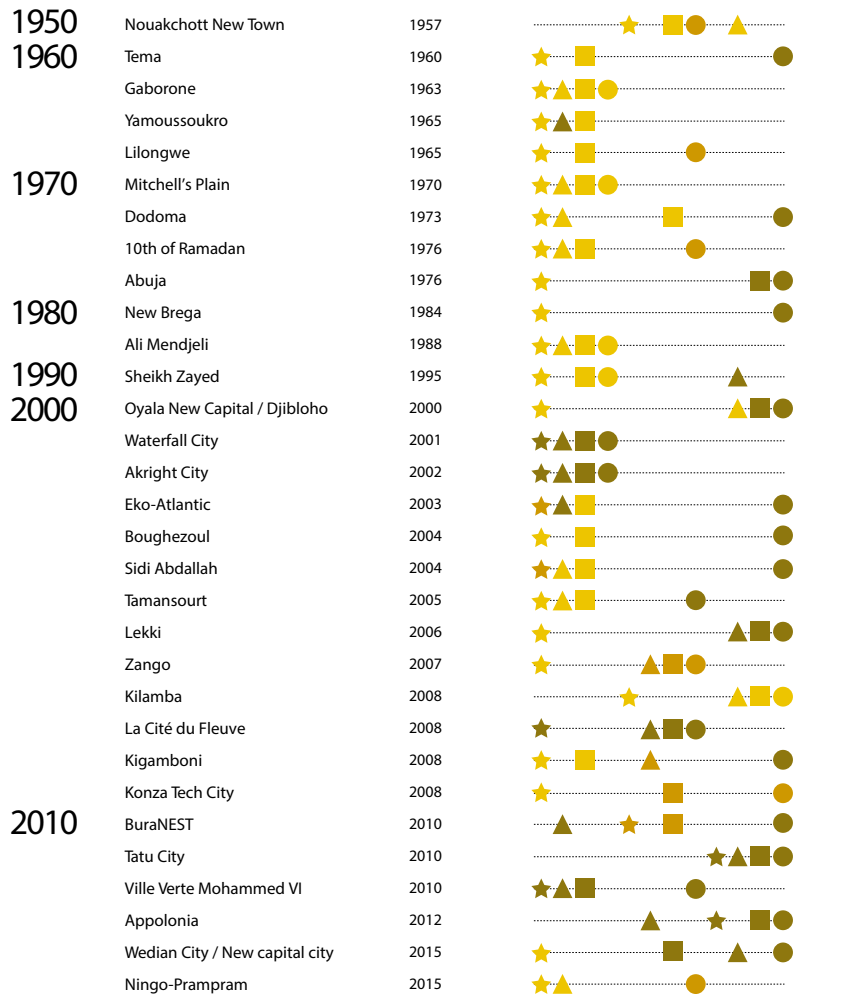


FIG. 1.8 New Town income target groups and New Town initiators,builders and investors

As these diagrams show, early-independence era New Towns generally aimed to target a mixed demographic, with a focus on low- and middle-income households. This was likely informed by the African Socialist ideas popular across the continent during this period. After 1990, as neoliberal economic policies spread across the continent, it is possible to identify a shift towards more 'market-driven' private New Town initiatives and with this, different target buyers. Most of the current generation of New Towns now target middle- and upper-income groups, with very little consideration of low-income groups. Source: Author/INTI, 2019

WHO INITIATED, BUILT AND FINANCED THE NEW TOWN:



initiative ★ funding ▲ developer ■ planning and design ● public yellow public/private orange private brown

1.6 Relevance of the research

This research constitutes a significant contribution to the existing body of work on African New Towns. Although much has been written on historical African cities and (increasingly) their current states, relatively little has been published that identifies contemporary African New Towns as a specific urban form. With the exceptions of Watson (2013), Abubakar and Petra (2012), Murray (2017), van Noorloos and Kloosterboer (2017), and Keeton and Provoost (2019), this field remains largely unexplored. There are multiple reasons for this knowledge gap, including the rapidly evolving nature of these New Towns (moving from plans to occupied city within years), the lack of reliable data available to researchers remotely, and the inclusion of New Towns in broader descriptions of African urbanization. Although the first two issues do present challenges, this research overcomes those barriers by including extensive fieldwork. This fieldwork allows for qualitative techniques such as semi-structured interviews with relevant stakeholders, observation, and site visits and, as a result, it reaches insights that might otherwise be inaccessible.

This research also moves the discourse on African New Towns forward by identifying their shared spatial challenges as well as proposing an alternative planning approach based on adaptive planning principles. The significance for urban planning practice in Africa is substantial: the planning principles defined by this research aim to enable the development of increasingly adaptive New Towns in the future. On the ground, this could potentially result in cities with more equitable distribution of public services, fewer environmental vulnerabilities, and the ability to change *with* future system shocks.

Although the limitations of the research prevent the conduction of a ‘real world’ pilot, this study lays the groundwork for future research that may apply the planning principles established here to New Town projects for testing. Additionally, it highlights the need for continued research on African New Towns as they evolve over time as well as more substantial sociological studies on these exceptional urban forms.

This research also contributes to the current debate among scholars regarding normative assumptions about the quality of planning practice in the Global South (Watson 2002; Watson 2016; Cirolia and Berrisford 2017). This research therefore addresses a number of knowledge gaps and moves the discourse forward by not only illuminating shared challenges among contemporary African New Towns but proposes an alternative planning paradigm for a continent in great need of flexible, sustainable urban solutions.

1.7 Conclusion

As evidenced by the case studies presented in Chapter 5 of this study, the combination of rigid planning models and the implicit vulnerabilities of emerging and threshold economies has created a generation of New Towns that increase spatial segregation and do not address increasingly urgent environmental realities. Climate change and its associated weather events will exacerbate the challenges that residents of these New Towns will face in the future. Furthermore, the urban models most frequently used in these New Towns have arrived in contemporary Africa divorced from their original political, cultural, and historical contexts.

These issues – changing natural and demographic systems – coupled with copy-paste urban models from elsewhere, create systemic challenges that are deeply interrelated and cannot easily be divorced from each other. As Scott Campbell has argued: “Economic segregation leads to environmental segregation” (Fainstein and Campbell, 2012: 418). Throughout Africa, the combination of economic and climatic vulnerabilities creates a situation where institutions do not have the resources to respond effectively to threats, nor the capacity to act pre-emptively to reduce those vulnerabilities.

This research therefore aims to integrate the unregulated urban growth associated with informal communities and the highly planned execution of New Town development. Both current forms of production of space—the ‘informal’ settlement and the New Town—are unsustainable (Murray, 2017; Hallegatte et al., 2017; World Bank, 2016). Both face multi-scale, systemic challenges that impede their ability to offer inclusive, ecologically sustainable urban habitats. This research aims to inform an alternative, adaptive approach that enables New Towns to more effectively address system shocks.

The research proceeds from the assumption that climate change and rapid population growth are not problems in and of themselves: the problem is current urbanization patterns that do not address these contemporary realities. Despite numerous projections and models, neither future urbanization patterns nor actual weather events can be predicted in detail. However, in its original conception, sustainable development is defined as planning for future generations and clearly links environment and development as interdependent spheres (WDEC, 1987). This research looks back to this original definition and the assertion that, “sustainable development is not a fixed state of harmony, but rather a process of change in which the exploitation of resources, the direction of investments, the orientation of

technological development, and institutional change are made consistent with future as well as present needs" (WCED, 1987). One of the main arguments for adaptive planning, then, becomes the need for adaptivity in the face of the unknown. This study aims to take a step in that direction.



Young women in 10th of Ramadan, Egypt. Source: Author, 2016

2 Research Methodology

Understanding, defining, applying, and implementing adaptive planning and design principles for African New Towns

2.1 Introduction

Having identified the problem this study aims to address in the previous chapter, namely that contemporary African New Towns as a group do not adequately meet social and environmental challenges, this chapter now turns to how the problem can effectively be disentangled.

Creswell and Plano Clark identify four research paradigms: post-positivist, constructivist, transformative, and pragmatic (2007). This study employs a pragmatic research paradigm for a number of reasons. Most critically, a pragmatic approach is associated with the use of mixed quantitative and qualitative methods and “orients itself towards solving problems in the ‘real world’” (Feilzer, 2010: 3). For designers, a pragmatic worldview is most suitable because it allows for an abductive approach to connect theory and results through the use of mixed methods.

This approach itself is, in that sense, adaptive, as it asks the researcher to respond effectively to the accessible data from their own research capacities.¹⁰ Feilzer also points to the fact that the pragmatic approach accepts the “unpredictable human element” which “forces pragmatic researchers to be flexible and open to the emergence of unexpected data” (Feilzer, 2010: 9).

The methodology described in this chapter can be broken into a two-stage approach: in order to first understand and explore the issues relevant to the urban design of contemporary African New Towns, a mixed-methods approach is taken to arrive at a set of adaptive planning and design principles. The second stage refines and tests those principles using Research Through Design, and explores first steps for application in practice.

This chapter opens with a discussion of adaptive planning as an appropriate conceptual framework for this line of inquiry because it addresses issues of time and scale, as well as environmental and social aspects. This is followed by a description of the research strategy, including the different research phases and how they relate to the four research questions. Specific methods of data collection and analysis connected to each phase are detailed within these sections.

Epistemologically, this study proceeds under the assumption that natural and cultural systems are inseparable and therefore must be understood as interrelated aspects of a single framework. This assumption is further elaborated through the adaptive planning approach introduced in section 2.2.1. The spatiality of cities and New Towns, as understood here, therefore refers to socially-produced systems in physical landscapes that are in a constant state of flux.

This chapter ends with a summarizing conclusion that reiterates how a pragmatic worldview is operationalized through the conceptual framework of adaptive planning, a layered approach to understanding systems, and finally Research Through Design (RTD). The conclusion also addresses the limitations of methods used in this study.

¹⁰ The author acknowledges that the choice for a pragmatic approach is also informed by personal values related to the desire for anticipated societal consequences (Teddlie and Tashakori, 2009: 90). Additionally, pragmatism allows for conscious acceptance of the uncertainties inherent to long-term urban development.

2.2 Adaptive urban planning: A conceptual framework

Adaptive planning is an alternative to traditional blueprint planning. Traditional blueprint planning can be understood as an approach focused on the physical planning and design of human settlements (Taylor, 1998). This approach assumes that the built environment can be designed to provide the required elements of a productive life; it takes a territorial perspective rather than a network or systems perspective. Nigel Taylor identifies three components of this conception of urban or ‘town planning’:

- 1 “Town planning as *physical* planning
- 2 *Design* as central to town planning
- 3 The assumption that town planning necessarily involved the production of ‘*master*’ plans or ‘*blueprint*’ plans showing the same degree of precision in the spatial configuration of land uses and urban form as the ‘end-state’ blueprint plans produced by architects or engineers when designing buildings and other human-made structures” (1998: 14).

This “physicalist” approach characterized much of the large-scale urban planning undertaken between the Renaissance and the second half of the twentieth century, when it was gradually called into question (Taylor, 1998: 13). European countries including the United Kingdom, France, and Portugal applied this same urban planning approach to African colonies. As Mutakele Minyoi states: “The master plan, which had already asserted itself as a critical tool in government efforts to regulate and control the growth and development of towns in Europe was also adopted throughout Africa” (Minyoi, 2019: 16). Building on this observation, Ambe Njoh describes how colonial plans were tools to exert power, and colonial planners were encouraged to use their planning expertise to support colonial governments in their “overt and covert” objectives (2008: 186).

2.2.1 What is adaptive planning?

In contrast to the blueprint approach described in the previous section, the goal of adaptive planning is to outline a strong strategic framework that can support the dynamics and adequately address the uncertainties of urban environments.¹¹ Adaptive planning always results in context-specific design because it requires a broad and deep understanding of the layers of a given site. Because this process of investigation is characteristic of adaptive planning, planning decisions are inherently aimed at social inclusivity and environmental responsibility. Because it deals with multiple natural and social systems, adaptive planning addresses short term aspects, as well as the *longue durée*. Finally, it addresses multiple scales simultaneously and, unlike traditional blueprint planning, can shift over time.

Blueprint planning has faced increasing critique from both academia and practice in the last decade, and adaptive planning has a number of clear advantages when compared to this more traditional approach. As stated above, an adaptive planning approach is always evolving, and can therefore change *with* the social and ecological shifts that attend all urban environments. Adaptive planning is especially useful for African New Towns because the advantages of this approach precisely match the challenges of most African New Towns. For example, urban planning policies currently in use in many African countries are relics of the colonial era – while they may have been revised over time, “attitudes and practices of politicians and planning professionals towards urban development still reflect the approaches enshrined in the older colonial laws” (Watson, 2011: 1015). These policies are often highly technical, outdated, and inadequate to the spatial challenges facing contemporary growing cities (Watson, 2011).

¹¹ “Adaptive planning” is closely associated with adaptivity and adaptive capacity. In fact, the Intergovernmental Panel on Climate Change (IPCC) identifies synonymy between the terms “adaptability” and “adaptive capacity” and defines these as: [t]he potential or capability of a system to adapt to (to alter to better suit) climatic stimuli or their effects or impacts (McCarthy et al., 2001). In ecology, adaptive capacity is determined by characteristics such as biodiversity and heterogeneous ecosystems (Folke et al. 2002). In the social sciences, adaptation is conceived as the human response to risk, and thus is closely related to vulnerabilities such as poverty, climate change threats or social stresses. There is, however, little consensus “for a robust, specific model of the elements and processes of... adaptive capacity, beyond broad categories” (Smit and Wandel 2006). This lack of specificity leaves adaptive capacity open to various interpretations, which allows—in this research—for the creation of linkages between the sociological and ecological definitions to accommodate the broad nature of urban planning. This research also stretches the concept by applying it to New Towns in Africa, which is a step forward from recent applications to large African cities (Macchi and Tiepolo 2014). In reference to Sub-Saharan cities, Silvia Macchi writes: “[a]daptive capacity is the interpretive key that allows for a positive view of a reality that is often described exclusively in terms of what it lacks compared with *real cities*” (2014: 4). Macchi understands uncertainty as “an opportunity for an unfettered vision of the city’s future”, a constructive attitude that is also reflected in this research (2014: 3).

When planning proceeds from such policy, as Watson argues, “the continuation of [colonial planning approaches] in a context where towns and cities have changed dramatically since the first half of the twentieth century probably represents one of the most important obstacles to successful long-term management of these urban centers” (Watson, 2011: 2015).

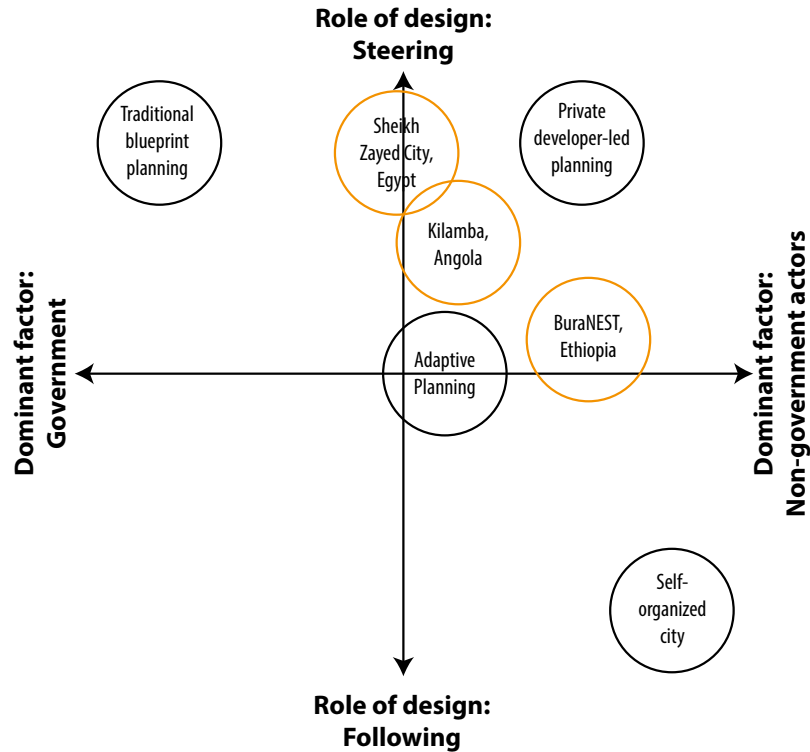


FIG. 2.1 Planning approaches in African New Towns in comparison to each other and case studies. Most contemporary (1990 – 2018) New Towns in Africa are initiated and developed by private developers (Keeton and Provoost, 2019). Earlier New Towns in Africa (1960-1990) were more often initiated and developed by national governments. Outside of New Towns, self-organized communities usually grow in tandem with the planned cities. Adaptive planning is an approach that is able to balance both actors and the role of design in the New Town planning process. Source: Adapted by the author from Meyer, Bregt, Dammers, and Edelenbos, 2015.

Furthermore, adaptive planning does not attempt to predict a single future outcome, an outcome that is always predetermined by planners practicing traditional blueprint planning. This can be a considerable advantage for many New Towns in Africa that are planned at a single moment in time with a single vision for an uncertain future.

Additionally, many municipal and provincial governments do not have the regulatory capacity to manage large-scale, long-term planning processes. Contemporary New Towns (1990 – 2018) are therefore most often left to the private sector, and their design and planning is left in the hands of developers and contracted planners. As a result, these urban plans are generally designed with a specific (“middle income”) target buyer group in mind through a blueprint planning approach (Keeton & Provoost, 2019). This means they are designed as a projection of a future that may or may not materialize. Such a blinkered approach leaves these New Towns vulnerable to the inevitable social and environmental changes that characterize urban spaces. Adaptive planning, on the other hand, can effectively address these challenges by providing strategic options to planners as urban environments change over time.¹²

In their groundbreaking book on adaptive planning for urbanized deltas, *New perspectives on urbanizing deltas: A complex adaptive systems approach to planning and design*, Meyer, Bregt, Dammers, and Edelenbos develop a new approach to spatial planning that addresses the complexity of urban(izing) delta regions. Although this book takes the southwest delta between Rotterdam, NL and Antwerp, BE as its focus, the lessons from this investigation are applicable to cases around the world (2015: 214). The researchers undertook this task because, in their view, “the effectiveness of this [traditional spatial planning] doctrine has been exhausted, though development of plans according to its precepts has continued undiminished” – a view that is echoed in this research, but with concern to Africa (Meyer, et. al., 2015: 13). The adaptive planning practice outlined in the book aims to provide a more appropriate framework through which to address social, environmental, and technical issues.

In this research, the concept of adaptive planning as described in *New perspectives on urbanizing deltas* is used as a tool to arrive at an alternative planning paradigm that is able to respond effectively to both internal and external stimuli. As in urban deltas, where environmental, social and technical issues must be deeply considered, African New Towns display a similar complexity. Meyer et. al. aim for a “dynamic balance between sectors, scales and time horizons”, and it is precisely that integrative approach that drives the development of this research (2015: 16). For example, a New Town with a high adaptive capacity should be able to weather system shocks such as natural or manmade disasters, as well as incremental changes

¹² Adaptive planning should also not be confused with planning for resilience. In contrast to the prevailing understanding of the term “resilience”, which refers to the elasticity of a system, or its ability to return to an established state, “adaptivity” refers to a system’s ability to change *with* exogenous or endogenous stimuli, in a process of continual becoming (Yamagata & Maruyama, 2016).

related to climate variability, economic shifts or political progression. Adaptive planning, then, can be understood as a planning approach that acknowledges the potential for shocks, provides a framework to address a multiplicity of actors, timeframes, and scales, and both anticipates and accommodates these shocks by increasing an urban system's adaptive capacity.¹³

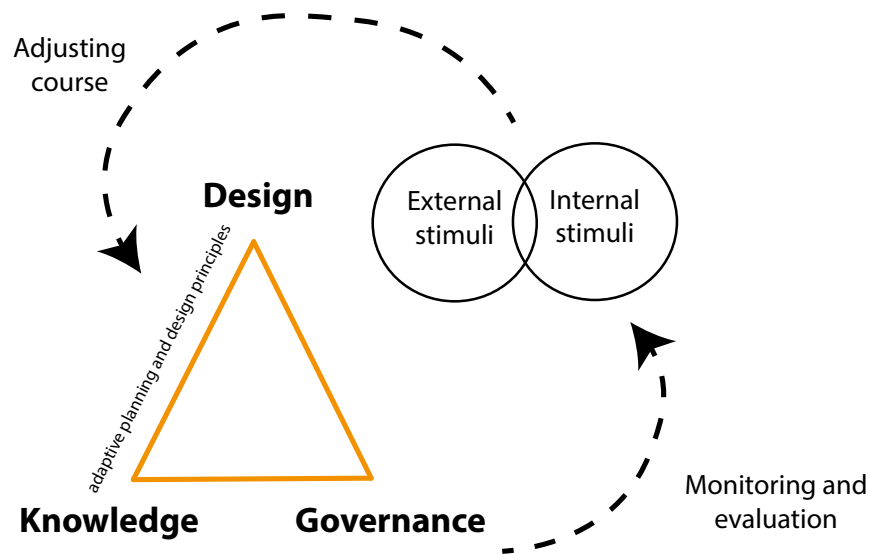


FIG. 2.2 Adaptive planning process in African New Towns
An adaptive planning process requires a feedback loop that incorporates monitoring to enable effective responses from decision-making bodies. Source: Author, 2020.

¹³ Although it is not identified as adaptive planning, the so-called “Delft approach” to urban planning does in fact support flexibility and adaptation over time by prioritizing close analysis of natural landscapes and connecting human interventions to these conditions. Listing the key components of urban planning, the Delft approach is diagrammed as a series of layers: the first, a slowly-evolving topographic landscape that includes waterways, soil types and climatic conditions (Heeling, Meyer and Westrik 2009). The second layer is an urban plan that responds to these specific conditions and takes its design cues from them. The third: clearly defined public and private spaces, while the fourth layer establishes building regulations and the fifth layer concerns usage patterns and thus responds to cultural and social specificities (Heeling, Meyer and Westrik 2009). This approach can be compared to a classic understanding of regional planning, using Mumford’s defense of the ‘Regional Survey’: “The aim of the Regional Survey is to take a geographic region and explore it in every aspect... [It is a] survey of the existing conditions in all their aspects; and it emphasizes... the natural characteristics of the environment as they are discovered by the geologist, the zoologist, the ecologist... the anthropologist, the archaeologist, and the historian. In short, the regional survey attempts a local synthesis of all the specialist ‘knowledges’” (1959: 279).

Finally, an adaptive planning approach requires an adaptive governance structure to support ongoing monitoring and course adjustment. In many African countries, this type of governance is limited or unavailable. This research therefore acknowledges that planning does not happen in a vacuum, but aims to delineate an alternative approach to traditional planning that can inspire planners as well as politicians.

2.3 Research strategy

As a designer, there are specific research methods and tools available to the author. A design approach is connected to abductive reasoning, where “hypotheses are simultaneously generated and evaluated in a reflexive process” (Nijhuis & de Vries, 2020). Observations and testing are then used to arrive at the most likely explanation, without verification. Multiple solutions are possible. This type of research is exploratory by nature, seeking new ways of understanding complex phenomena. In this case, the research looks for new ways to approach New Town planning to gain a deeper understanding of their challenges and potentials.

There are specific resources available to a designer conducting research. In this case, the resources and tools used in the research have been selected based on their ability to aid the researcher in answering the research questions. These include: a database¹⁴ of quantifiable aspects related to contemporary New Towns in Africa, semi-structured interviews, case studies, on-site observations, cartographic analysis, and multidisciplinary workshops. These tools and the results of their application are discussed in the following sections.

As a strategy of inquiry, the Dutch layers approach is a useful way to break down the complexity of African New Towns. Although it has been presented in slightly different variations by different authors since its introduction by De Hoog, Sijmons and Verschuuren between 1996 and 1998, it is generally accepted that the layers approach (or layers model) has widely influenced Dutch spatial planning practice since the turn of the twenty-first century (Schaick and Klaasen, 2011). Schaick and Klaasen point to the origin of this model: “In the context of the research project

¹⁴ The database is available online: <http://doi.org/10.4121/uuid:b15d7877-15db-4f2c-a815-73c2f67b4f90>

Het Metropolitan Debat (the metropolitan debate) these professional designers and planners were asked to create a base for the strategic choices that had to be made regarding the future spatial development of the Netherlands in the light of climate change, water management, the economic position of the Netherlands in international networks, urban dynamics in relation to the values and attractiveness of the landscape and the need for integral planning” (Schaick and Klassen, 2011). In their report *Laagland* (1998: 78) De Hoog, Sijmons and Verschuuren describe three layers: “[1] the layer of the substratum, [2] the layer of the networks and [3] the layer of the occupation pattern. These layers know different ‘times’. ...To these three layers we add the element of coherence. We consider this coherence between the layers as the domain of spatial planning: here we shoot an arrow through the strongly sectorial-coloured problem definition on the distinguished layers.”

As a tool for visualizing the complexity of an urban system, the layers approach helps disentangle the natural and manmade systems that overlap and interrelate in any urban system. A layers approach also helps the researcher deal with issues of time and scale, and substantiates how to understand systems – and how to intervene in them.

Systems change all the time, and decision-makers need ways to deal with these changes while preserving coherence and flexibility. In general, we can observe that spatial scales and time scales are important and interrelated aspects of systems. Larger systems change more slowly (for example, a river ecosystem will change over the course of centuries or millennia), while smaller systems will change more quickly (for example, infrastructural systems may change over the course of decades). Interventions at these scales will subsequently take longer to have an effect. The Volta Dam east of Accra, Ghana, as an example, has had a considerable impact at the regional scale over the last half century, catalyzing changes in the natural landscape and dependent social systems across the entire region.

System boundaries must also be identified. Is the researcher dealing with an individual town, a region, or a nation? Is the researcher concerned with customary social systems (i.e. tribal land ownership) or official social systems (i.e. government regulations)?

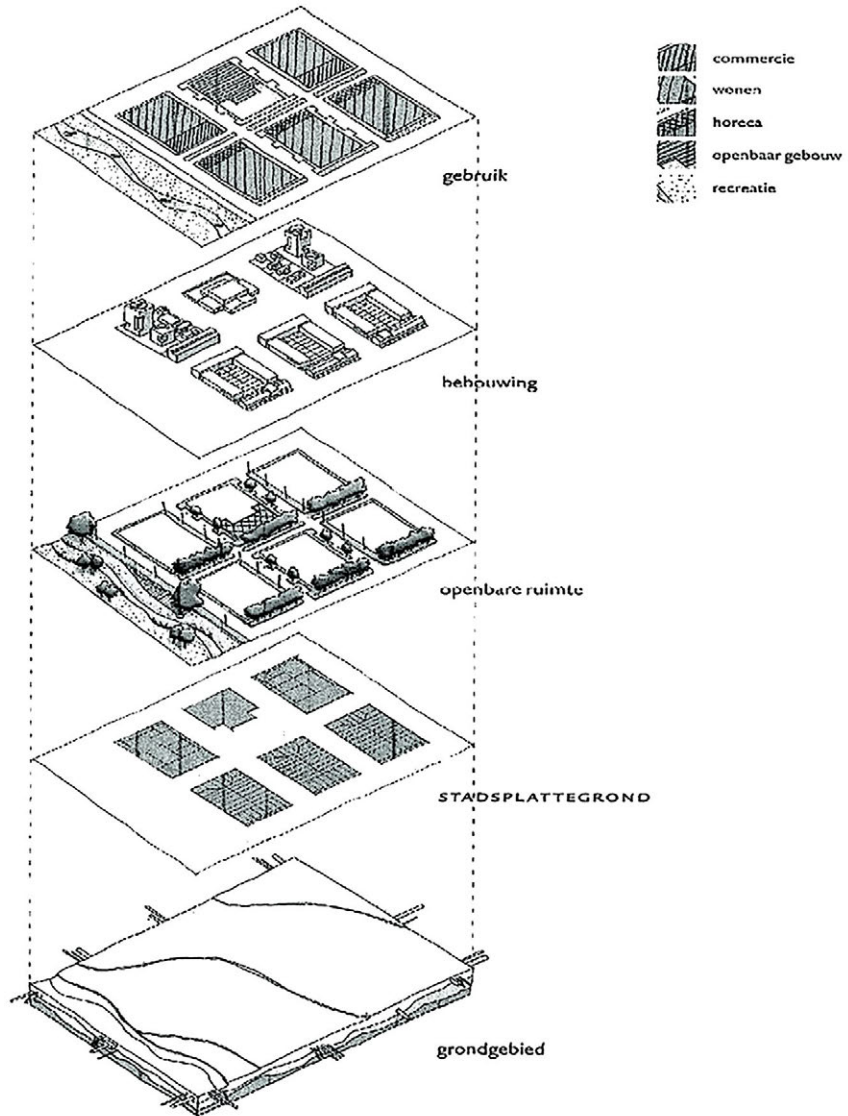


FIG. 2.3 The Dutch Layer Approach

Building on the work of De Hoog, Sijmons and Verschuuren the layer approach by Heeling, Meyer, and Westrik (2002) differentiates between the underlying ground and natural systems, the urban plan, public space, the built environment, and uses of space. This diagram is not meant to indicate physically distinguished layers, but rather systems or networks that change at different times and scales and follow different logics. Source: Heeling et al. (2002). *De kern van de stedenbouw in het perspectief van de eenentwintigste eeuw*. Amsterdam: SUN.

As discussed in Chapter 4, the principles developed in this research are informed by the layers approach and address different systems through different time scales. For example, *Principle 8: Incorporate local cultural heritage(s)* looks at heritage as both tangible and intangible, architectural and natural, habits and histories. *Principle 3: No New Town is an island* explores the need to connect New Towns to existing national, regional, and local networks – especially infrastructural, resource, and job networks.

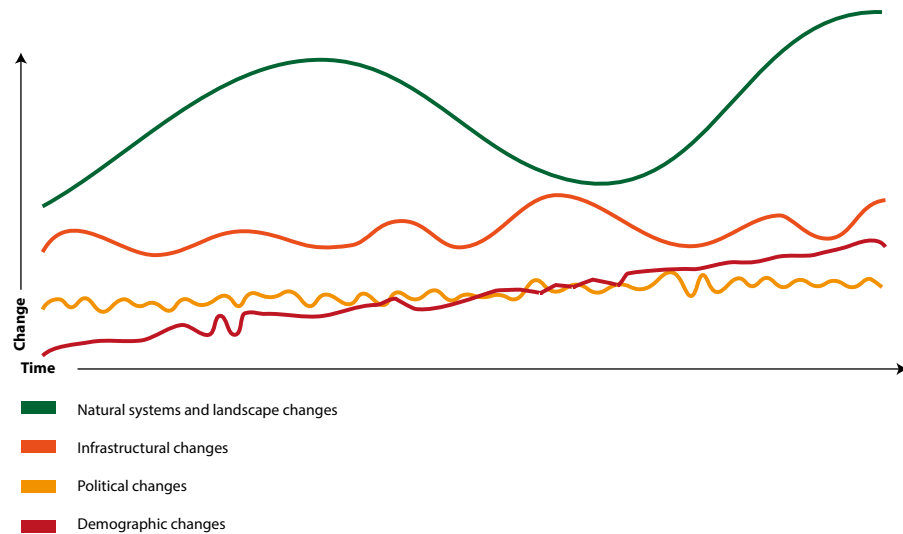


FIG. 2.4 Systems and change over time

The layers approach described above can help planners identify different systems in a complex urban structure, but these systems also change over different periods of time. For example, natural systems such as rivers or savannahs may change slowly in comparison to political changes that take place over the course of a much shorter cycle. Source: Author, 2020

These principles were developed through the first part of the research which uses a database, interviews, case studies, and cartographic analysis to develop a set of coherent planning principles. The second half of the research turns to Research Through Design. Research Through Design provides a roadmap to operationalize adaptive planning and design principles because planning and design principles can only be tested by making them spatial. The only way to make principles spatial is through design, and the only way to design is through an iterative testing of ideas. In this research, group design / testing was deemed the most effective way to spatialize the principles because it reflects a real-world planning process that requires communication and collaboration among stakeholders.

During the application and testing phase of this research, Research Through Design workshops and student designs provided frameworks to illustrate application of the principles and test their (design) potential. This research design is explained in the following diagram.

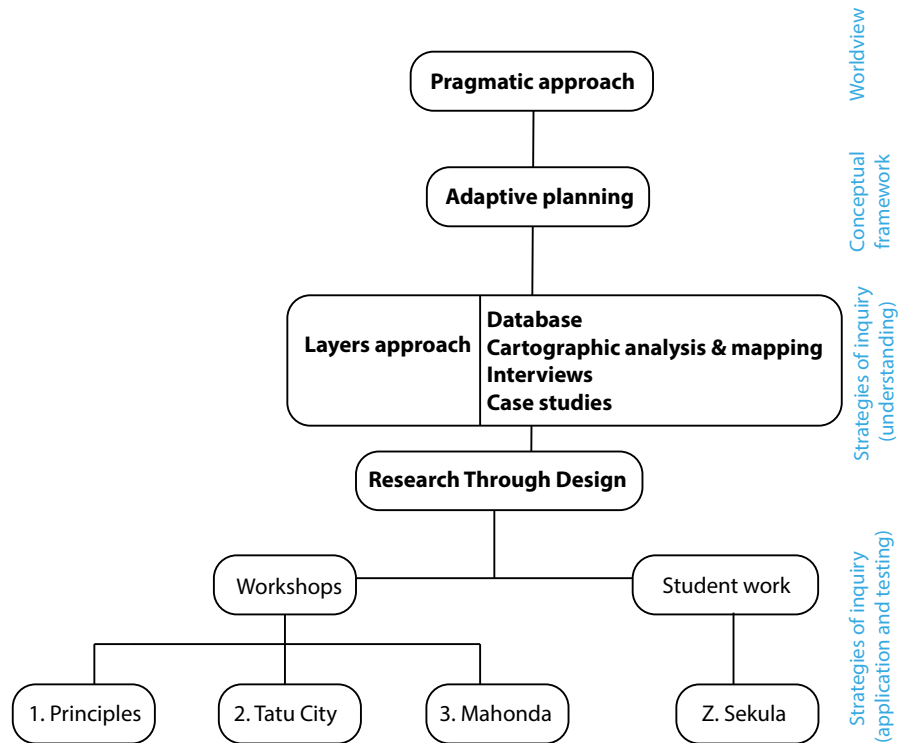


FIG. 2.5 Research design

Based on a pragmatic approach, the Research Design used in this investigation embraces different methods (case studies, interviews, etc.) and tools (workshops, student work, etc.) to arrive at its conclusions. Source: Author, 2020

2.3.1 Research Phases

The study was designed in four phases corresponding directly to the four research questions. The first phase of the study aimed to identify the spatial challenges most prevalent across the dataset of 146 contemporary African New Towns (1960 – 2018), in response to Research Question 1: *What are the spatial challenges of African New Towns caused by the application of common planning approaches?* This was accomplished through an extensive literature review that contributed to the development of a quantitative African New Towns database, selection and development of three case study New Towns, and the use of an analytical framework to identify the most commonly recurring spatial challenges among the dataset.

The second phase of the study was designed to answer Research Question 2) *What are the principles of a more adaptive and sustainable planning and design approach and how can they address these problems?* The second phase began with the development of adaptive planning principles that directly respond to the challenges established in the first phase. This was done through analysis of the results of the first phase, additional literature review, and precedent studies of planning and design principles. The draft planning principles were reviewed in a workshop by twenty-one relevant, international experts. Following the workshop, the results were analyzed and the principles were revised accordingly.

The third phase of the research tested the application of the planning principles by applying them to three case studies, in answer to Research Question 3) *How and to what extent can general adaptive planning principles be applied in all African New Towns, and to what extent should specific adaptive planning principles be developed for each case, related to the specific social and physical context?*

The fourth and final phase of the research addresses Research Question 4) *As a result of the findings, how can adaptive planning approaches and the related principles be implemented?* This phase builds on the results of the previous three phases, and implements the principles through a transdisciplinary planning workshop in Tatu City, Kenya, and a transdisciplinary 'serious gaming' and planning working in Mahonda, Zanzibar. The workshops were used to test the potential for site-specific calibration of the principles, including transferability and scalability.

Implementation of the principles was further tested through graduate student design work, employing Research Through Design methods to arrive at an alternative urban design for Tatu City, Kenya. This is discussed in the concluding chapter (section 7.4) as additional exploration of the multiple outcomes made possible by the adaptive planning and design principles.

The strategies of inquiry used in all four research phases are further elaborated in the following section 2.4.

Research Phase	Strategies	Methods	Output
Exploration and understanding	Database and analytical framework	Literature review, document review	Database of 146 New Towns (1960 - 2018)
	Interviews	Stakeholder analysis, semi-structured interviews, open interviews	Recorded and transcribed interviews
	Case Studies	Interviews, observation, mapping, literature and document review, stakeholder analysis, fieldnotes, sketching, photography	Conceptual review
	Mapping	Cartographic analysis, drawing	Maps at various scales
Testing and application (Research Through Design)	Workshop A: Delft, Netherlands	Presentations, discussions, group review	Revised principles
	Workshop B: Tatu City, Kenya	Presentations, discussions, group design, group review	Revised principles, new spatial strategy for Tatu City
	Workshop C: Mahonda, Zanzibar	Presentations, discussions, urban game, group design, group review	Review of principles, new spatial strategy for Mahonda
	Student work	Student fieldwork, interviews, cartographic analysis, discussion and review	Review of principles, new plan for Tatu City

FIG. 2.6 Research phases, strategies, methods and outputs

The strategies and methods used in this research were selected for their ability to provide information that was critical to different stages of the investigation. The triangulation of data from different sources (i.e. websites, interviews, observation), allowed the author to verify results throughout the research process.

Source: Author, 2020

2.4 Strategies of inquiry

2.4.1 Database and analytical framework

A database of quantitative factors related to 146 African New Towns was developed in collaboration with the International New Town Institute (Keeton and Provoost 2020). The data was first remotely sourced from project websites, academic texts, and public planning documents. The database included quantitative aspects such as geographic location, year of announcement, construction dates, planning offices involved, project initiators, target and current populations, size and density (among others). A more detailed dataset was assembled for 50 of the original 146 New Towns.

Due to the limited reliability of remotely-sourced data on this topic, preliminary fieldwork was conducted between 2015–2018 to verify results in nine African New Towns: Tatu City, Kenya; Konza City, Kenya; Ville Verte Mohammed IV, Morocco; Sheikh Zayed City, Egypt; 10th of Ramadan, Egypt; BuraNEST, Ethiopia; Appolonia, Ghana; Tema, Ghana; and Kilamba, Angola. These examples were chosen because they represent the great diversity of compositions of the variables identified in the database: geographic location, year of announcement, project initiators, target and current populations, size and density, etc.

Following the preliminary fieldwork, three New Towns were selected as case studies: Sheikh Zayed City, Egypt; BuraNEST, Ethiopia; and Kilamba, Angola. The case studies were selected based on a number of criteria, as discussed in the following section. The results of the preliminary fieldwork and case studies were used to further refine, verify, and correct the database. Following refinement of the database, an analytical framework was used to identify the most frequently recurring spatial challenges among the 146 New Towns. Those spatial challenges can be summarized as: (1) a lack of efficient and accessible public transport systems, (2) a lack of (high quality) public space, (3) limited housing stock diversity, (4) spatial segregation at the urban scale, (5) insufficient employment opportunities, (6) displacement of existing communities, (7) inaccessible housing, (8) a ‘final product’ development approach that prioritizes completion over adaptation, (9) unaddressed climate change threats, (10) insufficient waste management, (11) urban models premised on individual car ownership, (12) unprotected natural areas, (13) encroachment on peri-urban agricultural lands, and (14) unregulated settlement in ‘low cost / high risk’ areas (Keeton and Nijhuis, 2019).

2.4.2 Case studies

As Robert Yin explains, “case studies are the preferred method when (a) “how” or “why” questions are being posed, (b) the investigator has little control over events and (c) the focus is on a contemporary phenomenon within a real-life context” (2018). Following this logic, a multiple-case study strategy was selected to address the contemporary phenomenon of African New Towns. Yin further defines a case study inquiry as one that “copes with the technically distinctive situation in which there will be many more variables of interest than data points... relies on multiple sources of evidence... [and] benefits from the prior development of theoretical propositions to guide data collection and analysis” (2018: 18). In line with these observations, three case studies were selected for further investigation based on the literature review and results of preliminary fieldwork in nine African New Towns. These were: Sheikh Zayed City, Egypt; Kilamba, Angola, and Buranest, Ethiopia. The case studies were chosen because they represent the great diversity of compositions of the variables identified in the first phase of research: population size, Köppen classification climate zones, topographic conditions, colonial areas of occupation, and vernacular typologies. Other factors contributing to this selection included: their geographic locations, their phase of development (i.e. they are (partially) constructed and inhabited rather than simply planned) and their representation of diversity in terms of urban models, resident demographics, planning processes, and sensitivity to environmental issues.

The three examples were thus chosen to display the breadth of variation among contemporary New Towns in Africa: Sheikh Zayed City, Kilamba, and BuraNEST were selected from geographically diverse locations (Egypt, Angola, and Ethiopia, respectively), situated in diverse climatic conditions (hot desert, hot semi-arid, and sub-tropical highlands), and designed through dissimilar planning processes (national state-led development, international public-private development, and international private development with regional support). The case studies discussed in this study vary substantially in size (49km², 8.8km², 2km²), current population (295,000, 100,000 and 6,000), and planning models (curvilinear ‘loops and lollipops’, orthogonal grid, and a linear organization).


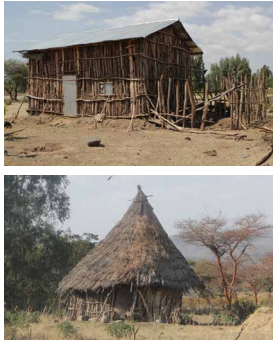
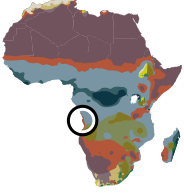



Climate	Topography	Colonial Heritage	Vernacular Design
Buraneest, Ethiopia			
<p>● humid subtropical</p> 	<p>Elevation: 2000m</p> <p>Highland terrain, close to Lake Tana. Water is accessed from hand-dug wells and rain water cisterns</p>	<p>Occupied by Italy 1935-1940</p> <ul style="list-style-type: none"> ✚ Racially exclusive residential and commercial areas for indigenous and colonial residents ▣ Functional zoning 🏛 Monumental public buildings ══ Broad, straight, tree-lined roads and boulevards 	 <p><i>Traditional farmhouse (top) and round house, Amhara region Ethiopia. Source: Tobias Langenegger and Ephram Telele 2013</i></p>
Kilamba, Angola			
<p>● warm semi-arid</p> 	<p>Elevation: 110m</p> <p>Relatively flat terrain; no natural water sources on site; water is pumped from Cuanza River</p>	<p>Colonized by Portugal: 1575-1975</p> <ul style="list-style-type: none"> ✚ Racially exclusive residential and commercial areas for indigenous and colonial residents ○ Representative open spaces ▣ Functional zoning 🌳 Radial and axial compositions 🏛 Monumental public buildings ▤ Low-density residential areas 🏠 Poor infrastructure and housing provision in native areas 	 <p><i>Traditional village, Angola Source: Sam Seyffert 2014</i></p>
Sheikh Zayed New City, Egypt			
<p>● warm desert</p> 	<p>Elevation: 150m</p> <p>Desert terrain with rock and sand; water is accessed from underground aquifer and transported by open canal from Nile River</p>	<p>Occupied by UK: 1882-1956</p> <ul style="list-style-type: none"> ✚ Racially exclusive residential and commercial areas for indigenous and colonial residents ▤ Greenbelt no-build zones (cordon sanitaire) ▣ Functional zoning 🏛 Monumental public buildings ▤ Low-density residential areas ══ Broad, straight, tree-lined roads and boulevards 🏠 Poor infrastructure and housing provision in native areas 	 <p><i>Traditional desert architecture, Bahariya Oasis, Egypt. Source: Ehab Samy 2007</i></p>

FIG. 2.7 Comparison of case studies

The three case studies were chosen because they reflect the diversity of New Towns across the African continent. New Towns, like any urban development, are embedded in local geographic, natural, and cultural contexts. By selecting case studies from three very different contexts, this research aims to highlight the diversity within this group. Source: Author, 2017

Additionally, Egypt, Angola and Ethiopia each have specificities in history, culture, governance and planning practice that inform local city-making processes, as elaborated in the Chapter 5. These differences of size, place, and people allow us to test the application of the adaptive planning principles across a range of variables. For example, Sheikh Zayed City, Egypt, was initiated and planned by the New Urban Communities Authority (NUCA), which is the New Town development arm of the Egyptian Ministry of Housing, Utilities and Urban Development. It is located west of Cairo in a hot desert climate (BWh) in northeast Africa. Kilamba, Angola, was designed and built by CITIC (a Chinese state-owned investment company), and is located in a hot, semi-arid climate (BSh) in southwest Africa. BuraNEST, Ethiopia, is a project initiated and planned by a small team of Ethiopian and Swiss architects, and is located in a sub-tropical highland climate (Cwb) in the Horn of Africa.

The selected case studies were then developed from a mix of qualitative and quantitative evidence and follow a replication logic, in the sense that the same set of principles is applied to each case study. The case studies have been selected so that the application will produce contrasting results for predictable reasons, or what Yin has termed, “theoretical replication” (Yin, 1984: 46). This study uses replication logic, as opposed to sampling logic, which would imply that the case studies are representatives of the larger group. That assumption is not made here. Rather, the high degree of complexity and variability among the contemporary New Towns identified in Chapter 1 is emphasized throughout the study.

In the third phase of the research, the principles are applied to the three case studies as lenses through which to examine specific aspects of the New Towns. In this application, they perform more as an evaluation tool than planning principles, because the case studies already exist as urban environments. The results of this application are elaborated in section 4.6.

2.4.3 Workshops



FIG. 2.8 Workshop A
Multidisciplinary experts discuss the principles during the workshop at TU Delft, Netherlands, 2017. Source: Author, 2017



FIG. 2.9 Workshop B
Local tribal leaders discuss spatial challenges with visiting planners during the workshop at Tatu City, Kenya, 2018. Source: Christine Waitheera, 2018 (used with permission)



FIG. 2.10 Workshop C
Local residents, planning professional, local government representatives and other stakeholders “Play Mahonga” during the workshop at Mahonda, Zanzibar, 2019. Source: Author, 2019

As an academic concept, ‘workshop’ is not yet clearly defined (Ørngreen & Levinsen, 2017). In this research, three workshops were used to achieve a number of aims. The first workshop, at TU Delft, the Netherlands, aimed to revise and refine the proposed set of principles through structured group discussions and negotiation. The second workshop, at Tatu City, Kenya, aimed to apply the principles to a complex ‘real world’ example, through a re-assessment and design alternative for the existing New Town. The third workshop, at Mahonda, Zanzibar, aimed to implement the principles as the conceptual basis for a draft urban plan in an area that has been selected for development.

Workshops as a research method aim to “fulfill participants’ expectations to achieve something related to their own interests... [and are] specifically designed to fulfill a research purpose: to produce reliable and valid data about the domain in question” (Ørngreen & Levinsen, 2017: 72). In this research, workshops were selected as a strategy of inquiry because of their collaborative, immersive, and democratic nature. During these workshops, the author was aware of the challenges presented by the dual role of organizer and participant. For that reason, the author chose to limit her participation to moderating the workshops. This choice was also motivated by a desire to avoid biased results.

2.5 Research methods and techniques

2.5.1 Data collection and analysis

In the first phase of the research, common planning approaches and spatial challenges associated with contemporary African New Towns were identified through an extensive literature review of academic texts, developers' websites, local newspapers, personal blogs and planning documents. Relevant literature was selected using key terms to search in Scopus and Google Scholar, among others. These terms were chosen for eligibility and included 'New Town(s)', 'African urbanisation', 'private development', 'satellite cities', 'planned cities', and 'African urban development', among others. The literature review informed development of the database, which was then verified through field work results.

Following verification of the database, a precedent study of planning and design principles was conducted in order to gain an understanding of the state of the art. This precedent study required a close reading of urban planning and design principles published between 1999 – 2016, and assessment of their relative strengths and weaknesses. Precedents included the *Nationaal Pakket Duurzame Stedebouw* (Nationaal DuBoCentrum, 1999), *Sustainable Urbanism: Urban Design with Nature* (Farr, 2008), *Every Drop Counts: Environmentally Sound Technologies for Urban and Domestic Water Use Efficiency* (UNEP, 2008), *International Guidelines on Urban and Territorial Planning* (UN-Habitat, 2015), and *A New Urban Agenda for New Towns* (INTI, 2016).

Following preliminary remote analysis of the case studies, including stakeholder analysis, fieldwork was conducted during the period December 2015 and December 2018. Observation was employed as a technique during fieldwork in nine New Towns to document the activation of public spaces and social life, the architectural qualities of the New Towns, and the characteristics of inhabitants. Fieldnotes, sketches, and photography were used to record these observations. Observation as a technique carries the potential for researcher bias. Every effort was made to avoid this through observation in multiple sites within each New Town, awareness of personal biases, reflection with local peers, and triangulation with other data sources.

Additionally, face-to-face semi-structured interviews were conducted with relevant stakeholders including national and local politicians, urban planners, architects, (future) residents, academics, construction workers, developers, and technical experts.

The interviews were used to collect data regarding different aspects of the case study New Towns ranging from design history, to initial motivations, to implementation challenges, to personal experiences of everyday life. Interviews were agreed to with informed consent, and were not incentivized.

In Angola and Egypt interviews were simultaneously translated by UN-Habitat representatives Thomaz Romahlo and Anas Aladdin, respectively. In Ethiopia, NESTtown planner Bizuayehu Jembere simultaneously translated the interviews.

Based on the results of preliminary interviews, additional interviews were conducted with stakeholders who were identified as highly relevant to the projects. This purposive sampling strategy was used to ensure that specific categories of expertise were represented in the final project sample. “The rationale for employing a purposive strategy is that the researcher assumes, based on their a-priori theoretical understanding of the topic being studied, that certain categories of individuals may have a unique, different or important perspective on the phenomenon in question and their presence in the sample should be ensured” (Robinson, 2014). All interviews were audio recorded and transcribed by the author. Anonymity of the interviewees has been maintained where requested. In total, 38 semi-structured interviews and 16 open interviews were conducted (see Appendix A). These were assessed using narrative analysis.

2.5.2 **Validity**

Validity refers to the accuracy and credibility of a study’s findings (Creswell, 2014: 201). To ensure validity in this study, two main strategies were used: triangulation and expert review. Triangulation requires that data from multiple sources be compared to identify both corroborating and deviating data. For example, in this study, data from interviews with key actors in individual New Towns was compared to each other as well as data collected through literature review. Discrepancies were noted and followed-up on through further questioning where possible. The choice for both a database and case studies as strategies of inquiry was also made to allow for verification of results.

Additionally, expert review was solicited during the three workshops in group settings, as well as during individual interviews. Interviews with selected experts focused entirely on review of the principles and their potential for application. This type of review was conducted one-on-one with academics, planners, and developers in Egypt, Ghana, the Netherlands, Zanzibar, and Kenya. Furthermore, expert and peer review was obtained following public presentations of the principles in Portugal, the Netherlands, Egypt, Ghana, and Ethiopia.

2.6 Conclusion

This chapter has outlined the methodology applied in this study, and justified the research methods used to address the four research questions. A main limitation of the research methods was the availability and reliability of data. For example, the database of New Towns in Africa planned since 1960 assembled through a collaboration between the author and the International New Town Institute was originally developed based on remotely-sourced data. The author acknowledges the limited availability of data for some New Town examples. Because of this incompleteness, the results of the database should be viewed as indications of trends rather than absolute values.¹⁵ To address this issue, a mixed methods approach was deemed appropriate as it allows for triangulation and therefore validation of results. Expert and peer review was also built into the four phases of the research to further validate results.

An additional limitation is the incompleteness of the list of New Towns identified in the database. New Towns across Africa are announced regularly, and the first phase of this research was concluded in early 2018. Any New Towns announced after that are not included in the study. Furthermore, throughout the fieldwork, local architects and planners intimated that for each New Town that receives (inter)national media attention, there are more being developed quietly in order to avoid the legal complications that can accompany media interest in largescale urban development. These projects are not considered here.

There were additional limitations related to the case study analysis, including language barriers between the author and local stakeholders. In all three case studies, a local translator was required to enable communication between the researcher and interview subjects. Case study New Towns were visited between 2016-2018, but due to the constraints of this study, each case study could only be visited once. This limited the author's ability to observe changes to the case studies over time, as well as her knowledge of the current state of the case study examples. Additionally, fieldwork in both Sheikh Zayed City, Egypt, and Kilamba, Angola, was facilitated by representatives of UN-Habitat. While this association enabled direct access to high-ranking stakeholders, it is possible that the author's association

¹⁵ These trends include: the increasing number of New Towns initiated per year, the shift from primarily public investment to primarily private investment over the time period from 1960 - 2018, and the shift from low- and middle-income target groups to middle- and high-income groups over the same time period.

with this institution may have influenced the responses of some interviewees. In BuraNEST, Ethiopia, the fieldwork was assisted by a representative of NESTtown with a long history of interaction with local residents. The fact that this representative was well known to local residents appeared to engender honesty and frank answers, but as the same representative was responsible for translation between English and Amharic, it was impossible to establish the influence of this person's presence on the answers given by interviewees.

During the final phase of the study, the participatory workshop in Zanzibar also required translation between English and KiSwahili, limiting communication between workshop participants and the author. Furthermore, the Department of Urban and Rural Planning (DoURP) was responsible for inviting local residents to the workshop, and it is unknown whether residents were invited based on specific criteria relevant to DoURP's operations, or informed of DoURP's planning objectives prior to the workshop.

This chapter has discussed the pragmatic methodological approach¹⁶, the use of adaptive planning as a conceptual framework, the use of the Dutch layers approach as a way of understanding the complex systems that inform a New Town, and the research design used in this study. It has established that this methodology is suitable for addressing the plurality and complexity of African New Towns as an urban form. Through the use of a database and case studies, it has shown that the research acknowledges the similarities and shared spatial challenges among contemporary African New Towns, but also investigates the idiosyncrasies and differences that characterize individual examples. In the next chapters, the results of the four research phases are presented.

This research brings two strategies together, using a database to identify broad trends in African New Towns over time, and complementing that wide lens with a targeted analysis of three case studies. Case studies allow for in-depth understanding of the idiosyncrasies of different New Towns, and provide specific examples against which to test the conclusions made from the database. The case studies were investigated using mixed methods including semi-structured and open interviews, on-site observation, and cartographic analysis to extend

¹⁶ Pragmatism also requires that the research acknowledges that it is developed for a specific audience and explicitly states for whom the research is useful (Patton, 2002: 72). This research addresses that concern by building the intended audience into the research design: the planners, developers, politicians, and other New Town stakeholders approached repeatedly during the research process through interviews, individual expert review, and transdisciplinary workshops are the intended audience. The research aims to be useful for this group as they continue to develop New Towns in African contexts.

scholarship on this phenomenon past the remote research used by van Noorloos and Kloosterboer (2018), Watson (2013), and others.¹⁷

The use of multi- and transdisciplinary workshops allowed for collaborative knowledge building and sharing, community engagement, and catalyzed communication among relevant stakeholders. The workshops also functioned to build peer and expert reviews into the research process. At each phase, the resulting principles were refined according to these reviews. Peer review is considered the most effective method for validating Research Through Design (Nijhuis & de Vries, 2020).

The mixed methods used in this research were undertaken from a practical approach: because of the limitations of remotely-sourced data from many African countries, and the recent (and rapidly changing) nature of this phenomenon, empirical evidence was used to cross reference and validate the results. This triangulated approach allowed for new insights by indicating continent-wide trends at the macro-level, identifying specific examples that illustrate and specify those conclusions, and building validation of the results into the research process through repeated expert review.

¹⁷ The research approach outlined above also builds on accepted approaches used by other researchers in the field of Southern urban studies. For example, in their analysis of new cities in Africa, Femke van Noorloos and Marjan Kloosterboer also engage with a continental scope and assemble a dataset which is then visualized in a map showing the geographic distribution of these 'new cities' across the continent (2018). In her groundbreaking study on African New Towns, Vanessa Watson also chose a continental scope and examined multiple examples of 'new urban visions' using comparative analysis (2013).



3 Spatial Challenges in Contemporary African New Towns and Potentials for Alternative Planning Strategies

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3.1 Introduction

Africa is currently the fastest urbanizing continent in the world (World Bank 2016). It is the only continent projected to maintain this degree of urban growth throughout the next century: by 2100, one quarter of the world's population may be African urbanites (UN 2014). But this urbanization is not happening in the same ways it has happened in other places. Most of this urban growth will be in mid-sized cities, and most of it will be informal and unregulated (UN 2014; Pieterse 2015). Due to various factors, the urban poor are often forced to build homes on land that is 'low cost and high risk', effectively driving those with the least financial, physical or political protection into the most vulnerable areas (Cain 2014). Projections for increasingly intense natural disasters and extreme weather patterns contribute to the urgency with which these issues must be addressed (Salinger, Sivakumar and Motha 2005).

Contemporary urban development in Africa is characterized, broadly speaking, by two forms: the unregulated urban growth associated with informal communities and the highly-planned execution of New Town or gated community development. Both current forms of production of space—the ‘informal’ settlement and the New Town—are unsustainable (Murray 2017; Hallegatte et al. 2017; World Bank 2016). Both face multi-scale, systemic challenges that impede their ability to offer inclusive, ecologically sustainably urban habitats. This chapter focuses on contemporary New Towns in African countries and offers an overview and critical assessment of these new developments. It also proposes an analytical framework for studying their emerging properties, and concludes with recommendations for the development of more adaptive planning and design principles.

Over the last three decades, there has been an increase in the construction of New Towns across the African continent (Watson 2014). We define ‘New Towns’ as planned urban developments for more than 30,000 residents with mixed programs on greenfield sites, that are developed as a single entity with some degree of political autonomy. Other authors have addressed these developments alternatively as ‘new cities’ and ‘satellite cities’, but we intend this definition to be slightly more precise, with clear boundaries, and in line with the historical trajectory of New Town development around the world. The majority of these New Towns are suburban enclaves catering to higher income groups (Watson 2014; Keeton and Provoost 2020). They offer amenities ranging in luxury from reliable water and electricity access to private 24h security and horse racing tracks (Provoost and Keeton forthcoming). The vast majority of these New Towns are not designed to transform in response to either system shocks or incremental socio-ecological changes. Rather, they are planned as finite products, with little attention to either existing environmental conditions or future threats.

There is considerable literature that reflects on contemporary African New Towns as unique urban forms (Watson 2014; Cain 2014; Herbert and Murray 2015; van Noorloos and Kloosterboer 2017; Abubakar and Doan 2017). For example, Vanessa Watson (2013) was one of the first authors to identify the increase in privately-planned New Towns in Africa, and has explored how rhetoric around the ‘rising’ African middle class attracted international developers and initiated the process of speculative urbanism in Africa in the form of New Towns. Cain (2014) discusses these processes in the context of Angola’s recent New Town projects (*novas centralidades*). Murray (2015, 2017) distinguishes what he calls ‘instant cities’ from conventional city-building. Van Noorloos and Kloosterboer (2017) have deemed these New Towns ‘unsuitable’ solutions to Africa’s urban problems. Abubakar (2010, 2017) concludes that African New Towns should do more to address rapid urbanization and informality, among other issues.

Taken collectively, this body of work establishes a consensus among academics that the New Towns in question do not effectively address the compelling social, ecological and financial challenges that characterize many African urban environments. It is generally agreed that as private developments they represent investment opportunities, and consideration of equitable housing distribution or inclusive development policies are largely lacking. Much of this work relies fully on internet sources and academic literature, and this research therefore makes a departure by employing empirical evidence from six field sites, two of which are discussed in section 3.4. As many of the New Towns addressed by this research are in countries with limited reliable urban data, empirical evidence allows us to aggregate information from multiple sources and verify the results of the database with specific examples. This combination gives a more detailed picture of current New Town planning trends and patterns across the continent.

This research also moves the discourse on African New Towns forward by identifying shared spatial challenges as well as proposing an alternative planning approach based on adaptive and inclusive planning. The goal of adaptive planning is to allow urban environments to change with external or internal stimuli, thus adapting to changing conditions over time. Adaptive planning can therefore be understood as planning that embraces social and ecological specificities and acknowledges the diversity of different contexts. Inclusive planning aspires to address the needs of all stakeholders, including traditionally marginalized groups. It also promotes tolerance through the planning process and in design.

The objective of this chapter is to identify spatial challenges specific to the contemporary African New Town typology and acquire new insight into potential areas of improvement for urban planning in the African context. With the goal of moving towards an alternative planning approach informed by adaptive and inclusive planning values, this research highlights the need for continued investigation to translate the spatial challenges identified here into a coherent approach that acknowledges and leverages existing specificities of individual geographic, historical, and social contexts. The dual objective is addressed by first reflecting on the data collected over a period of two years in collaboration with the International New Town Institute. This reflection concludes that the evidence suggests a need for more coherent, alternative approaches, and indicates one potential way forward: more adaptive planning. Empirical evidence and theory regarding the spatial challenges specific to the African New Town as an urban form serve as the basis for this study. This chapter examines two urban planning models as translated to New Towns in the African context: (1) the American gated community model, and (2) the Chinese grid city model. This is done in order to illustrate the idiosyncrasies of individual cases and convey the universality of the spatial challenges. In particular, the focus

is on contemporary (post-1990) African New Towns and the spatial challenges specific to this type of urban development, while acknowledging the inherent specificities of individual cities. Because of the relative newness of this topic and the limitations of data from many African countries, the research presented here aims to more precisely define the spatial problems associated with contemporary African New Towns. The presumption is that certain spatial challenges of African New Towns are caused by the application of common planning approaches without adapting to the site-specific spatial, social and ecological circumstances. Therefore, the chapter argues that the planning and design of African New Towns requires a substantial shift from current practice; that planners must apply more adaptive planning strategies and reconsider the highly regulated nature of New Towns that disenfranchise low-income groups.

The chapter begins with a short summary of the development of the African New Town planning practice. Two examples are used to illustrate the most prevalent spatial challenges resulting from contemporary planning practice in Africa. These representative cases are employed in order to make a methodological contribution and reflect on the relationship between planning practice and experiences 'on the ground', embedded in complex historical trajectories. This is followed by an overview and interpretation of the data collected on 150 New Towns planned since 1960. This database was developed jointly with the International New Town Institute over the period 2016–2018 and provides a framework for analysis of quantitative variables. While comparing the analysis results with empirical material and theory, the spatial challenges in African New Towns are identified. A discussion of the findings and their implications follows. The chapter concludes with recommendations towards the development of more adaptive planning strategies and their principles.

3.2 A historical perspective of African New Town planning

New Towns are unique urban developments and heirs to specific and complex planning histories. This section provides background on that development within the African continent and relates this historical perspective to contemporary development.

Although largely destroyed by war and plunder, ancient Africa had cities of grand scale that were extensively planned. El-Lahun (also known as Kahun or Ro-hent), Egypt is perhaps the oldest master planned urban settlement currently known in Africa; archaeologists have dated its walls to 1897 BC (Mazzone 2017). Gridded street patterns suggest authoritative planning rather than spontaneous generation, and precolonial Senegalese cities including Diakhao (sixteenth-century), Kahone (mid-sixteenth century), and Maka, (eighteenth-century), are clearly organized along orthogonal grids (Ross 2015). Further south, medieval planned African cities such as Songo Mnara, Tanzania, a fifteenth-century Swahili stonetown, had highly developed social welfare systems, craftsmanship, and political organizations (Patel 2014). Eleventh century Edo (Benin City), Nigeria, for example, is thought to have been designed based on fractals, and included underground drainage as well as centralized and sophisticated bureaucracy. Archaeologists continue to discover remnants of African cities designed with geometric precision and programmatic spatial divisions that suggest coordinated planning, such as Harlaa, Ethiopia, a ninth-century cosmopolitan trading city identified in 2017 (Gaffey 2017). Archaeological findings that indicate rapid construction and massive investments may also suggest coordinated planning efforts, but in many cases, there is not sufficient historical record to determine the full degree of planning.

As elsewhere in the world, the vast majority of African cities were not planned, but found their genesis in small communities that expanded progressively and shifted from temporary materiality to more permanent materiality as resources allowed (Anderson and Rathbone 2000). Coquery-Vidrovitch (2005) refers to the hybridity of African cities, pointing to the superimposition of medieval trade cities, precolonial Islamic spatial influences and both destructive and constructive colonial forces.

Coquery-Vidrovitch (2005: 207) limits her scope to the period between the origins of urban life and the heyday of colonization, which she identifies as the nineteenth century's "urban revolution".¹⁸

The colonial period (generally understood as the period between the Berlin Conference of 1884 and 1960; the 'Year of Africa'), largely inverted the concept of urban life in Africa, and has thus rightly been the subject of considerable research (Avermaete, Karakayali and von Osten 2010; Njoh 2009; Myers 2003). Instead of the centuries-old trading cities that once dominated inland Africa, colonial occupiers replaced (and often destroyed) these centers of commerce with coastal port cities that facilitated the export of natural resources (Coquery-Vidrovitch 2005: 25).

Colonial urban models varied greatly among the respective colonial occupiers. Each colonial government brought in its own design theories, planners trained in specific academic traditions and underlying goals with specific spatial implications. Despite the resulting diversity of form, all colonial governments that engaged in urban planning used it as tool to enforce racial segregationist policies (Njoh 2009). This common motive was met with varying responses, however, as Carlos Nuñez Silva (2015a: 3) points out, there were "highly complex two-way exchanges in numerous aspects of the urban planning process in Africa. Colonial urban planning apparatus, planning laws, planning procedures and outcomes were far from being homogenous over the years and among colonies, as different have been the relationships with the respective European metropolises, in part due to the (re)actions of the colonized people."

As colonial planning in Africa was gaining ground, Ebenezer Howard's treatise *To-Morrow: A Peaceful Path to Real Reform* (1898) was proving to be profoundly influential on contemporary European town planners. Using a diagram of three magnets, Howard defines Garden Cities as the great compromise between the 'Foul Air', 'Slums and Gin Palaces' of existing cities and the 'Land Lying Idle' of the countryside (Howard 1898: 8). The Garden City model was subsequently reinterpreted around the world in master-planned New Towns that linked spatial design to social motives (Galantay 1975).

¹⁸ This phrase is also employed by Susan Parnell and Edgar Pieterse in reference to the continent's rapid twenty-first century urbanization in: Parnell, S. and Pieterse, E. (2014) *Africa's Urban Revolution*. London: Zed Books.

Between 1898 and 1960, European colonial occupiers introduced New Town planning ideas influenced by Howard's Garden City model in British, French and Portuguese colonies, among others. S.D. Adshead's plan for Lusaka, Zimbabwe, from 1931 and A.J. Thompson's 1920s plan for Pinelands, South Africa are often used as examples of the direct application of Howard's ideas (Bigon 2013; Myers 2003). Other European colonizing powers employed similar design principles (radial or grid compositions, low density residential areas, monumental public buildings and functional zoning), but did not call their projects Garden Cities. Every colonizing power planned for racially exclusive spaces, dividing each city into two: an area for colonial residents and an area for indigenous populations (Silva 2015). Often, these spaces were further separated by a greenbelt, or *cordon sanitaire*, that was intended to act as a buffer zone between the two urban areas. The areas for indigenous residents invariably offered poorer infrastructure and insufficient housing provisions (Silva 2015).

During early independence from the 1960s until the 1980s, many African countries built new capitals and other New Towns as spatial assertions of nationalism and identity. Dodoma, Tanzania, for example, was largely based on the African socialism ideology of President Julius Nyerere, while Abuja, Nigeria was envisioned as a democratic capital which could help move Nigeria towards a national consciousness. For this reason, it was located in the geographic center of the country, a choice based on the area's perceived ethnic and religious neutrality. The location for Gaborone, Botswana was chosen for its environmental advantages and lack of tribal affiliation. Most of the New Towns built during this period were state-led and embedded in prevailing political movements; unity, nationalism, and identity were central tenets of their design and development.

Seen as a group, the post-colonial New Towns that came about in the second half of the twentieth century share other similarities. Abubakar and Doan (2017), for example, have identified a number of challenges to the implementation of these New Town projects, including their expense, the unpredictability of population growth, inequity and segregation, squatter settlements, disruption of the informal sector, lack of public involvement, and a heavy emphasis on physical development rather than social or cultural aspects. These challenges to implementation are also relevant for contemporary New Towns, and can be understood as conditions that should be studied before planning begins. Since the 1990s, however (as explored in the following section), there has been a shift towards private New Town development, moving even further away from the socio-political components that characterized earlier examples (Keeton and Provoost 2020).

3.3 Contemporary New Town planning in African countries

With the exception of national housing projects in countries such as Ethiopia, Egypt and Morocco, most contemporary African New Towns are master planned cities developed by private (often international) companies (Watson 2014; Keeton and Provoost 2020). The developers in question target the so-called African middle class, offering an urban experience that is ‘family-oriented’, highly planned, ‘safe’ and ‘clean’.¹⁹ The current situation presents a challenge for developers: how to accommodate real estate market demand while still ensuring (socially, environmentally, economically) sustainable urban centers? Broadly speaking, this perceived conflict of interest is met by ignoring long-term implications and streamlining planning processes to produce short-term profits. Their involvement and responsibility for the project often ends as soon as construction is completed (Watson 2014; van Noorloos and Kloosterboer 2017). This leaves completed New Towns vulnerable to poor maintenance, ineffective urban management and devaluation over time.

Contemporary New Towns have been characterized somewhat contrarily as both ‘urban fantasies’ (Watson 2014), and ‘instant cities’ (Herbert and Murray 2015). The private New Towns developed mostly for middle class target buyers are no longer fantasies. On the ground in places like Tatu City, Kenya; Ville Verte Mohammed IV, Morocco; Sheikh Zayed City, Egypt; 6th of October, Egypt, New Cairo, Egypt (and various other New Towns outside of Cairo), Kilamba, Angola and other Angolan *novas centralidades*, collectively, hundreds of thousands of new residents reside in these newly-built cities.

The New Towns offer varying degrees of public services and amenities, and they range in function from urban-scale bedroom communities to fully autonomous cities. Yet despite these differences, they face similar spatial challenges, which are elaborated in the following section. One issue that may exacerbate these challenges

¹⁹ Marketing materials on websites from these developments use strikingly similar vocabulary to indicate family values and high-quality living space. They promise: ‘your dream home in a unique and serene environment for you and your family’ (Appolonia 2017); ‘a home for you and your family, with all that is expected from 21st century comforts and convenience’ (Eko-Atlantic 2017); and ‘you will be sure to find a serene and well-planned space dedicated to you’ (Tatu City 2017).

is the fact that, despite a heritage of comprehensive urban planning throughout Africa, many contemporary New Towns continue to be based on urban models introduced elsewhere in the world during the twentieth century (Keeton and Provoost 2020). Nuñez Silva (2015a: xxi) warns: “African urban planning will have to address and adapt to the needs of the citizens living in African cities and to be more cautious about imported urban models.” This chapter examines two of these models as translated to New Towns in the African context: (1) the American gated community model, characterized by single-family plots, lush greenery, and semi-private spaces and (2) the Chinese grid city model, characterized by strict functional zoning, high-rise apartment blocks, an orthogonal street structure and rational design.

3.3.1 American suburbia and gated communities

The American suburban model has been deployed across the African continent from Ghana to Kenya and South Africa to Egypt. Since the 1950s, private developers in the United States have built New Towns (often called ‘planned communities’) as a way to provide housing that was larger and of a higher quality than what was available for comparable prices in urban centers (Mumford 1959; Burby and Weiss 1976; Bloom 2001). Contemporary American New Towns have their roots in ideology-driven examples from the 1960s and 1970s like Reston, Virginia; Columbia, Maryland and Irvine, California (Bloom 2001). They have evolved, however, as highly specialized developments increasingly catering to specific tastes and devoid of political energy (Pinder 2005: 249; INTERBORO 2016). One of the major critiques of this urban model is its low density and limited demographic makeup (Burby and Weiss 1976; Bloom 2001).

3.3.2 Chinese Grid

Although the grid has been used as a planning tool in China for millennia, contemporary Chinese New Town construction follows a very functionalist approach that is driven primarily by quantifiable data and projections. This typology has become a ubiquitous model developed and arrayed across China’s hinterlands as an efficient tool for development following the political prioritization of urban development beginning in the 1980s. Widely-spaced high-rise apartment blocks characterize this type of development, with large open spaces and monofunctional blocks. Duanfang Lu traces influences from both CIAM and Soviet planning principles in this design approach (Lu 2006: 94). Both models advocate for clear divisions among urban functions, rational organization and heavy road infrastructure (Lu 2006: 94).

While the efficient deployment of the Chinese grid plan has arguably been instrumental in China's twenty-first century leap forward, its hyper-functional design may fail to accommodate local social, cultural, or environmental specificities (Keeton 2011).

Both of these models developed over the twentieth century as urban solutions to the same confluence of events that now face many African countries: increased wealth and rapid urbanization. Their applicability in this new context, however, should be questioned (Watson 2014; Murray 2017; Provoost and Keeton 2017; van Noorloos and Kloosterboer 2017). For example, the low densities of American gated communities are ill-suited to the rapid influx of new urban residents in many African countries. The expenses associated with single-family housing are often far beyond the capacity of the average citizen, and the spatial segregation exacerbated by gates and guards has proven to increase crime rather than decrease it (Addington and Rennison 2013). The Chinese grid model is unfamiliar in the African context, and on-site interviews with residents indicated social discord caused by spatial organizations specific to this model (communal circulation spaces, large public spaces with no clear program, limited commercial facilities). The influence of these planning models on the spatial challenges of two specific contemporary African New Town examples is further elaborated in the following section.

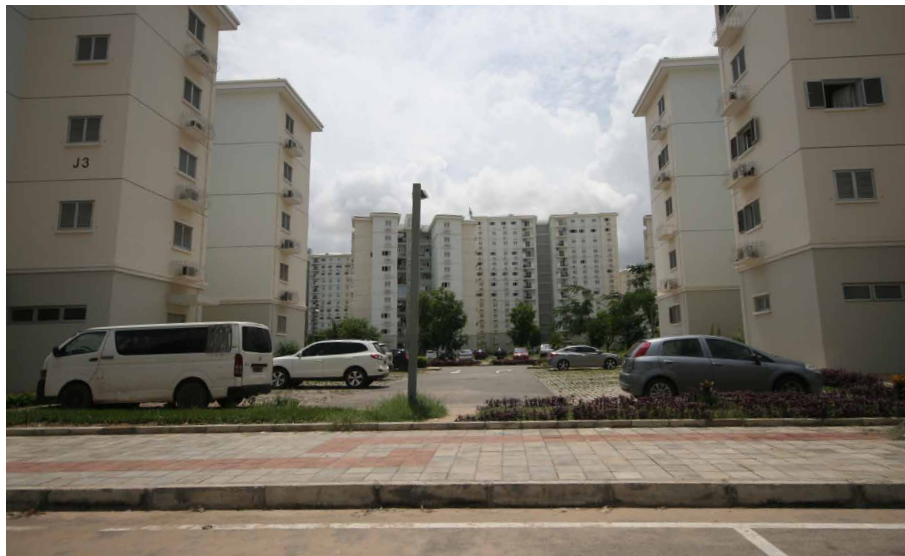


FIG. 3.1 Chinese urban grid in Kilamba, Angola
Kilamba, Angola is organized along a functional grid with hierarchical streets. Apartment buildings in Phase 1 offer three different housing typologies ranging from ¹10m² to 150m². Source: Author, 2016

3.4 Analysis: Identifying spatial challenges in African New Towns

Analysis of the 146 New Towns in the database reveal certain patterns regarding spatial organization and its influence on spatial challenges. New Town development in Africa has been located mainly around existing capital cities and often in coastal areas. Ecological challenges related to low-lying coastal locations such as flooding often remain unaddressed by urban plans, as do the potential social impacts of New Towns perceived as elite satellite cities. The urgency of such challenges varies widely among New Towns, which is why illustrative examples can be a useful way to better understand the specificities of complex spatial challenges.

While the results of the database provide a starting point for understanding the historical progression and current state of New Town planning in Africa, illustrative examples can give us a more detailed understanding of the complex relationship between urban model and context, and the spatial challenges that may arise from this alignment.

Specific spatial challenges can be identified in New Town examples such as Kilamba, Angola, a New Town designed as a Chinese grid city, and Sheikh Zayed City, Egypt, which exhibits clear influences from the American gated community model. Both New Towns have failed to attract their original low-income target groups, and yet have become popular with middle- and high-income groups. Kilamba is now 97% occupied and Phase II is under construction (Interview Baowen 2016). Sheikh Zayed City is known locally as one of the most expensive and luxurious New Towns around Cairo, and is therefore seen as desirable, according to locals. Many houses stand empty, but have been bought as investments either by speculative developers or as future homes for children / retirement.

Among the examples taken in this study, Kilamba is one of the most blatant examples of absolute disregard for the social and geographic context, although—notably—the lack of contextual reflection is not offered as a critique by most residents (Interview Marques 2016). Kilamba is one of the only areas in Angola with reliable water, electricity, and sewerage provision (Interview Flor 2016). Delivery of those basic urban services makes it one of the most popular places to live in the entire country, despite the constant shortage of funds plaguing the urban management team (Interview Marques 2016). The heavy infrastructure and strictly-enforced regulations, however, do not allow for any informality within the New Town (Baowen 2016).

As a result, Kilamba is flanked by an informal community along its eastern periphery. Interdependency between the two communities takes the form of service jobs within the New Town for residents of the informal community, and the provision of affordable shops, garages, and markets within the informal community.

A New Town from 1995, Sheikh Zayed City, Egypt, employs the American suburban model to organize luxury gated compounds for 53% of the residents while low-income housing accounts for 15% (Metwally and Abdalla 2014). Residents of gated compounds have access to internal shops, clinics and other amenities, as well as the upscale 'plazas' (outdoor shopping malls), accessible only by car. Low-income housing residents must rely on limited public transport options to reach more affordable options in nearby 6th of October or downtown Cairo, 38 km away. The gaping divide between these two groups of residents was most recently illustrated by demonstrations outside of the New Urban Communities Authority in Sheikh Zayed in October 2016. Abdel Fattah, a protesting resident, was quoted as saying: 'Our demands are quite normal; we wish to live in an integrated city with full services. Most of us are waiting for services such as shops, pharmacies, and schools to serve the population who've just moved to this rather remote area' (Daily News Egypt 2016).



FIG. 3.2 Semi-public shopping plaza in Sheikh Zayed City, Egypt

Sheikh Zayed City, Egypt offers limited public space, but numerous outdoor 'plazas' with commercial spaces, cafes, and entertainment options. Access to the plazas is granted by an armed guard at a single entrance point with the authority to turn away people seeking entry based on their appearance. Source: Author, 2016

For both Sheikh Zayed and Kilamba, the rigidity of their urban forms as well as strict building regulations limit the New Towns' flexibility in response to changing needs. Neither New Town allows for architectural representations of the informal economy such as kiosks, appropriative uses of public space, commercial uses of residential space, or privately-managed transport options (such as minibuses or *tuktuks*). Instead, both New Towns adamantly turn their backs on their physical, social and cultural contexts, forcing informal processes to their unregulated edges. According to the World Bank, 'Land use regulations, zoning, and building regulations are some of the most valuable tools for governments to guide development and promote livability. Yet certain interventions in urban land markets can negatively affect affordability and access to serviced land if they are not benchmarked against what the local population can afford to pay. Evidence from around the world indicates that inappropriate minimum standards actually increase informal development, even on formally titled land' (World Bank 2016: 119). This process is occurring in both Sheikh Zayed and Kilamba, as well as other contemporary African New Towns where the majority of local residents are priced out of ownership.

3.5 Results: Spatial Challenges in contemporary African New Towns

Based on analysis of the two examples above, empirical evidence from four other examples, and the results of the database on African New Towns since 1960, a number of spatial challenges that are endemic to African New Towns can be identified. Not every challenge applies to every example, but they are all issues that arise repeatedly in the dataset. These challenges are further refined below as socio-spatial challenges related to the residents of New Towns and adjacent communities, and enviro-spatial challenges that stem from insufficient incorporation of the underlying landscape. They are summarized in the following list:

3.5.1 **Socio-spatial challenges:**

Lack of efficient and accessible public transport systems

As exhibited by both Kilamba and Sheikh Zayed City, many New Towns are designed for car-based transit and fail to incorporate public transport options sufficiently. This has a stronger impact on low-income communities who may not be able to afford car ownership.

Lack of (high quality) public space

Kilamba has large public spaces, but with the exception of basketball courts, these are largely without a clear program and poorly managed. This has the effect of creating public spaces that are underused and generally empty. Sheikh Zayed City has very little public space, but offers middle- and high-income groups access to guarded *plazas* (privately-owned outdoor malls).

Limited housing stock diversity

Both examples also lack housing stock diversity: Kilamba offers only three different apartment typologies and Sheikh Zayed housing stock is differentiated between standard low-rise apartment blocks and luxury apartments and villas within the gated compounds.

Spatial segregation at the urban scale

These two examples also reveal spatial segregation at two different scales: Sheikh Zayed City shows a clear division within the New Town between gated compounds and so-called 'social housing' blocks, while Kilamba's official borders divide the New Town from its adjacent informal community.

Insufficient employment opportunities

The insufficient employment opportunities within both New Towns is informed by a lack of commercial facilities and leads to commuting between the New Towns and the closest large cities (Cairo and Luanda).

Displacement of communities already living on sites marked for New Town development

No existing communities were reportedly displaced by the development of Kilamba or Sheikh Zayed, although both Human Rights Watch and Amnesty International have publicized forced evictions related to largescale urban development in both Angola and Egypt (Amnesty International 2011; Human Rights Watch 2011, 2013).

Housing prices do not reflect the economic realities of surrounding contexts

When housing prices in Kilamba proved utterly unattainable, they were drastically reduced from \$125,000 (for the smallest apartment model, T3) to \$70,000. This reduction turned Kilamba into one of the fastest-selling developments in the country, but the apartments remain out of reach for the majority of Angolans. According to the World Bank, the GDP per capita for Angola in 2016 was USD 3,308,70 (World Bank 2018). In Sheikh Zayed, housing inside gated compounds can range from \$560,000 for a 550m² villa to \$125,000 for a 165m² apartment (Property Finder 2017). The GDP per capita for Egypt in 2016 was USD 3,477,90 (World Bank 2018).

'Final product' approach produces New Towns incapable of adaptation

Both New Towns were envisioned as complete projects, rather than a long process without culmination. This design approach imagines a specific future based on demographic projections and relies on quantifiable data sets rather than the evolving experiences of residents.

3.5.2 Enviro-spatial challenges:

Climate change threats are not addressed

Sheikh Zayed City is situated in the desert and much of its water supply is piped from the Nile River. The government has recently increased the price of water to help control demand, but when there are shortages water is brought to the New Town in tanks. The scarcity of this resource is not sufficiently addressed. Near Kilamba, Angola has faced ongoing droughts and increasingly frequent floods. Kilamba is not designed to address either situation.

Insufficient waste management

Sheikh Zayed still has massive open spaces that have not been developed. These desert areas quickly become dumping grounds for trash. Urban managers cannot keep pace with the production of waste. The same is true for Kilamba, where trash piles up beside overflowing waste bins and remains uncollected by local authorities. Recycling options could be improved in both New Towns.

Master plans are based on car transit

Both Kilamba and Sheikh Zayed are designed for cars. Neither New Town has effective public transport, cycling, walking or other slow traffic routing.

Existing natural areas and green spaces are not protected

There are many indigenous plants in Sheikh Zayed City, but golf courses and landscaping use extensive irrigation and are ill-suited to the desert climate. In Kilamba, green space on the western edge of the city was envisioned by planners as a park, but few residents use the space.

Sprawling development models encroach on peri-urban croplands

Both Kilamba and Sheikh Zayed are located in countries that face chronic food insecurity. Neither New Town addresses this issue from a spatial planning perspective.

Land values provoke 'low-cost / high risk' settlement patterns

By strictly regulating against informal commercial or residential activities, both Sheikh Zayed and Kilamba relegate low-income groups to areas outside their borders. These areas are generally more vulnerable to shocks, and lack the basic urban services offered within the New Towns.

These spatial challenges recur repeatedly in the New Towns included in this research. Each example, however, faces idiosyncratic challenges that originate from each unique combination of urban model and local conditions. In Sheikh Zayed, for example, the design does not take the desert climate into consideration, and heavy irrigation is used within gated compounds to produce green space. In Kilamba, new residents must adjust to condominium apartments, an architectural typology unknown in that country that has resulted in various disputes (Interview Marques 2016). While each example will face an individual

set of challenges, identifying the spatial challenges that appear repeatedly among contemporary New Towns can help illuminate a general approach that can, in turn, be tailored to individual sites.

3.6 Discussion: Towards the development of an alternative planning approach for African New Towns

As evidenced by the examples presented in this chapter, the combination of rigid planning models and the implicit vulnerabilities of emerging and threshold economies has created a generation of New Towns that—taken as a group— increase spatial segregation and do not address increasingly urgent environmental realities. As discussed in section 3.3, the urban models commonly used in these New Towns have arrived in contemporary Africa divorced from their original political, cultural and historical contexts. Of the examples presented here, both the Chinese grid model and the American suburban model have problematic social and environmental implications when applied without consideration for the local Angolan or Egyptian context, respectively. As a result, this chapter has questioned their appropriateness in these urban landscapes. Climate change and its associated weather events will exacerbate the challenges that residents of these and other New Towns will face in the future. As Fainstein and Campbell (2012: 418) have argued: ‘Economic segregation leads to environmental segregation: the former occurs in the transformation of natural resources into consumer products; the latter occurs as the spoils of production are returned to nature.’ Throughout many African countries, the combination of economic and climatic vulnerabilities creates a situation where institutions do not have the resources to respond effectively to threats, nor the capacity to act pre-emptively to reduce those vulnerabilities. This section explores the potential for future New Towns to become part of a more adaptive and inclusive planning paradigm.

3.6.1 Adaptive and Inclusive Planning Approaches for New Towns

These complex challenges can seem overwhelming. Adaptive and inclusive planning strategies provide an alternative way forward. Adaptive planning strategies are based on a systemic perspective that addresses both urban form and processes. They also take a multi-scalar approach, with consideration of implications for national development, regional networks and nodes as well as local existing qualities, down to the neighborhood level. Adaptive planning allows planners to engage social and environmental realities through more inclusive design and planning processes. By sensitively considering ecological site specificities, adaptive planning leaves room to adapt generic principles to the unique characteristics of individual places. In African New Towns, applying adaptive planning principles could break down the physical and economic barriers that are currently in place, and encourage more inclusive, environmentally responsive urban development.



FIG. 3.3 Multidisciplinary experts

This image depicts planning professionals during the 'Imagining Adaptive Planning for African New Towns' workshop on 8 June 2017. As part of an adaptive and inclusive planning process, workshops with multidisciplinary stakeholders can be tools for negotiation and collaboration. Successful workshops bridge the gaps between diverse experts and divergent ambitions. Source: Author, 2017

This research proposes that future New Towns in Africa could also benefit from an extension to current adaptive planning practice that links the political idea of active citizenship with design strategies. This may have an empowering effect on groups

that are currently marginalized and regulated against by many New Town authorities. Faranak Miraftab (2004:1) identifies two useful concepts that further illuminate the 'full range of spaces within the informal area where citizenship is practiced.' She describes 'invited spaces' as, 'the ones occupied by those grassroots and their allied non-governmental organizations that are legitimized by donors and government interventions. 'Invented' spaces are those, also occupied by the grassroots and claimed by their collective action, but directly confronting the authorities and the status quo' (Miraftab 2004: 1). This radical approach serves as a useful reminder that the degree of formal tolerance for unregulated spatial appropriation and the active resistance of their inhabitants vary greatly, and that both of these must be taken into account when considering planning processes. This nuanced consideration of top-down and bottom-up interactions supports an idea that is already integral to adaptive planning: increasing the capacity for change within a system. In future African New Towns, there is an opportunity to rethink the current approach and move towards more holistic planning processes that engage citizens and organizations from the full societal spectrum.

The identification of 'invited' and 'invented' spaces thus provides a clue for the development of planning principles that address spatial challenges but also leave room for individual personalization and variation. Originally, the concepts of 'invited' and 'invented spaces of citizenship' are focussed on political rather than physical places (Miraftab 2004: 3). Here, the terminology is considered from a spatial perspective: there are urban spaces where the informal economy and its supporting architecture is tolerated, but occupants of these spaces remain at risk indefinitely. Shifting political winds and changing macroeconomic situations can threaten their perceived permanence. Truly 'invited' spaces, then, would be ones that not only accommodate informal processes spatially, but that also acknowledge the intersection of regulated and unregulated spatial usages. They would, potentially, reduce the turbulence created by uncertainty and inform a new typology that integrates the provision of basic urban services with the capacities of the informal economy.

This research therefore suggests the need for an alternative approach to current planning practice associated with African New Towns. We see the potential for space where the processes and structures related to the informal sector are legitimized by state or parastatal interventions, thus building a more adaptive urban environment that is able to respond to changes in the environment and society. In order to do so, further research is needed to develop a set of principles based on the spatial challenges specific to African New Towns and the supportive dialogue between bottom-up and top-down organizations conceptualized by Miraftab. These principles can then be used to guide planning processes and ensure the range of challenges are more effectively addressed.

3.7 Conclusion

The current New Town planning approach deployed across the continent has failed to effectively address the social, ecological and spatial challenges of individual, contemporary, African urban environments. As illustrated by the example of Kilamba, Angola, a Chinese grid city may effectively house a large number of Angolan residents in the short-term, but it misses an opportunity to provide engaging public spaces and necessary facilities to support daily life. It also fails to anticipate a large community that develops at its border, and the intimate social and economic bonds between these two areas. How, then, to approach these challenges? The solution lies in an alternative planning method. From the specific challenges identified by this research, it is clear that a more integrated, holistic approach could better address the complexities of urban Africa.

One alternative could be an adaptive approach that engages both adaptive and inclusive planning values, and takes inspiration from Miraftab's concept of 'invited spaces' by providing a stable organization framework yet maintaining flexibility for infill and variation directly through residents. Adaptive planning aims to allow urban environments to change in concert with external or internal stimuli, thus constantly responding to changing conditions over time. Adaptive planning can therefore be understood as planning that embraces social and ecological specificities and acknowledges the diversity of different contexts. Inclusive planning addresses specific social concerns such as tolerance and social cohesion, and aspires to address the needs of all stakeholders, including traditionally marginalized groups. By widening the scope of adaptive planning to accommodate grassroots organizations and embrace diversity among citizens, it may be possible to develop more adaptive and inclusive New Towns in Africa.

Close consideration of the spatial challenges identified in this chapter indicates a way forward, and the next step is linking these challenges to concrete alternatives. Translating these alternatives into a set of planning principles for African New Towns and making them available to urban planners, developers and residents for evaluation may be a useful test of their effectiveness. A review of their spatial implications 'on the ground' might then be tested by conducting a pilot case on an existing New Town: working with developers, residents, and other key stakeholders to understand the practical applicability of the proposed principles.

The effect of current New Town planning models is to exacerbate social and ecological challenges rather than contribute to their alleviation. Returning to the original definition of sustainable development as planning for future generations, it is critical to reconsider the long-term consequences of this type of development. To ensure inclusionary planning, designers and public policy makers must be bold: they are needed to make cities where everyone has equal access to public services, and a sustainable long-term future.

This chapter has identified spatial challenges specific to the contemporary African New Town typology and acknowledged potential areas of improvement for urban planning in future African New Towns. It has also proposed an alternative planning approach based on adaptive and inclusive planning that embraces social and ecological specificities and acknowledges the diversity of different contexts.

With the goal of moving towards an alternative planning approach informed by adaptive and inclusive planning values, this research has also highlighted the need for continued investigation to translate the spatial challenges identified here into a coherent approach that acknowledges and leverages existing specificities of individual geographic, historical, and social contexts.

By challenging the current planning paradigm, African New Towns have the potential to be extremely useful tools in the continent's shift from predominantly rural towards urban landscapes. This chapter argues that by translating spatial challenges into potentials and conducting further research on implementation, these New Towns can become more inclusive, ecologically sustainable, and better able to adapt to diverse stimuli at different scales and over different time periods.



A family in Kilamba, Angola enjoys the New Town's public park. Source: Author, 2016

4 Defining Adaptive Planning and Design Principles for Future African New Towns

4.1 Introduction

Contemporary New Towns can be understood as comprehensively planned, mixed-use developments for a target population of more than 10,000 residents (Keeton and Provoost 2019). They are often driven by political will as a way of attracting international investment, or by private developers capitalizing on the desire for ‘safe’, homogenous urban environments (Keeton 2011). Africa is urbanizing rapidly, and the development of New Towns is increasingly seen as a solution to issues of urban congestion and concentration. However, most contemporary New Towns in Africa exacerbate environmental and social challenges by encouraging car-based transit, making spatial segregation more explicit and visible, and failing to address climate-change related threats (Keeton and Nijhuis 2019). They have become the subject of increasing critique from academics including Vanessa Watson (2013), Martin Murray (2017), and Christopher Marcinkowski (2017). Summarizing his analysis of privately-developed contemporary African New Towns – what he terms ‘speculative urbanism’, Marcinkowski points to the disconnect between current urban planning theory and practice: “In essence, since the ‘failures’ of mid-century modernist planning, the act of designing a city from scratch has been excised as a

core competency of urban design education. In turn, design and planning's capacity to adequately (or appropriately) conceive of and implement new urban forms has eroded. As a result, what is most often being peddled as 'urban design' today is simply scaled-up reproductions of 'proven' urban formats, or dystopic renderings of new settlement as implausible architectural icons" (2017).

Despite this critique, New Towns are a market-driven reality and will continue to be developed as long as they are seen as profitable enterprises. Developers on the ground argue that new cities and towns supply housing that is urgently needed and respond to real demand. As Tim Beighton of Rendevour (the largest New Town developer on the African continent) argues, planning and constructing New Towns is a "complex and academic-defying environment" (Beighton 2018). Academics, on the other hand, appear almost universally opposed to the construction of New Towns, pointing to the implications for increased segregation and environmental destruction (Watson 2014, Marcinkowski 2017, Murray 2015, van Noorloos and Kloosterboer 2017).

There also seems to be a growing consensus among scholars that the dogmatic approach of traditional 'blueprint' master planning is out-of-date and unable to address the myriad issues that arise during a large-scale planning venture. As Meyer and Nijhuis argue, "throughout the twentieth century, designers, planners and engineers have tried to synchronize the dynamics of the different subsystems and integrate them into a single comprehensive planning approach. However, these attempts at creating a comprehensive system have often resulted in rigid spatial constructions which are unable to deal with unexpected changes... and are therefore extremely vulnerable" (2016: 294).

But while contemporary authors point out the shortcomings to current practice, it is difficult to find constructive solutions. What then, is a viable alternative? As urbanists, we can begin to address this conflict by engaging space with a more coherent approach. One way forward can be the use of planning and design principles to structure the New Town development process from the very beginning.

The purpose of this chapter is to position adaptive planning principles as an alternative approach to the current New Town planning paradigm in Africa. This chapter argues that adaptive planning can be a useful way to reframe the process of New Town-making from the production of a finished product (traditional master planning) to a focus on creating conditions that support structural and functional change over time (adaptive planning). In previous research, the authors identified a number of spatial challenges that are endemic to nearly all contemporary New Towns in Africa (Keeton and Nijhuis 2019). This chapter builds on those results by

proposing a set of adaptive planning principles translated from those challenges. These principles provide an alternative approach for planners and decision-makers seeking more adaptive development models. In this position chapter, the authors argue that with the help of such principles, New Towns can become more socially inclusive and harness the benefits of the natural environment. The chapter also addresses the tension between theory and practice as it relates to New Town planning, and points to opportunities to begin bridging the disconnect between these two groups that may ultimately want the same thing: high quality living environments for as many people as possible.

4.1.1 **Contemporary New Town Planning in Africa**

Current planning practice in Africa as it relates specifically to New Towns is generally split along two lines: state-led New Towns (often characterized by social housing) and privately-developed New Towns (often characterized by gated communities) (Keeton and Provoost 2019). These two streams of development are initiated and planned with different goals. In state-led projects, such as those in Algeria, Morocco, Ethiopia, Egypt, and Angola, there is a focus on decentralization and redistribution of employment, services, education, and housing into rural areas. The target population for these developments is largely the low- and middle-income groups. As a result, housing options may be modest in size and architectural quality, and housing may also be (heavily) subsidized. Decentralization policies are often intended not only bring to public services to remote areas, but also to dissuade rural residents from moving to capital cities. That is seen as desirable by many politicians whose constituents experience congestion and overcrowding as negative aspects of life in existing urban centers.



FIG. 4.1 6th of October, Egypt

State-led New Towns (like 6th of October in Egypt) may run the risk of prioritizing housing over urban services and amenities. New Towns require a careful balance of housing and jobs, and enough diversity in the offered housing to support a productive demographic mix. Source: Author, 2016

Privately-developed New Towns often take a different approach. Target groups are usually limited to middle- and high-income groups, with little or no housing accessible to low-income groups. That strategy is connected to the need for private developers to make a profit in the shorter term. Although there are land value capturing models that incorporate low-income housing, these are rarely applied and inclusionary housing policies, when they exist, are often not enforced. As a result, privately-led New Towns may become exclusive enclaves for the wealthy elite. New unregulated settlements may develop concurrently at their borders, but residents of these communities will have limited access to the services and infrastructures provided within the New Town. This spatial divide remains visible, despite the economic and social interdependencies of the two communities. As an example, this can be observed in Kilamba, Angola, where residents of the unregulated community may find employment in the New Town as domestic help, and residents of the New Town may shop for goods in the unregulated community (Keeton and Provoost, 2019).



FIG. 4.2 New Cairo, Egypt

New Cairo, another New Town initiated by the Egyptian government, was largely sold to private sector developers. As a result, the New Town has a strong focus on exclusive housing and offers Egypt's most concentrated upscale shopping and services. Source: Author, 2016

Because they are part of a national strategy, the locations for state-led New Towns often reflect a desire to develop rural areas and stimulate local economies. Privately-developed New Towns, however, are more often designed as satellite cities from which many residents may commute daily to a major city. This approach can be seen in the examples of Tatu City, Kenya, Appolonia, Ghana, and Waterfall City, South Africa, all of which are closely networked with existing cities.

Despite the broad spectrum of New Towns discussed above, the authors wish to emphasize that New Towns are only a very small part of the larger story of urbanization in Africa. In most African countries, self-organized, unregulated urban growth is the norm and planned urban growth is the exception (Pieterse, 2011).²⁰ This type of urban growth exists mainly because formal real estate markets do

²⁰ The percentage of self-organized urban housing (also called slums) varies dramatically across the African continent, from as much as 96% in South Sudan to just 8% in Tunisia (World Bank, 2014).

not allow access from the majority of African urbanites – mind-boggling mortgage interest rates and documentation requirements may block even high wage-earners from legal tenure. “As a result, informal markets fill this exclusion gap and this is where the overwhelming majority of African urban land transactions take place nowadays” (UNDP, 2017).

‘Informal’ or unregulated urban growth is not the focus of this chapter, however, it is often closely related to New Towns, in an almost symbiotic relationship, as described in the example of Kilamba above. These communities are often stigmatized and presented in simplistic, reductive terms (Elleh, 2011; Pieterse, 2011). When they grow adjacent to New Towns, the emergent contrast provides an extreme spatialization of the growing inequality in many African countries (Watson, 2013; UNDP, 2017; Keeton and Provoost, 2019).

4.2 Methodology

In adaptive planning and design, principles play a crucial role. A principle is a basic idea or rule that can guide certain developments but needs to adapt to the local natural, cultural, and social-economic context. Working with principles provides building blocks that shape the plan at multiple scale levels and allow for flexible infill. Design is an important instrument to spatialize and shape the principles, giving form and content to them in a collaborative effort in order to explore the possibilities and make choices (Nijhuis and De Vries, 2020). A first set of planning principles for New Towns (all New Towns) was drafted in 2016 by Michelle Provoost, director of the International New Town Institute (INTI), as an addition to the *New Urban Agenda* presented by UN-Habitat at Habitat III in Quito, Ecuador (Provoost, 2016). This original set of principles was informed by a decade of research into New Towns at INTI and set out to specify criteria for New Towns. It aimed to fill the gap in the *New Urban Agenda*; a document that addressed urbanization at a global scale but neglected to include any recommendations unique to New Towns (General Assembly 2016).

This original list outlined “priorities and themes especially relevant to New Towns in no particular order” (Provoost, 2016). It is included here in its entirety:

Emphasize innovation

The culture of New Towns is forward looking, with an emphasis on innovation and experiment. This ambition is optimistic and should be fostered. For new New Towns this means looking for inventions, not only in technology but also social, cultural, political and financial innovation. New Towns are excellent laboratories for implementation of the New Urban Agenda.

Regeneration based on existing qualities

Older New Towns share a lack of diversity in housing, services, in cultural and commercial facilities, and a lack of jobs. Usually they suffer from a negative image, losing their attractiveness in competition with historic cities. The regeneration of these cities needs to take into account the local culture that has developed and build on the characteristics and qualities that exist.

No city is an island

The bigger spatial context needs to be taken into account. The reinvention of the existing New Towns requires re-evaluating the position of the city in the region and nation, and the changing relation to the mother city. Future New Towns should be based on a national spatial policy and not be planned as an isolated project.

New Towns should be inclusive

Cities should be built for a cross section of society, including affordable housing and public transport. Because contemporary New Towns are often undertaken as commercial projects they are often not able to provide for the lowest incomes. There is a need for new financial models to achieve inclusiveness. Especially in Africa there is a need to incorporate or facilitate self-built settlements, since they will make up the largest part of urbanization.

Infrastructure and mobility for all, from the start

The urban plan should not only cater for cars, but also for slow traffic, carts, bicycles and pedestrians. The provision of public transport to the existing cities from the immediate start of development has proven to be a main factor in the success or failure of New Towns.

Plan for flexibility

The urban plan should be flexible and adjustable, resilient and able to cope with new insights and developments over time. A lack of reserved space, possibilities for transformation and adjustment will threaten any New Town with becoming outdated soon.

Adopt green and water networks as the basics for the urban plan

In the light of climate change and ecological threats, the importance of a network of green open spaces and water is of the utmost importance. This network should underpin every urban plan, combining ecology, flood prevention, water retention with public space and leisure.

Combine Top down and bottom up

New Towns share a largely top down approach, with a fixed relation between the government or private party developing the city and the residents. To become more resilient and fair, and to unleash the vital dynamics that can develop the city, they should provide for a more inclusive and participative approach.

Use no universal model and no export of urban models

There is no one-size-fits-all model for New Towns. Models from one part of the world don't guarantee success when exported to another part. Local capacity building is necessary and should be stimulated, so any country can develop its own urban models, based on local culture, climate, politics, social needs and financial possibilities.

Stimulate exchange between New Towns

New Towns share a lot of challenges and opportunities. Research into common urgencies should be stimulated and the lessons learned should be disseminated and exchanged. A best practice network of New Towns should serve this goal.

Between the first iteration of principles (then called 'guidelines'), and the iteration presented in Chapter 5, the principles underwent an extensive process of revision and refinement driven by peer review, short-term workshops, and Research Through Design. This resulted in changes in number, order, and content, as well as a shift towards design issues and adaptive planning. The main differences between this first set and the final set can be summarized as follows:

- 1 Critically, the first set of principles did not specifically focus on African New Towns. They were intended to apply universally to New Towns as an urban model. In 2017, a second version narrowed the scope to the African continent by translating the spatial challenges of contemporary African New Towns into potentials and comparing those results with the original principles drafted by Provoost.²¹
- 2 The original set of principles were framed as a list of priorities and themes without an ordering logic. In the final version, the order of principles mirrors an urban planning and design process, moving from issues most relevant at the conceptual phase towards topics related to later phases such as governance and diversity. The final list is also intended to be used iteratively, with principles re-addressed over time as appropriate.
- 3 The first and second principles originally focused on innovation, experimentation, and regeneration. In the final version, the first two principles are reframed with a focus on adaptivity in the planning process, namely: 'Planning is an ongoing process' and 'Plan for adaptivity'. This version emphasizes the need to approach New Towns as growing, dynamic urban developments, and not final products that can be completed. It challenges planners and decision makers to embrace a planning approach that accepts the inability to predict the future.
- 4 In the first version, local culture is mentioned quickly in the second principle. In the final version, this aspect is given much more weight as the eighth principle: 'Incorporate local cultural heritage(s)'.
- 5 In the final version, 'Stimulate exchange between New Towns' is not included. This is a result of the revision process described in Chapter 2 and indicates that the need for learning and exchange across New Towns, while useful, is not one of the most acute concerns for the planning and design process.

The process of translating the spatial challenges into potentials and bringing these together with the principles is discussed in Chapter 3. Those spatial challenges can be summarized as: (1) a lack of efficient and accessible public transport systems, (2) a lack of (high quality) public space, (3) limited housing stock diversity, (4) spatial segregation at the urban scale, (5) insufficient employment opportunities, (6) displacement of existing communities, (7) inaccessible housing, and a (8)

²¹ For example, the spatial challenges (1) "a lack of efficient and accessible public transport systems" and (11) "urban models premised on individual car ownership", were ultimately translated into Principle 6: "Infrastructure and mobility for all, from the start".

'final product' development approach that prioritizes completion over adaptation. We can also identify enviro-spatial challenges such as: (9) unaddressed climate change threats, (10) insufficient waste management, (11) urban models premised on individual car ownership, (12) unprotected natural areas, (13) encroachment on peri-urban agricultural lands, and (14) unregulated settlement in 'low cost / high risk' areas (Keeton and Nijhuis, 2019).

Incorporating the translations of these spatial challenges, the principles were then discussed and debated with a group of twenty-two multidisciplinary experts during a workshop at TU Delft in June 2017, and their suggestions and critique were applied in a first revision of principles specifically addressing New Towns in Africa (see Appendix B for a detailed report on this workshop).

Following this first revision, the principles were individually reviewed in detail by three international urban planners with varying areas of expertise. The refined principles were then presented publicly in a series of lectures at planning schools (ArchIP, IHS, TU Delft), and public discussion and feedback was used in a final revision. In September 2018, the principles were presented at the New Town Lab: Tatu City, Kenya, co-organized by INTI and hosted by Rendeavour. The New Town Lab brought together Rendeavour's in-house planning team, consultants from the design firm SOM, and urban designers from the Netherlands. During this Lab, the principles were used to reflect on Tatu City's current master plan and inform an alternative design that ultimately focused on a framework strategy titled 'The City in Between' (INTI, 2018). The design workshop provided a 'real world' test for the principles and proved to be a useful communication tool to drive discussion between academics, planners, and developers.

Particularly during the workshops, and to a lesser degree during individual expert reviews, it became apparent that different experts expressed preference for specific principles based on their own backgrounds and personal values. This became a repeated point of discussion during some workshops where experts displayed conflicting perspectives. The authors acknowledge that their own biases and expertise were present in the final revision of the principles. For this reason, and because of its focus on urban design practice, the list of planning and design principles presented in Section 5 does not claim to be an exhaustive list. It does not address many aspects of planning that could legitimately be included in an adaptive planning approach, however, taken as a whole, the intention of the authors is to supply an integrated, holistic framework for planners and decision-makers considering New Town development in African contexts.

The results of this process were published in *To Build a City in Africa: A History and a Manual* (Keeton and Provoost 2019) including a data set of 146 New Towns constructed after 1960. This data set was developed through collaboration between the lead author and the International New Town Institute over the period 2014-2018. After using keywords to search Scopus, WorldCat and Google Scholar for academic literature, data was also collected from sources including academic literature, local media, planning documents and websites associated with individual New Towns and their developers. Quantitative data on a number of variables related to each example was collected and analyzed. These included: geographic location, year of announcement, construction dates, planning offices involved, project initiators, target and current populations, size and density, current status, relative balance of public and private investment, target income groups, planning model, and stated goals for each New Town.

In *To Build a City in Africa*, the authors extended this analysis through six in-depth case studies of exemplary New Towns in Africa (Keeton and Provoost, 2019). Methods included extensive literature review, semi-structured interviews with relevant stakeholders, empirical evidence from research in eight African countries²², multidisciplinary design workshops to spatialize the principles, and individual expert reviews to validate intermediate results. Combining these methods allowed for verification of patterns suggested by the database results. This chapter builds on those results to position adaptive planning principles as an alternative to contemporary New Town planning practices.

²² On-site research by the first two authors took place in Angola, Egypt, Ethiopia, Ghana, Kenya, Morocco, Tanzania, and South Africa between 2016-2019.

4.3 Adaptive urban planning

Adaptive urban planning is seen as an alternative to traditional master planning (Nijhuis and Jauslin 2015; Meyer and Nijhuis 2016). Within the urbanism domain, both adaptation and adaptability are strongly embedded in complexity theory (Holland 1995; Portugali, Stolk and Tan 2011; Batty 2013, Rauws and de Roo 2016). Originally, however, the concept of adaptation is taken from evolutionary biology where it refers to “structural, functional or behavioural change of living organisms over time, so that they are able to survive in a specific environment” (Psyllidis and Bioria 2013: 373). Despite increasing application of this term, there are still no internationally accepted metrics for measuring adaptation and it therefore remains a somewhat nebulous concept (Araos et al 2016).

In this chapter, we follow the conventional definition of adaptive urban planning as planning that addresses multiple scales, timeframes, and both social and ecological issues (Meyer and Nijhuis, 2016; Rauws and de Roo, 2016; Kato and Ahern, 2008). It takes a systemic approach to understanding urban systems and requires a deep investigation of local contextual dynamics. It is transdisciplinary and collaborative by nature, which is necessary in response to the complex and heterogeneous nature of urban systems.

In the vast majority of contemporary New Towns in Africa, we continue to see traditional master planning used to organize urban structures and functions. This approach aims to predefine an urban future that may or may not come into being. It also refuses to acknowledge New Towns as urban environments undergoing a continuous process of ‘becoming’. The risk is that this type of planning limits an urban area’s ability to adapt to endogenous or exogenous stimuli by anticipating only a single (future) outcome.

Adaptive planning, on the other hand, aims to develop conditions that support an urban area’s ability to respond to changing stimuli. As such, it is less concerned with predicting a single design outcome, and more concerned with coevolution as a city changes. This does not mean that adaptive planning is an ambivalent or neutral approach. Rather, adaptive planning requires significant and long-term social and political backing, and therefore must be undertaken with a view to the common good of a particular place.

In underlining this differentiation, many authors have pointed to the need for a shift in focus when moving from traditional planning towards adaptive planning (Habraken 1972; Meyer and Nijhuis 2016; Rauws and de Roo 2016: 1052). For example, in their work on shifting Dutch planning approaches, Rauws and de Roo propose an adaptive planning approach with two distinct steps: “(1) creating conditions for development with regard to future spatio-functional configurations and building capacity of local actors... and (2) tweaking these conditions to the extent that in the course of an area’s development socially preferred trajectories become more likely to emerge” (2016: 1056).

4.4 Overview of existing principles used in African contexts

Planning principles can be a useful tool in supporting sustainable development. This may be especially true in fragile institutional environments where planning resources and capacities are limited. This is because principles that address an integrated planning process can also help structure space to provide clear frameworks and leave infill open to dynamic, local urbanization processes.

Planning principles have an extensive history of application in New Towns. Starting in the early twentieth century, Ebenezer Howard’s recommendations in his seminal book *To-morrow! A Peaceful Path to Real Reform* (1898) quickly became codified as guiding principles of the Garden City Movement. Howard’s attempt to bridge the divide between ‘town’ and ‘country’ is illustrated in the famous ‘3 magnets’ diagram, offering ‘the people’ a new choice: the ‘town-country’, with its ‘low-rents, high wages, no smoke, no slums, freedom and co-operation’, among other advantages. This vision was a response to both the slum conditions characterizing European cities in the thick of the industrial revolution and undeveloped rural areas. In this dialectic, the Victorian working class faced a choice that polarized social opportunity against the beauty of nature. That dilemma is not completely alien to many Africans today.

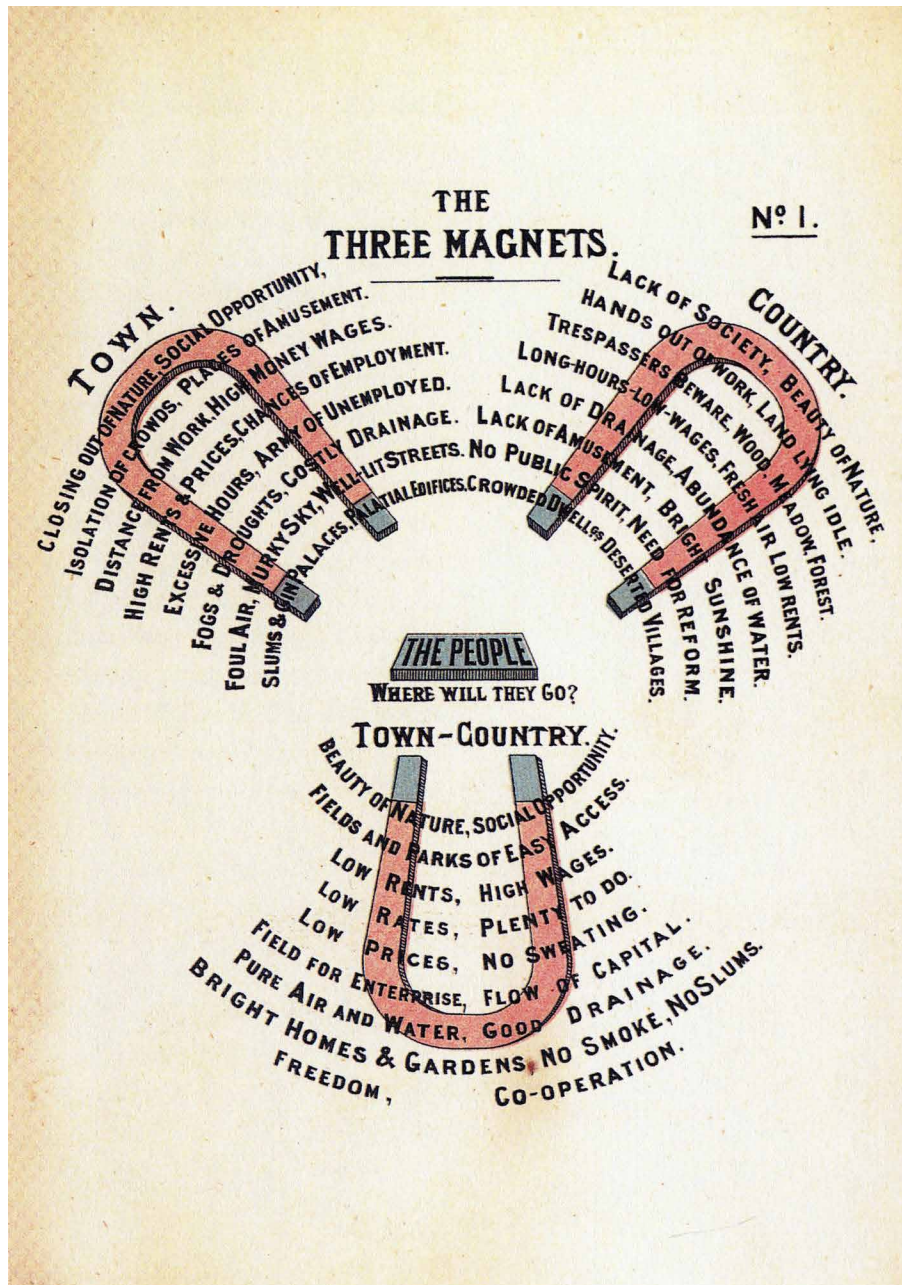


FIG. 4.3 Three Magnets

Ebenezer Howard's famous 'Three Magnets' diagram illustrates the push-and-pull factors associated with town (urban) life and country (rural) life. It proposes a town-country (i.e. New Town) compromise as the solution to the ills of both urban and rural life. Source: Howard, E. (1989) *Tomorrow: A Peaceful Path to Real Reform*. London: Swan Sonnenschein & Co. Image is in the public domain.

Howard's diagrammatic proposal was intended as a socio-economic critique rather than a spatial concept, but over time, Howard's utopian vision coalesced into a planning approach that prioritized access to fresh air and green space, low densities, adequate services, and employment (Hall and Ward 1999). In Africa, it was perhaps most famously applied in the British plans for Lusaka, Zambia (1931). Lusaka was exceptional, however, as most Garden City influence in Africa was smaller-scale and often limited to housing for colonial occupiers. "In colonial Africa... at the very most the implementation before the 1930s meant simply a low-density residential form under government control with parks or other kinds of greenery. Under indirect (normally anglophone) or direct (normally francophone) rule, these 'garden city' neighborhoods were the preferred form of residence offered by the colonial authorities to house their employees or other white expatriates... Yet what is common to all these colonial 'garden city' experiments is that they played a crucial role in the creation of racially polarized colonial urban environments that have long been recognized in relevant scholastic literature as 'dual cities'." (Bigon 2013; 477).

The influence exerted by the Garden City Movement stalled with the advent of the Second World War. As planning picked up again in the post-war period, it was ideas about efficiency and rapid housing for masses that gained momentum. One example was the systematic approach of *Ekistics*. Developed by the Greek planner Constantinos Doxiadis in the 1940s-1950s and deployed in New Towns worldwide such as Tema (a New Town on the southern coast of Ghana from 1960), the principles of *Ekistics* addressed planning through the lens of a single, hierarchical approach that could be applied to any urban development anywhere in the world (Doxiadis 1968).²³

²³ Doxiadis' involvement in Tema followed the work of Alfred E.S. Alcock, an English planner whose designs for the New Town suggested a low-density city based on Garden City principles. Alcock was replaced by Doxiadis when it became apparent that a Garden City design would not be able to accommodate the expected influx of people attracted by jobs in the new port. Doxiadis' radically efficient approach included scientific development new housing types, hierarchic infrastructure, the repetition of architectural forms, and prefabricated elements. Unlike Garden Cities that were intended to limit growth in order to preserve a suburban experience, *Ekistics* traded curvilinear streets for a gridded road structure that could be easily expanded and densified over time.

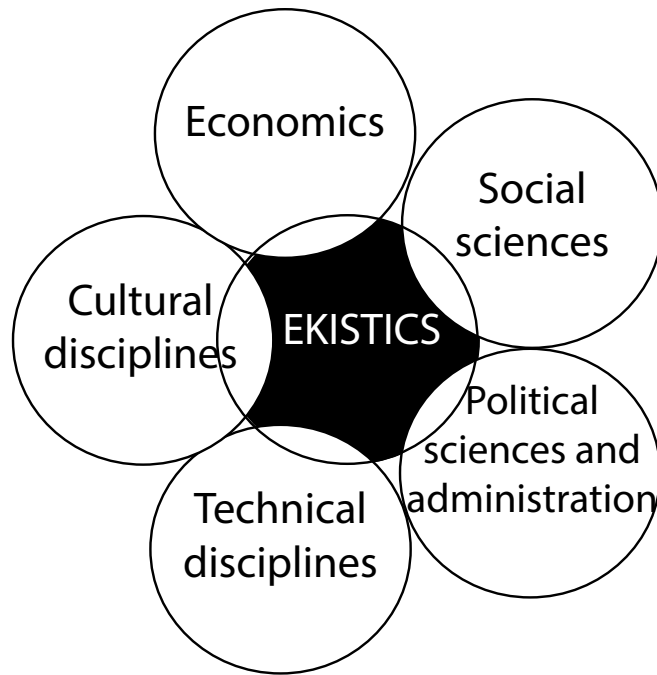


FIG. 4.4 Ekistics

This diagram of Doxiadis' theory of Ekistics shows how he conceived it as the intersection of multiple disciplines. Source: Pollalis, S.N. et al (2014) "Planning a Sustainable New City". *Journal of Building Construction and Planning Research* 02(01):50-58. DOI: 10.4236/jbcpr.2014.21005

More recently, UN-Habitat's *International Principles on Urban and Territorial Planning* attempt to provide a planning framework for urban development around the world (2015). UN-Habitat's *Principles* address not only urban and territorial planning for sustainable development, but also urban policy and governance issues, the roles of institutions at various scales, as well as implementation and monitoring issues. The *Principles* acknowledge planning as 'an integrative and participatory decision-making process' which does not happen in a vacuum (UN-Habitat 2015: 8). By taking such a broad overview, the document is forced to remain at a highly conceptual level, although it does not avoid making quantitative recommendations.

Under the urban and territorial planning for sustainable development section, the *Principles* discuss three aspects: social development, sustained economic growth, and planning as a spatial framework to "protect and manage" the environment (UN-Habitat 2015: 20). UN-Habitat's *Principles* thus offer a holistic view of complex urban issues and factors. The document relates urban development to both

multi-scalar institutions and multiple time frames and prioritizes spatial justice. This 'big picture' approach, however, sometimes necessarily lacks nuance, and paths to implementation remain unclear. Additionally, the bulk of spatial planning responsibility is placed on local authorities who may lack capacity. Furthermore, the document assumes land ownership as a panacea and unilaterally promotes specific spatial concepts such as 'compact cities', and polycentric urbanization patterns.

Contemporary international planning offices may also use principles to guide their approach. For example, SOM's "10 Principles of SOM's Design Practice" place emphasis on issues such as "designing for people", "enhancing competitiveness", "feeding our city", and "living without a car", among others (SOM n.d.). These ideas build on the planning principles elaborated in SOM partner John Kriken's book *City Building: Nine Planning Principles for the Twenty-First Century* (Kriken 2010). According to SOM Associate Gareth Edwards, "For each project we take these wide principles and see how they're relevant for the particular context we're working in and find ways to 'implement' them to create cities for people". (Edwards 2018). Designers have an important role in the application of these principles. Although planning is always driven by the priorities of clients and confined by regulatory frameworks, designers are responsible for finding creative solutions to spatial challenges. Their approach determines two critical aspects: the planning process itself, and the spatial outcomes.

The red line through these examples of planning principles ("Garden Cities", "Ekistics", *International Principles on Urban and Territorial Planning* and "10 Principles of SOM's Design Practice") is an acknowledgment of the benefits of effective planning. Good planning integrates universal physical needs (road infrastructure, electricity, water, and sewerage networks) with local specificities of culture, history, and aesthetics. It integrates the full stratification of governance, the physical built environment, and social or intellectual life. Looking back on a lifetime of planning practice, the eminent planner and geographer Sir Peter Hall concluded, "We need not less planning, but more" (Hall 2014).

However, the principles in this section address all types of urban growth in a general way, whereas the principles proposed in Section 5 of this chapter are developed specifically for New Towns planned on undeveloped land in African contexts. These are informed by a close examination and analysis of the spatial challenges endemic to New Towns throughout Africa, and as a result they formulate an alternative planning process that addresses the idiosyncratic problematics of contemporary African New Towns. By addressing a more limited geographic, temporal and design scope, these principles are able to more effectively anticipate the challenges specific to this urban archetype.

4.5 Results: Planning and design principles for adaptive African New Towns

The principles elaborated in this section are intended as an alternative approach for planners and decision-makers seeking to develop New Towns that are more inclusive and adaptive than the current planning paradigm. To achieve this, the following principles are translated from those spatial challenges identified across a dataset of 146 African New Towns planned since 1960.

The proposed principles were developed as planning and design principles, however this study acknowledges that planning does not happen in a vacuum. Although it is beyond the scope of this chapter, good governance is necessary to facilitate good planning. Good governance provides the possibility for planning and design processes that allow for understanding and application of principles, collaboration, and transparency. A strong institutional framework that can implement an adaptive strategy is therefore a necessary underpinning for the deployment of these principles. Without a (private or public) body capable of overseeing a massive management project and adapting its vision over time, no New Town can flourish.

The following principles are organized in a way that loosely follows a typical planning process. The first two principles therefore affirm the need to view New Town planning as a process of (adaptive) evolution over time, rather than a product that is 'complete'. The third and fourth principles emphasize the importance of connections to existing cities, and the need to embed the New Town in its local context. The fifth and sixth principles recommend experimentation and exploration as well as the need for accessible mobility and (public) transportation networks. The seventh and eighth principles address site-specific issues related to the underlying natural landscape, and local cultural heritage. The ninth and tenth principles specify the need for transparent public engagement in the planning process as well as diverse and inclusive design results.

4.5.1 Planning is an ongoing process

Like all cities, New Towns are never 'finished' and should be understood as urban entities in a constant state of 'becoming'. No city exists in a static form, and everything that was once cutting edge eventually becomes outdated. New Towns need time to develop vitality and authenticity as urban environments. Allowing for this requires

that planners leave space for evolution in their conceptions of phasing, sequencing, and (long-term) maintenance. Planning documents must also be continuously re-evaluated and updated to reflect changing circumstances and priorities. This requires monitoring and evaluation throughout the New Town's lifecycle.

4.5.2 **Plan for adaptivity**

A New Town's capacity for change is directly related to its design. Many examples of New Towns have struggled with adaptation to dynamic (social, ecological, or economic) conditions because they are designed at a single moment in time and respond to a set of expected circumstances. Leaving room for adaptation requires planners to let go of a single vision for the future and embrace uncertainty. Like all cities, New Towns will have to respond to unanticipated future issues. The organizational framework for these Towns should therefore create spatial conditions that enable adaptation and flexibility.

4.5.3 **No New Town is an island**

Choosing a site for a New Town requires careful consideration of local, regional, and national contexts and resource flows. A site should be selected based on "accessibility (efficient connections to existing cities and towns), local needs, geographic conditions, potential for growth and position in existing social, financial and production networks" (Keeton and Provoost 2019). To stimulate well-distributed development, New Towns should also be planned as part of national spatial policies and not as isolated projects.

4.5.4 **Use no cut-and-paste universal model**

Urban models developed in specific parts of the world do not function the same way when exported to other places. This can be seen in the maladaptation of (American) gated communities, (Chinese) high-rise grid cities or (UAE) Dubai-inspired CBDs in some African New Towns. Urban models should relate intimately to their local demographic, ecological, and cultural contexts. This requires planners to have a deep knowledge of the specific conditions that inform the site chosen for development, and to respond to these conditions through their design.

4.5.5 Embrace new ideas

New Towns aim towards innovation and experimentation. They are ambitious and optimistic by nature, and these characteristics should be fostered. Future New Towns in African can be ideal laboratories for the development of new technical, planning, cultural and financial solutions.

4.5.6 Infrastructure and mobility for all, from the start

Infrastructural connections are the backbone of New Towns. Accessible and diverse transport is necessary to support a lively and vital New Town. “The provision of public transport within the city and to surrounding cities from the immediate start of development is a main factor in the success or failure of New Towns” (Keeton and Provoost 2019). Services, amenities, and public transport should be established before housing, in order to ensure the livability of the development from the beginning. Transit options should not prioritize cars, but should promote diverse mobilities, including slower transit such as carts, bicycles, and pedestrians.

4.5.7 Use a blue-green infrastructure as the central framework

There is a temptation with New Towns to interpret a site as a *tabula rasa*. This can result in dramatic ecological destruction and increases vulnerability to extreme weather events. It is necessary to consider both the limitations and opportunities of individual sites. Using existing green and blue (water) networks can create a resilient and distinctive organizational framework as the basis for an urban plan. Green and blue networks can be exploited to provide protection from flooding and drought, accessible and beautiful public spaces, and leisure amenities within a New Town.

4.5.8 **Incorporate local cultural heritage(s)**

Vibrant New Towns reflect the local cultural heritage of their locations. Cultural heritage is also an opportunity to promote identity and authenticity in developments that run the risk of being sterile urban environments. Embracing this heritage also stimulates inclusivity and increases the emotional connections between people and place. Heritage can be tangible or intangible, and designers can find creative ways to weave these connections into a rich urban design that accommodates local customs, norms, and taboos.

4.5.9 **Combine top-down and bottom-up**

New Towns are almost always developed from a top-down approach with fixed hierarchical relationships. “To become more resilient and fair, and to unleash the vital dynamics that can season a new urban area, New Towns should provide for a more inclusive and participatory approach.” (Keeton and Provoost 2019). To achieve this, New Towns should actively support the inclusion of (future) residents in the planning process. Unfair or illegal displacement of people should be prevented. Public governance generally allows for more democratic participation and therefore privately-developed New Towns should move towards municipal governance as soon as possible. All cities benefit from the inclusion of many voices.

4.5.10 **New Towns need diversity**

New Towns need diverse programs, economies, and populations. Diversity increases resilience and reduces vulnerability. There must be room for a wide range of people, activities, and processes in any New Town. This means New Towns should be built to accommodate a representative cross-section of society, with housing that responds to financial capacities ranging from no-income to high-income. New financial models are urgently needed to support this diversity, and regulations are needed to ensure its success.

4.6 Discussion and reflection

The principles in Section 5 approach planning in an integrated way and look to the very beginning of the planning process, before a location is chosen, all the way through project development. Taken together, these principles present a systematic approach to the complex challenge of New Town creation in the African context. However, good planning requires good governance, and urban management of the New Town must also be supported by national-scale planning programs that simultaneously address multiple temporal and geographic scales. The role of the designer as integrator in this complex process is also necessary to support effective planning. Designers must take the lead in shaping the principles, exploring possibilities, inspiring stakeholders, collaborating effectively, and testing the principles in a spatial way.

Some foreseeable challenges include social factors such as achieving consensus, maintaining long-term stakeholder commitment, and overcoming psychological barriers to adaptation over time. Effective monitoring and evaluation of New Town processes and urban form can reduce uncertainties by providing decision makers and researchers with a better understanding of urban processes, however, monitoring and evaluation can also be difficult in regions with extremely limited financial capacity or fragile institutional contexts. Furthermore, implementation of the principles requires a committed, long-term approach during which effective monitoring must be undertaken to allow decision-makers to make informed choices. As Kato and Ahern have argued with regard to adaptive planning, both an integrated, transdisciplinary approach and full transparency in the planning process are needed to achieve long-term results (2008). However, truly transdisciplinary approaches are not yet well understood or practiced (Tress and Tress, 2011).

In this field, the gap between theory and practice (knowledge and implementation) still needs attention. Future research directions could include the development of quantitative indicators as a tool to operationalize the principles. Further research should also address issues of transferability and specificity in more detail. The principles are designed to enable a flexible framework to support local conditions and local practices. The process of adapting the principles to individual local conditions should therefore be explored by testing their application at individual New Town sites. In September 2019, this was done during a workshop with relevant stakeholders in Mahonda, Zanzibar where the Department of Urban and Rural Planning has a mandate to develop a New Town (see section 6.4.3). Further exploration of the implications of application of the principles to both existing and future New Towns can clarify at which moments in the planning process they are

most effective. The next stage of this study therefore aims to connect research to practice by addressing implementation of principles, thereby generating actionable insights that can be used by decision-makers in the near future.

4.7 Conclusion

There is a need for alternatives to the current New Town planning paradigm in Africa. This is illustrated through academic critique of traditional master planning as well as an overview of spatial challenges facing contemporary African New Towns. As Marcinkowski writes, “The urgent challenge facing urbanization on the African continent relates less to the models being emulated than to the particularities and appropriateness of the urban formats being employed; the processes by which this urbanization is undertaken; and the capacity of planning and design to conceptualize models of urbanization that actively adjust the disposition of these pursuits in response to changing demographic, economic, political and environmental demands faced over the extended timescale of a project’s deployment” (2017).

One way to address long-term planning is to use principles to guide the planning process. Used by UN-Habitat and SOM, among others, planning principles are an accepted model for structuring development while leaving room for flexibility and specificity. In this chapter we argue that adaptive planning principles can potentially contribute to more inclusive, ecologically-conscious New Town planning in diverse African contexts. Application of the principles, however, must take local cultural practices, politics, managerial capacities, ecologies, and power differentials into account. The principles are should also be considered interactive and should be addressed repeatedly over time as New Towns evolve and develop.

Our aim is that these planning principles can illuminate an alternative way forward for planners and decision-makers faced with the daunting challenge of building a city from scratch. They emphasize the need to understand planning as an ongoing process without end. Taken collectively, the principles also embody a marked shift from current approaches to planning New Towns on the African continent. Rather than elitism and (spatial) segregation, they value collaboration and diversity. As every planner knows, reality always works differently than plans, and this is perhaps especially true in places where institutions can be fragile and land ownership issues are layered and complex. By acknowledging this discrepancy upfront, these principles can support New Town planning that actively responds to changing local conditions.



5 Applying Adaptive Planning Principles to Three African New Town Cases

The case studies included in this chapter were previously published as:

Keeton, R. (2019) "Sheikh Zayed City, Egypt" In: Keeton, R. and Provoost, M., eds. (2019) To Build a City in Africa: A History and a Manual. Rotterdam: INTI and Nai010 Publishers. 397-321.

Keeton, R. (2019) "Kilamba, Angola" In: Keeton, R. and Provoost, M., eds. (2019) To Build a City in Africa: A History and a Manual. Rotterdam: INTI and Nai010 Publishers. 329-353.

Keeton, R. (2019) "BuraNEST, Ethiopia" In: Keeton, R. and Provoost, M., eds. (2019) To Build a City in Africa: A History and a Manual. Rotterdam: INTI and Nai010 Publishers. 363-387.

5.1 Introduction

This chapter compares three contemporary New Towns in Africa through the lens of the adaptive planning principles introduced in Chapter 4. The comparison evaluates the applicability of the planning principles to individual cases. By examining three geographically, historically, and culturally divergent examples through the proposed principles, this chapter aims to establish the degree to which these principles may be applied, as well as to determine whether there is a need for more context-specific elaboration of individual principles.

As it is impossible to fully research all contemporary New Towns in Africa, the New Towns taken as case studies in this research reflect both the specificities of this urban form (planned on previously unbuilt land, semi-autonomous, with a close relationship to a mother city, and unrepresentative demographics), as well as the

diversity of New Towns across the continent. The case studies are chosen because they exhibit traditional New Town characteristics as well as the colonial, topographic, vernacular and climatic variability of the continent. The research therefore takes the entire continent of Africa into account in order to illustrate the applicability of the resulting planning principles across a varied group of New Towns.

The results of this application show that these planning principles may be applied to New Towns in Africa regardless of geographic, historical, or cultural variables. This chapter also establishes that further context-specific elaboration could be useful to planners and decision-makers. The chapter concludes by determining that further research is needed to test the application of these principles at the site selection phase of a New Town planning project, to determine their strengths and weaknesses as a planning tool, rather than an evaluation tool.

5.1.1 **'Contemporary' case studies**

The three case studies discussed in this chapter date from 1995 (Sheikh Zayed City, Egypt), 2007 (Buranest, Ethiopia) and 2008 (Kilamba, Angola). These case studies were partially selected because they were initiated after neoliberal economic policies gained precedence across the African continent, but old enough to be (partially) inhabited. Since the 1990s, African countries have seen an almost universal shift towards privatization and an opening up to global markets. This shift is also visible with regard to New Towns. After a stagnant phase of almost no New Town development in the 1980s and early 1990s, connected to failed structural adjustment programs, New Towns have become both increasingly common and increasingly initiated by private developers (Keeton and Provoost, 2019). In some cases, national governments appear to be handing off the housing crisis to private developers. This contemporary condition is fundamentally different to the African socialism that was popularized during the 1950s and 1960s, and contributed to state-led national capitals and New Towns focused on economic growth through industrialization.

5.1.2 **Testing the applicability of the principles**

This research contributes to the development and refinement of a set of adaptive planning principles for African New Towns. By testing their validity for individual cases, this research aims to contribute to their efficacy as planning tools.

The purpose of this chapter is therefore to test the applicability of the adaptive planning principles established in Chapter 3 using three descriptive case studies. By evaluating three divergent cases against the proposed principles, this chapter aims to establish whether general planning principles for African New Towns can be effectively applied to individual cases, or whether the proposed principles require further elaboration related to specific social and physical contexts. This chapter therefore aims to answer two questions: (1) *How and to what extent can general adaptive planning principles be applied in all African New Towns?* And (2) *To what extent should specific adaptive planning principles be developed for each case, related to the specific social and physical context?*

5.2 Methodological approach

A multiple-case study strategy is used to address contemporary phenomena. The case studies are built from a mix of qualitative and quantitative evidence and follow a replication logic, in the sense that the same set of principles is applied to each case study. The case studies have been selected so that the application will produce contrasting results for predictable reasons, or what Yin has termed, “theoretical replication” (Yin, 1984: 46). This chapter uses replication logic, as opposed to sampling logic, which would imply that the case studies are representatives of the larger group. That assumption is not made here. Rather, the high degree of complexity and variability among the contemporary New Towns identified in Chapter 1 is emphasized.

5.2.1 Methods

A literature review was employed to gain an overview of the case studies through media in the forms of local (online) newspapers, developers’ and project websites, national planning policies, and relevant academic literature.

The fieldwork for the case studies was conducted during the period between December 2015 – November 2017. Following a remote stakeholder analysis, semi-structured interviews were conducted with relevant stakeholders including national and local politicians, urban planners, architects, (future) residents, academics,

construction workers, developers, and technical experts. In Angola and Egypt interviews were simultaneously translated by UN-Habitat representatives Thomaz Romahlo and Anas Aladdin, respectively. Romahlo and Aladdin were also instrumental in securing many of the top-level interviews (see Appendix A). In Ethiopia, NESTtown planner Bizuayehu Jembere simultaneously translated the interviews.

Based on the results of preliminary interviews, additional interviews were conducted with stakeholders who were identified as relevant to the projects. Observation of both the case studies in question and their ‘mother’ cities was used to understand the spatial implications of their designs and the ways residents use space in each New Town. This was further developed through photography.

5.2.2 Case Study Selection

This research begins with an analysis of the phenomenon of contemporary African New Towns. To do so, it employs data on 146 African New Towns planned since 1990 (collected in collaboration with the International New Town Institute and UN-Habitat). Cartographic analysis was used to compare these New Towns with specific variables: current urbanization patterns throughout the African continent as represented by population density, Köppen classification climate zones, soil types, colonial areas of occupation, and vernacular studies. These maps were then overlaid in order to visualize the diversity of conditions (both social and environmental) that inform current urbanization patterns—including New Towns.

From the original pool of one hundred and forty-six, eight New Towns were investigated further, through literature review and fieldwork. The eight New Towns included two older New Towns as representatives of planning practice during the early independence era: 10th of Ramadan, Egypt and Tema, Ghana. The remaining six New Towns were: Tatu City, Kenya; Konza City, Kenya; Ville Verte Mohammed IV, Morocco; Sheikh Zayed City, Egypt; Buranest, Ethiopia, and Kilamba, Angola. Due to the need to validate remotely-sourced data on this topic, and to evaluate which New Towns would be most suitable to case study investigations, preliminary fieldwork was conducted in all eight New Towns.

Based on the literature review and fieldwork results (including ethnographic research methods including semi-structured interviews with New Town residents, local and national level politicians, planners, developers, academics, and urban managers (see Fieldwork Interviews) as well as observation and field notes), three case studies were further investigated. These were: Sheikh Zayed City, Egypt; Kilamba, Angola, and Buranest, Ethiopia.

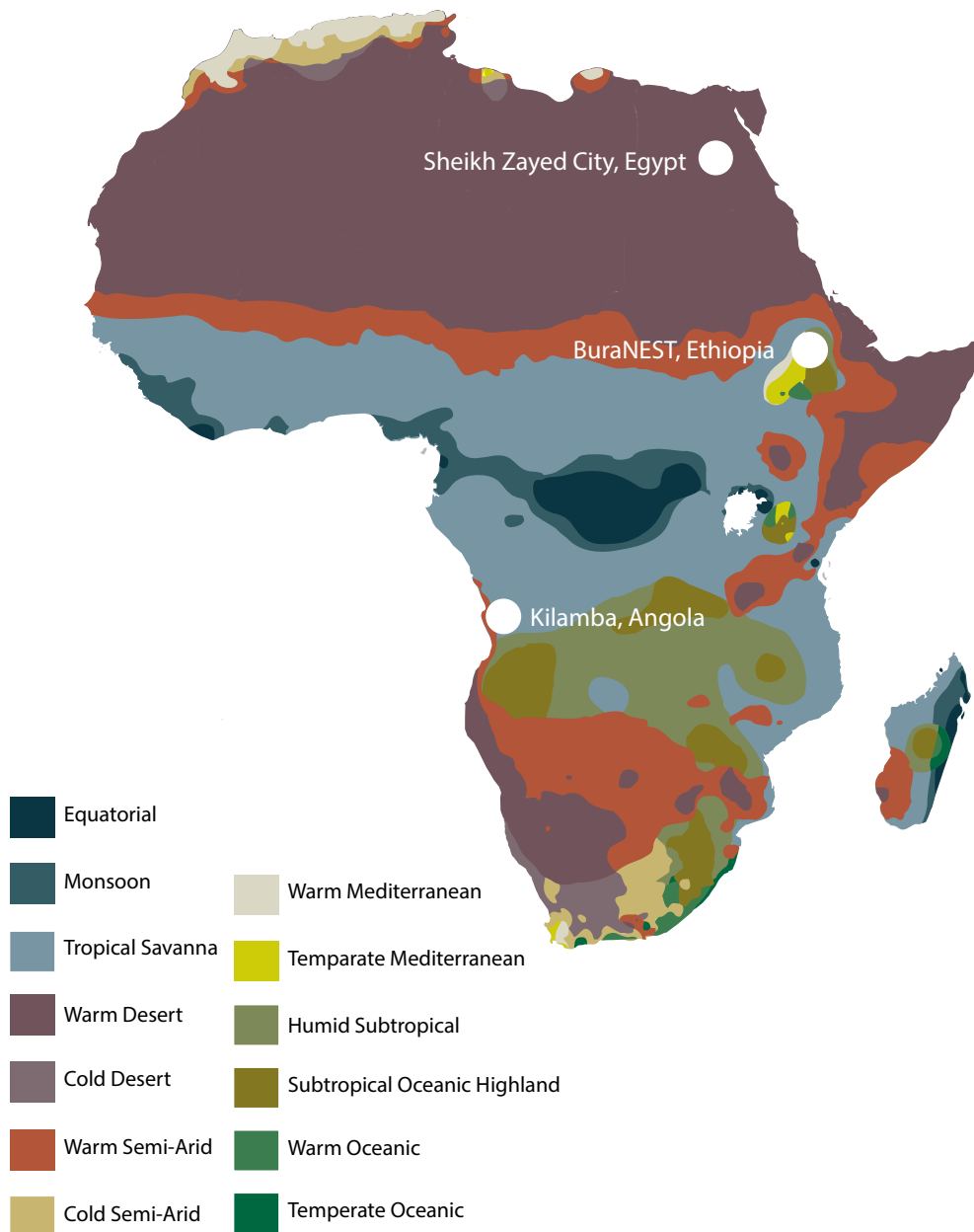


FIG. 5.1 Case studies across climate zones

The three case studies are located across the African continent, in three different climate zones. Source: Author, after: M. C. Peel, B. L. Finlayson, T. A. McMahon (2007) Updated world map of the Köppen-Geiger climate classification. *Hydrology and Earth System Sciences Discussions*, European Geosciences Union, 11(5): 1633-1644.

These case studies were chosen because they represent the great diversity of compositions of variables identified in the first phase of research: population size, Köppen classification climate zones, topographic conditions, colonial areas of occupation, and vernacular typologies. Other factors contributing to this selection included: their geographic locations, their phase of development (i.e. they are (partially) constructed and inhabited rather than simply planned) and their diversity in terms of urban models, resident demographics, planning processes, and sensitivity to environmental issues.

The three examples were thus chosen to display the breadth of variation among contemporary New Towns in Africa. Sheikh Zayed City, Kilamba, and BuraNEST are selected from geographically diverse locations (Egypt, Angola, and Ethiopia, respectively), situated in diverse climatic conditions (hot desert, hot semi-arid, and sub-tropical highlands), and designed through dissimilar planning processes (national state-led development, international public-private development, and international private development with regional support). The examples discussed in this chapter vary substantially in size (49km², 8.8km², 2km²), population (233,000, 100,000 and 6,000), and planning models (curvilinear 'loops and lollipops', orthogonal grid, and a linear organization).

Additionally, Egypt, Angola and Ethiopia each have specificities of history, culture, governance and planning practice that inform local city-making practices, as elaborated in the following sections. These differences of size, place, and people allow us to test the application of the adaptive planning principles across a range of variables. For example, Sheikh Zayed City, Egypt, was initiated and planned by the New Urban Communities Authority (NUCA), which is the New Town development arm of the Egyptian Ministry of Housing, Utilities and Urban Development. It is located west of Cairo in a hot desert climate (BWh) in Northeast Africa. Kilamba, Angola, was designed and built by CITIC (a Chinese state-owned investment company), and is located in a hot, semi-arid climate (BSh) in Southwest Africa. BuraNEST, Ethiopia, is a project painstakingly initiated and planned by a small team of Ethiopian and Swiss designers, and is located in a sub-tropical highland climate (Cwb) in the Horn of Africa. In the following three sections, each case study is elaborated in depth.

5.3 Sheikh Zayed City case study

5.3.1 Background to the New Town development

Egypt is a large country with its population crowded into the thin slice of inhabitable land along the Nile River. Located at the Northeast corner of the African continent, Egypt is also a geographical and social link between Northern Africa and the Middle East. Sheikh Zayed City, a New Town 38 kilometers west of downtown Cairo, is a manifestation of this linkage. Named for Zayed bin Sultan Al Nahyan (1918-2004), emir of Abu Dhabi and president of the United Arab Emirates, the New Town was financed primarily by the Abu Dhabi Fund for Development (ADFD) at Sheikh Zayed's directive.²⁴ In 1994, this foreign grant came at a moment when the entire Egyptian New Town program was shifting from a focus on social housing and industry to a new model based primarily on private sub-development. Sheikh Zayed City, like all Egyptian New Towns, was established under the management of the New Urban Communities Authority (NUCA). NUCA, a branch of the Ministry of Housing, Utilities, and Urban Development, is responsible for site selection, all related infrastructure, construction of public housing and services, and land sales in the New Towns.²⁵

While 10th of Ramadan is considered part of Egypt's first generation of New Towns (1977 – 1982), Sheikh Zayed is part of the second generation. The generational divide refers to substantial changes in NUCA's approach to New Town construction. As discussed elsewhere in this book, the first generation of New Towns were seen as a means of decentralizing urban amenities and redistributing Cairo's booming population. The first New Towns were state projects with subsidized housing and diverse facilities, including large industrial zones and attractive economic policies.

²⁴ The ADFD financed the 735 million AED (200 million USD) project at the personal behest of Sheikh Zayed. Another Sheikh Zayed City was funded by the ADFD and constructed in Palestine in 1999. A third planned city, Zayed Town, Bahrain (2001), was also financed by, and named in honor of Zayed bin Sultan Al Nahyan.

²⁵ Egyptian New Towns (also known as 'new communities'), fall under the control of NUCA and are administered by local development authorities (*jihaz tanmiya*). They are the exception to the rule. All other existing cities are managed by the Ministry of Local Development and Governors. The asserted aim is that New Towns should be moved into the remit of the Ministry of Local Development and Governors after reaching maturity, and thereafter be treated as any 'normal' city or town. As of writing, not a single New Town has yet moved out from under NUCA's management (World Bank, 2008: 55).

growing demand for the perceived security of gated communities and compounds. As Rana Almatarneh, Assistant Professor of Architecture at Ahliyya Amman University, writes: 'gated communities appeared [in Egypt] in the 1980s as a consequence of socio-cultural and economic restructuring... Gated housing communities have increasingly become a profitable segment in the real estate market and also provide a new marketing angle for developers offering security, status/privilege, and lifestyle (Almatarneh, 2013). Sheikh Zayed City became one of the first New Towns in which gated compounds were built.

Against the changing economic backdrop, a new Minister of New Communities was appointed: Mohamed Ibrahim Suleiman. In contrast to his predecessor, Suleiman applied a markedly capitalist approach to his management of NUCA.²⁶ This change in leadership had immediate consequences for the next generation of New Towns. Established in 1995, Sheikh Zayed City was one of the first to be impacted by the changed policies. Although it was originally planned to be a mixed-income city, Sheikh Zayed City quickly transformed as NUCA discovered the profit-making potential of land sales to private developers. Sheikh Zayed City therefore represents a major shift in Egyptian New Town development, with private developers replacing individual buyers as primary investors. As a result, what was intended to be a real reflection of Egyptian society has instead become synonymous with an aspirational lifestyle of brand consciousness.

Following the second generation, the third generation of New Towns (2000 – 2018) reflected a renewed commitment to satellite cities, located from at distances ranging from 2 - 18 km from existing cities. On 10 September 2018, Prime Minister Mostafa Madbouly announced that the Ministry of Housing and Urban Development, which oversees NUCA, will construct 20 additional New Towns.²⁷ Collectively, the 20 new cities should house 30 million residents and will be spread throughout Egypt. In short, the New Town building boom does not show signs of stopping. What is unclear is whether this fourth generation will maintain the practices that have led to extreme levels of spatial segregation as evidenced by Sheikh Zayed City, or whether they will learn from the experiences of four decades of New Town construction in Egypt.

²⁶ Suleiman was found guilty of 'squandering public funds' by selling state-owned land in New Towns for below-market prices in 2012. After first successfully appealing a five-year sentence in 2015, Suleiman was sentenced to three years in jail in September 2015.

²⁷ The newly-announced New Towns include the New Administrative Capital, which is planned for 6.5 million residents, as well as an extension to Sheikh Zayed City, although details are scarce (Egypt Today staff, 2018).

5.3.2 Current challenges in Sheikh Zayed City

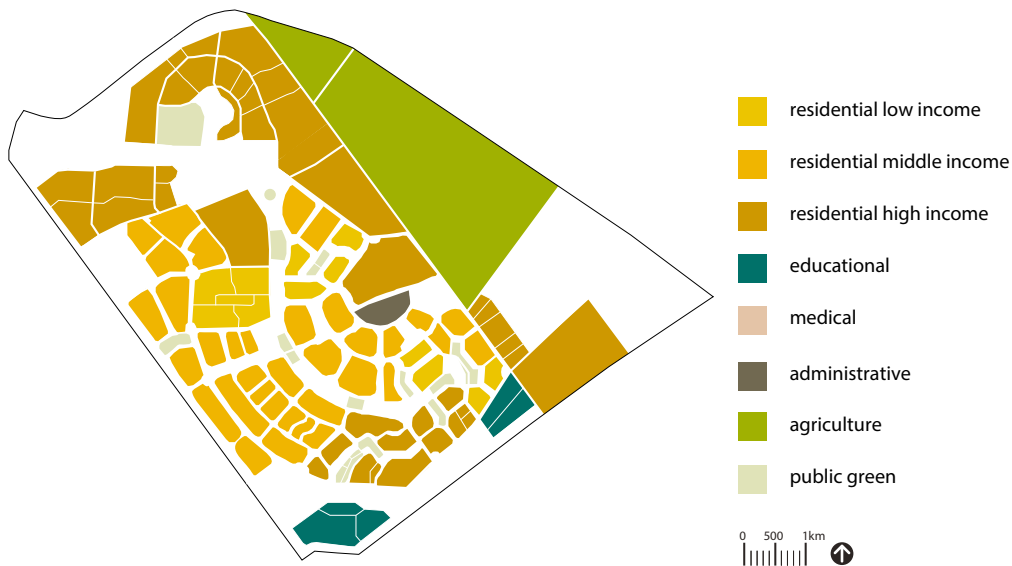


FIG. 5.3 Sheikh Zayed City, Egypt

The master plan of Sheikh Zayed City shows the New Town's residential focus. According to Metwally and Abdalla, 71% of residents live in gated communities in luxury properties unavailable to average Egyptians (2011). Source: Author / INTI, 2019

In 1996, as construction at Sheikh Zayed City was underway, President Hosni Mubarak addressed Parliament and declared firmly, 'Leaving the narrow (Nile) valley and fanning out, in a planned and organized manner, throughout the country, has become an unavoidable necessity. In view of these facts, the conquest of the desert is no longer a slogan or dream but a necessity dictated by the spiraling population growth. What is required is not a token exodus into the desert but a complete reconsideration of the distribution of population throughout the country (World Bank 2008).'²⁸ This announcement cemented the future of the New Town program, and clarified its aims. The New Towns around Cairo would act like magnets: pulling residents from the crowded capital and keeping them firmly rooted in the new urban cores with attractive landscaping, abundant space, and a coherent narrative. Only, it hasn't quite worked out that way.

²⁸ Originally reported in *Al Ahrām Weekly*, 14-20 November 1997. P. 2.

The most common critique of Egyptian New Towns, as echoed in both popular media and academic literature, and acknowledged by the Ministry of Housing, is that they have not succeeded in attracting sufficient residents; their intended function as tools to decentralize the capital city has therefore not yet been achieved. In the case of Sheikh Zayed, NUCA reports that the current population is 330,000 inhabitants, while the target is 675,000 (NUCA, 2018).²⁹

Authors Rick Hagazy and Wael Moustafa usefully summarize other common critiques (Hegazym and Moustafa, 2013). Two challenges apply specifically to Sheikh Zayed City. The first is: 'New Towns have been developed through typical processes, with little consideration of location dynamics, target beneficiaries, the economic underpinning of New Towns, and effective market incentives.'³⁰ In the case of Sheikh Zayed City, the critique can be further broken down into two acute shortcomings: 1) a failure to maintain the original goal of the project as a tool to redistribute accessible housing and thereby decentralize Cairo, and 2) a mismatch between housing, employment, and service provision within the New Town.

Simply put, the majority of housing in Sheikh Zayed is too expensive for most Egyptians. The government acknowledges this problem and has made various attempts to rectify the situation in recent years, including investment benefits for private developers to encourage development of affordable housing. However, 'the private sector's cheapest housing unit stands at \$13,946, which outweighs the actual purchasing power of lower income groups; therefore developers do not supply homes to this income group and rather target high-end buyers' (Khaled, 2018). Luxury housing accommodates 71 percent of the city's residents while low-income housing accounts for 15 percent (Metwally and Abdalla, 2014).

²⁹ Notably, the Egyptian Central Agency for Public Mobilization and Statistics (CAPMAS) reports very different numbers: just 90,997 residents in Sheikh Zayed City according to the 2017 census. Data from Central Agency for Public Mobilization and Statistics (CAPMAS), Egypt. Online: Thomas Brinkhoff: City Population, <http://www.citypopulation.de>.

³⁰ The other challenges listed by Hegazym and Moustafa are: (2) 'Creating new towns is an expensive endeavour, since all basic infrastructures must be provided from scratch. (3) The new towns over-rely on governmental investments, and their continued development will require even greater budgetary commitments. (4) In some cases proper soil and other studies were not undertaken, and designated lands could not be developed... (5) Although the new communities law envisioned the eventual handing over of new towns to the respective local government authorities, this has not occurred, because either (1) local authorities are perceived as not having the management capacities to maintain the high standards of the new towns, or (2) because local authorities cannot assume the service debts and liabilities associated with these new towns. (7) Many new towns, especially those with industrial areas, are experiencing severe environmental problems. (8) Despite various studies conducted to inform the choice of the new locations, there remains a lack of clarity about the constraints, potentials, and opportunities of the environmental and physical characteristics of the selected sites...' (Hegazym and Moustafa, 2013: 14).

The mismatch between housing, employment, and service provision stems from the fact that almost all employment in the New Town targets formal employees with high levels of education. Residents of gated compounds have access to internal shops, clinics and other amenities, as well as the upscale *plazas* (outdoor shopping malls), accessible only by car. Low-income housing residents must rely on limited public transport options to reach more affordable options in nearby 6th of October or downtown Cairo. The gaping divide between these two groups of residents was most recently illustrated by demonstrations outside of the NUCA-office in Sheikh Zayed in October 2016. Assmaa Abdel Fattah, a protesting resident, was quoted as saying: ‘Our demands are quite normal; we wish to live in an integrated city with full services. Most of us are waiting for services such as shops, pharmacies, and schools to serve the population who’ve just moved to this rather remote area’ (Al-Aees, 2016).



FIG. 5.4 Economic housing in Sheikh Zayed City, Egypt
Public housing and Economic housing areas do not offer a sufficient mix of urban amenities and facilities, forcing residents to travel longer distances to access urban services. Source: Author, 2016

The second challenge pointed out by Hagazi and Mustafa is that, ‘Many private sector developers hurried to develop up-market sites without regard for market demand, leading many schemes to fail’ (Hegazym and Moustafa, 2013: 14).

This applies to Sheikh Zayed's later phases and the numerous gated compounds that now characterize the New Town. Although some of these compounds are considered the most attractive areas to live in the Greater Cairo Region, there are also many villas in states of dilapidation or unfinished construction. In Egypt, it is common practice for developers to self-finance the first stages of residential construction, giving buyers a physical frame to see and touch before they buy. However, layers of graffiti, security guards employed to live on-site and protect inactive construction sites, and other indicators suggest that many of these stately homes have remained uninhabited for years. This implies a further complication, that not only do private developers lean towards expensive enclave development without full consideration of the market, but that individual buyers also purchase housing in these areas as a speculative investment rather than to meet their immediate housing needs; a state of affairs that has contributed to Egypt's ongoing housing deficit. What remains unclear, due to a lack of reliable data, is the extent to which the uninhabited houses are bought for speculation (and thus an economic success story for developers, despite high vacancy rates), or whether developers are losing money on these large-scale projects.

5.3.3 Egyptian housing crisis then and now

In 1995, Egypt was in the middle of a deep housing crisis that began around 1981. During this time, *ashwa'yat* (informal settlements) in Cairo grew as public housing projects were moved to the New Towns.³¹ The multiplication of *ashwa'yat* within Cairo was a response to the government's lack of understanding of conditions necessary to support low income communities. In general, the urban poor resisted moving to the remote New Towns, preferring the advantages of existing social networks, geographic proximity to employment, and 'the strength of private redistribution systems' (Abouelmagd, Kesteloot and Corijn, 2013).

In the early 1980s, economic policies introduced by President Anwar Sadat opened real estate to private developers, but those same developers primarily focused on construction of luxury dwellings, which were more profitable. At the same time, Egyptian agricultural production faced new international competition as a result

³¹ In Egypt, the quality of life in different *ashwa'yat* ranges across a broad spectrum from the vulnerable position of families without access to services, schools, or a social safety net to stable, working class families and professionals living in apartments that simply happen to have been built without permission. Both are considered *ashwa'yat*, or slums and both are considered by the government to be undesirable.

of the open markets, which caused massive rural-to-urban migration as farming families moved to large cities in search of more stable income.³² That influx exacerbated the existing housing crisis and the state's response was an attempt to meet housing demand by offering public housing projects in New Towns such as the Mubarak Youth Housing Program (MYHP), which is discussed later in this chapter. The housing crisis was further aggravated by the disconnect between rising housing prices and stable wages – a disconnect that continues today. Between President Sadat's death in 1981 and 1994 the price of a square meter of land tripled, with incomes remaining nearly steady.³³

In 1992, Egypt experienced an earthquake that left 50,000 Cairenes homeless and more than 500 dead. Experts pointed to poor construction as the main cause of the widespread destruction (El-Sayed, Arvidsson & Kulhánek, 1998). That disaster may also have stoked middle-class disillusionment with the congested capital city. As a result, Cairenes with money began looking elsewhere for real estate investments. Private developers noted the shifting preferences. As the housing crisis simmered, new land legislation permitted the Egyptian state to transfer desert land to private ownership for the first time. As Petra Kuppinger writes: 'In the fast scramble for land that followed in the 1990s, developers secured considerable stretches of prime real estate at relative proximity to Cairo' (Kuppinger, 2004).

The plan for Sheikh Zayed thus came at a time when new neoliberal policies were clashing with a public outcry for subsidized housing. By 1996, NUCA was well aware of the urgent need for affordable housing in the Greater Cairo Region. The initial design for Sheikh Zayed was therefore intended to accommodate low- and middle-income families and included several (subsidized) public housing projects (Metwally and Abdalla, 2014). However, the plans were altered over time for the benefit of upper-middle and elite groups.

The housing crisis led to the current situation in which there is no affordable housing available in Cairo for the average citizen to rent (Ibrahim and Ibrahim, 2003). As a result, unregulated housing continues to multiply, and every available space is appropriated for residential use. Flat roofs become occupied, basement spaces

³² In general, Egypt has much lower rates of rural-urban migration than other African countries. However, this moment in time saw uncharacteristically high migration as a result of the introduction of international agricultural products into the Egyptian market.

³³ 'The price of a square meter of land [rose] from LE 99 [5.60 USD] to between LE 250 and LE 300 for the lowest-priced units, with the typical rise in wages not matching these inflated rates' (Fahmi and Sutton, 2008).

are transformed into housing and young couples or families crowd into parents' homes. Meanwhile, in an ironic twist, housing in Sheikh Zayed City sits unfinished and uninhabited.



FIG. 5.5 Unfinished construction in Sheikh Zayed City, Egypt

It is common to see villas sitting empty in Sheikh Zayed City. Many homeowners leave their properties unfinished for long periods, acting as investments for children or grandchildren. Developers may also leave properties unfinished to attract buyers who then complete construction according to their own taste. Source: Author, 2016.

In addition to the unavailability of adequate housing, there are also difficulties in terms of accessing home financing loans. As in other parts of the continent, the Egyptian real estate market is largely a cash market. Although mortgages have been available since 2001, the mortgage system is inefficient and there is cultural resistance to long-term loans. Interest rates (currently around 14.5 percent) are seen as doubling the total cost of the investment over time. As a result, only 37 percent of the Egyptian population legally owns a home (HOFINET. 2016).



FIG. 5.6 Unregulated housing in Cairo

An *ashwa'yat* grows along a raised highway through Cairo. Unlike informal communities in Sub-Saharan Africa, informal housing in Egypt is often multi-story and constructed with bricks and concrete. Although it looks quite stable, this type of building has become notorious for collapses and destructive fires. Source: Author, 2016

When compared with other African countries, that percentage may seem high, but in comparison to the rest of the world it is quite low: China, for example, has the highest home ownership rate in the world, at 90 percent (2014), while the European Union home ownership average is 66 percent (2016) (Trading Economics, 2018). What the numbers tell us is that the housing that is available in Egypt simply doesn't match the purchasing power of most Egyptians – or it becomes inaccessible because of formal bureaucratic requirements.³⁴

A recent estimate in the newspaper *Egypt Today* puts the current housing shortage at 3.5 million, while the number of Egyptians lacking adequate housing is estimated to be as high as 16 million. While there is a clear need for improved housing, the same article goes on to report that there are currently 5.6 million vacant dwelling

³⁴ Villas in Sheikh Zayed are currently priced around 13,850 EGP (774 USD) per meter. Apartments go for about half of that: 7,400 EGP (413 USD) per meter. See: <https://egypt.aqarmap.com/en/neighborhood/cairo/el-sheikh-zayed-city/>, retrieved on 15 January 2018. International conversion rate of 1 EGP = 0.0558499 USD valid on 8 October 2018.

units across the country. 'But', it concludes, 'these properties are beyond the purchasing power of low and middle-income classes' (Khaled, 2018). An official from the Egyptian Centre for Housing Rights (ECHR) neatly sums up the paradoxical housing crisis as, 'dwellers without dwellings and dwellings without dwellers' (Fahmi and Sutton, 2008).

5.3.4 Urban design and public space

As a visitor coming from Cairo, the first impression of Sheikh Zayed is one of absence: no urban cacophony, no pedestrians. The second impression is fragmentation. Walls painted in earthy tones seal off gated compounds and luxury plazas. Driving around, the city feels most like a collection of inaccessible islands rather than a coherent whole. Signs for international franchises like Starbucks, Baskin-Robbins, and Costa Coffee speak to the place's 'world class' aspirations. Billboards for new gated communities advertise variations on the themes of privacy, privilege, and exclusivity.³⁵ But getting a good feel for the New Town is difficult. Driving along well-maintained roads provides a view of the type of glassy office towers and mid-rise commercial areas one might expect to encounter anywhere in the world. But entering residential areas is confusing. Public housing areas exude an atmosphere of general neglect, while gated compounds present only a glimpse of greenery over the top of high-security fences. Residential roadsides are strewn with garbage, in contrast to the immaculate landscaping inside gated compounds. The differences in urban management between public space and private space are strikingly visible.

The built-up part of Sheikh Zayed City is shaped like a rhombus with four slightly irregular sides, each delineated by a main road. The 26th of July Corridor directly connects the southeast edge of the New Town with downtown Cairo. Along the southwest edge, Waslet Dashour Road divides Sheikh Zayed City from surrounding desert and the neighboring New Town of 6th of October.

³⁵ In her analysis of marketing materials from gated compounds in Egyptian New Towns, Almatarneh identifies a number of social factors that dominate the advertising texts: Some indicative phrases from the marketing material include: "You'll get to meet people who are wonderfully accommodating and friendly", "Meet new friends," "Old town spirit of friendliness," "People here tend to socialize together more," and "Community that gives you a strong sense of place". Certain real estate developers made explicit reference to homogeneity in the text of the marketing material. Phrases in the materials include "comfort of folks who are at the same place in life as you are", "meet others just like you", and "people of similar lifestyles" (Almatarneh, 2013: 569).



FIG. 5.7 Zayed 2000 in Sheikh Zayed City, Egypt

Inside the Zayed 2000 gated compound, carefully-tended landscaping creates a contrast with the barren ground in public spaces around the New Town. Gated communities are guarded and visitor access is only granted by permission of residents. Source: Author, 2016

A large, triangular tract of land along the northeast edge of the built-up area is protected agricultural land, where irrigated fields produce grapes, oranges, lettuce, artichokes, onions and strawberries. The agricultural land is organized by an orthogonal grid placed at 45 degrees. Most of the urban area is confined to a tilted rectangular area, although new developments have been creeping into both the agricultural and desert areas along the northeast border.

A curvilinear form organizing the urban plan looks like a fishhook dangling at 45 degrees off center within the rectangular area. This curved main axis informs the arrangement of 20 districts with rounded corners. Each district offers at least one mosque, market and service core, and is further divided into four neighborhoods. Districts are peppered with private, gated compounds of varying sizes where vigilant guards check identity cards before allowing access. Once inside, gated compounds are characterized by a mix of villas, mid-rise apartments, and row houses. Curving streets slow traffic. Compounds are well-irrigated, with green spaces, golf courses, and even artificial lakes. Most compounds are organized in radial or curvilinear compositions. Al Rabwa, one of the most luxurious compounds, features dead-end cul-de-sacs arranged around a golf course. Many of the villas have private pools.



FIG. 5.8 A New Town in progress
Open space awaits development in Sheikh Zayed City. Source: Author, 2016

Before any of these homes were here, the first phase of Sheikh Zayed City began with two areas, the first consisting of six districts, the second area of five districts. Together they were planned to house 250,000 residents, provide a 1000 ha. greenbelt, and industrial areas. In Phase Two (1998), the two areas were combined, and much of the greenbelt was replaced with housing, decreasing it in size to about 100 ha. Industry was moved to 6th of October's industrial area. Phase Three (2003) added a large tract of land south of the adjacent agricultural area, earmarked for exclusive housing development.

Two decades later, huge tracts of land are still unbuilt, awaiting development. Despite these wide open spaces, in practice, the public realm in Sheikh Zayed is limited to the main roads. At the entrances to open shopping plazas, armed guards turn away groups of street children, allowing access only to those who look like they 'belong' in these semi-private spaces for commerce, restaurants and international chain stores. Inside gated compounds, private community centers, health services and other amenities replace the need for mixed-use development at the neighborhood scale. In public housing areas, however, this creates a real lack of urban amenities.

One notable exception is the imposing Hyper One supermarket located at the turnoff to Sheikh Zayed City. Surrounded on three sides by a massive parking lot, the supermarket is more like an American Walmart or French Carrefour, offering not only groceries but also home goods, furniture, and even a play area for children. Hyper One has become such a focal point in Sheikh Zayed that the parking lot is now also used as an unofficial transportation hub. Buses, minibuses and shared taxis (*serfis*) continually collect and drop off riders at this informal gateway to the city. Located at the southeast corner of the New Town, the Hyper One parking lot is one of the few options for residents in need of public transportation; taxis don't drive into the New Town unless they are called in advance, and less formal transport options, such as the ubiquitous three-wheeled *tuktuks*, are regulated against.

Opened in 2005, ten years after construction began in Sheikh Zayed City, the Hyper One has become successful in part because it was the earliest commercial center in this relatively remote area. It continues to function as one of the primary locations in Sheikh Zayed, supported by the transportation streams, and an adjacent mosque, with a shared parking terrain. The mosque has extended Hyper One's popularity, enabling families or friends to connect Friday prayers to Friday shopping and socializing.

Many residents of the New Town experience Hyper One and the plazas as public space, but in reality, they are privately-owned enterprises, with accompanying rules and regulations. High-quality public space is difficult to find in Sheikh Zayed, but for most of the residents this doesn't seem to be much of an issue. Residents of gated compounds have access to amenities that sufficiently address their day-to-day needs. In general, it is only the residents of public housing that criticize the lack of services.

5.3.5 Public housing in Sheikh Zayed City

Private space that functions as 'public' space was not a part of the original plans for Sheikh Zayed City. NUCA originally built 9,938 public housing units in Sheikh Zayed, of which about half were intended for medium- and low-income groups and half classified as 'youth' or starter housing.³⁶ There was a clear intention to mix economic groups and target the lower end of the housing spectrum. Subsequent phases of

³⁶ Youth housing refers to a specific form of social housing designated for Egyptians meeting certain income requirements (i.e. a family's income must be less than 3000 EGP per month (337 USD)) (Fahmi, 2008).

development followed, and as NUCA began selling large pieces of land within Sheikh Zayed City, private developers quickly took the lead in housing construction. As of writing, the private sector has built 58,000 units (nearly all within the confines of gated communities), and continues to build more (NUCA, 2016). Many of the public housing apartments originally intended for low-income residents have since been privately upgraded, and now attract mostly upper middle-class residents.

Luxury residential housing with gardens covers 2,157 hectares, or 71 percent of the total residential areas, and is entirely built by private developers (Metwally and Abdalla, 2014: 5). NUCA is responsible for public housing in the New Town, and 587 hectares are occupied by 'middle and high middle classes' (mixed public and private), while 198 hectares are devoted to 'economic housing', and 97 hectares are indicated as 'youth housing' (both are considered public housing) (Metwally and Abdalla, 2014: 5).

'Economic housing', is instantly recognizable as five-story housing blocks with four apartments on each level, finished in cement plaster. Individual units range in size from 63m² to 79m² (Wahba, 2007: 23). Economic housing is provided with 'a very basic internal finish including cement floor tiles, coat-painted for walls, halfway ceramic tile walls for bathrooms and kitchens, mosaic tiles for kitchen and bathroom floors (Wahba, 2007: 23).'

'Youth housing' indicates public housing that is intended for people between the ages of 25 and 40. Youth housing units are generally of a better quality than economic housing and provided as turnkey residences. The Mubarak Youth Housing Program (MYHP) was started with the intention to provide more attractive housing options for young couples and families in lower income groups. The project was initiated by the Agency for Youth Housing in NUCA and ran between 1996 – 2004. In total, about 70,000 housing units were built as part of the MYHP, as well as infrastructure and parking lots. About 80 percent of the MYHP units were built in 15 different New Towns around Cairo (Wahba, 2007: 25).

In Sheikh Zayed City there are 5,199 MYHP dwelling units (each 70m²) with capacity for 16,400 inhabitants (Abouelmagd, Kesteloot and Corijn, 2013; Wahba, 2007: 26). The caveat that buyers must have formal employment precludes people earning their income from unregistered or informal employment from applying for this type of housing.

The MYHP units are relatively remote in an area with few job opportunities. Most residents continue to work in downtown Cairo or in 6th of October (Abouelmagd, Kesteloot and Corijn, 2013). Because of Sheikh Zayed's lack of public transport,

that usually requires a commute (partially) dependent on private transportation. Car ownership in this part of town is less prevalent than in gated communities.³⁷

The lack of sufficient urban amenities and facilities compounds the problem for many occupants of public housing. In Sheikh Zayed City, residents of the MYHP project 'have low access to the informal economy or having a second job. They still make part of their shopping in the consumption markets in their place of origin. In the redistribution sphere, there is a general problem of quality and shortage of educational and medical services' (Abouelmagd, Kesteloot and Corijn, 2013: 472).

MYHP was initiated as part of the government-subsidized housing program that preceded the National Housing Programme (NHP), which spanned 2005-2012. Although well-intentioned, it is now generally agreed that neither program succeeded in supplying accessible, affordable housing to the lowest income groups. USAID's 2008 Housing Study for Urban Egypt supplies a useful, if slightly outdated, reference for income groups. In this study, USAID identifies five quintiles, breaking urban Egyptians into five earning groups, each comprising roughly twenty percent of the total urban population (USAID, 2008). The first quintile is identified as 'extremely poor' and includes people earning up to 600 LE (34 USD) per month. The second quintile, identified as 'poor', includes urban residents earning between 600 and 800 LE (up to 45 USD) per month. The National Housing Project identified low-income groups as the target beneficiaries of the project, however, the housing that was constructed was financially accessible only to middle-income groups.³⁸ In fact, despite official insistence that the subsidized housing projects in Sheikh Zayed are intended for the poor, it is clear that the urban poor prefer to live in *ashwa'yat* that are more centrally located. This has to do with the inaccessibility (in terms of both housing and mobility) of New Towns in general and Sheikh Zayed City specifically. It also reflects the limited social networks in the New Towns, as opposed to the extended family and other support networks often present in informal housing

³⁷ CAPMAS reports 9.4 million registered cars in Egypt at the end of 2016. In 2016, the World Bank reported the population of Egypt as 95.69 million. That indicates a nationwide car ownership level of roughly ten percent, which may serve as an indication of the mobility challenges many lower-income residents in Sheikh Zayed City currently face. See: <http://english.ahram.org.eg/NewsContent/1/64/270451/Egypt/Politics/-/million-licensed-vehicles-in-Egypt-CAPMAS.aspx>, retrieved on 31 January 2018.

³⁸ As Yahia Shawkat writes: 'In effect, this meant the exclusion of the bottom 32 percent of earners (most of the second quintile and all of the first quintile) from all but 8 percent of the units of the implemented NHP. With this, the only affordable options were the *Awla bel-Re'aya* scheme... and the *Igar* family unit schemes... However, access to these units was limited as the *Awla bel-Re'aya* were small units of 42 m² and are not family units. Rather, they are intended for retired couples or widows who would normally be living off a very modest pension. The other *Igar* scheme units (an acceptable family size of 63 m²) were not available in all governorates and represented only 3 percent of the implemented NHP.' (Shawkat, 2014).

areas. As Abouelmagd et. al. conclude, ‘The location of the public housing projects in distant and poorly connected new cities, the selection of inhabitants according to political motives and the deterrence of informal networks and activities are the reasons why the informal settlements are preferable to the [public housing] projects in the eyes of the poor’ (Abouelmagd, Kesteloot and Corijn, 2013).

Eventually, the program was put to a stop. In their financial analysis of the MYHP, the World Bank concluded that the project had not met its objectives, stating: ‘Extensive direct and indirect subsidies reaching close to 75 percent of total development cost and the reliance on sale proceeds of land in new urban communities to partly finance the program are unsustainable and greatly reduce the ability to scale up’ (Abouelmagd, Kesteloot and Corijn, 2013). The authors point to the expensive infrastructure design needed to support the public housing as one major contributor to the project costs.³⁹ The MYHP housing in Sheikh Zayed has since taken on an entirely new life, with owners increasingly renting space to students of the Sheikh Zayed campus of Cairo University. Income from rent then supports life elsewhere for some of the original beneficiaries of the MYHP program, reinforcing a familiar cycle where housing intended for low-income groups moves into the hands of the middle class.

5.3.6 Gated communities in Sheikh Zayed City

Gated communities began to gain popularity in the United States in the 1970s in connection with ‘white flight’ or the retreat of middle-class white people from urban centers. This was driven largely by the social unrest and political conflict of the 1960s, when cities such as New York, Chicago, Los Angeles, Washington DC and Detroit became the backdrop for race riots and subsequent military interventions. The trend quickly spread throughout the world. Capitalizing on the fear of violence, developers offered gated communities and privatized ‘public’ spaces as a stable alternative to the unpredictability of the urban core. That same narrative of fear and security has since been used effectively in cities around the world, particularly those with high degrees of inequality such as São Paulo, Johannesburg, Jakarta, and Cairo,

³⁹ ‘One particular problem is that the planning and design standards for off- and on-site infrastructure delivery in these schemes tends to be high, especially in terms of road width, provisions for parking, etc. In addition, water and sanitation comprise 40% of the cost of off- and on-site service delivery. This is broken down as follows: the water supply network’s share of total cost is 5%, the share of the water purification station is 10%, that of the sewerage network is 8%, and the sewage treatment plant is 17%’ (World Bank, 2007: 24).

among others. Focusing on her work in São Paulo, Teresa Caldeira has even gone so far as to conclude that the dramatic increase in gated communities can be read as a threat to the very structure of democratic society (Caldeira, 2001).

But opinions vary. In public discourse and private conversations, the Egyptian New Towns, and Sheikh Zayed in particular, are continuously –and positively– presented as diametrically opposed to Cairo. Cairo is ‘dirty, overcrowded, unsafe, polluted’; Sheikh Zayed is ‘clean, quiet, well-organized, and safe’. The comparison is repeated to the point that it has become gospel for most residents of the New Town. One business manager (female, age 35) remarked on Sheikh Zayed’s superiority to Cairo, noting the well-maintained roads, cleanliness, ‘decent malls’, and, ‘good supermarkets’. ‘You feel free,’ she concluded: ‘There’s no smell. Cairo smells like pigs.’⁴⁰ A marketing manager (male, age 37) offered one explanation for his happiness in Sheikh Zayed: ‘Because you don’t see any shabby people.’⁴¹ Other residents noted the green spaces within Sheikh Zayed compounds, repeatedly contrasting this lushness with the dusty ‘chaos’ of Cairo.

Notably, many of those interviewed were satisfied with Sheikh Zayed City’s lack of public transport, indicating that the proposed metro connection to downtown would bring ‘the wrong kind of people’ to Sheikh Zayed City and remarking on nearby 6th of October’s ‘*tuktuk* (unregulated three-wheeled mini-taxis) problem’.⁴² The kind of blatant classism expressed here is further reflected in the widespread desire to live in areas of strong social cohesion and homogeneity (Beinin, 2009; Sabea, 2014; Joya, 2017). While academics and the New Urban Agenda talk about inclusivity as a necessity for good city-making, there is heavy resistance on the ground in Egypt and many other places. The question for planners becomes: how to integrate diverse groups who have no desire to live together?

Gated compounds first appeared in Egypt along the Mediterranean coast in the 1980s. These were quickly followed by gated compounds and (gated) resort communities along the Red Sea coastline, and the Sinai Peninsula. Rana Almatarneh argues that Egyptian gated compounds can be read as a return to traditional urban patterns of fragmented and socially homogenous spaces.

⁴⁰ Interviews have been anonymized at the request of the interviewees. Interview with the author December 2015.

⁴¹ Interview with the author December 2015.

⁴² One exception came from a Vodafone employee (female, age 24) who welcomed the idea of a metro connection to Cairo as ‘amazing’. All other interviewees, most of them residents of gated compounds, were universally opposed to the idea. Interview with the author December 2015.

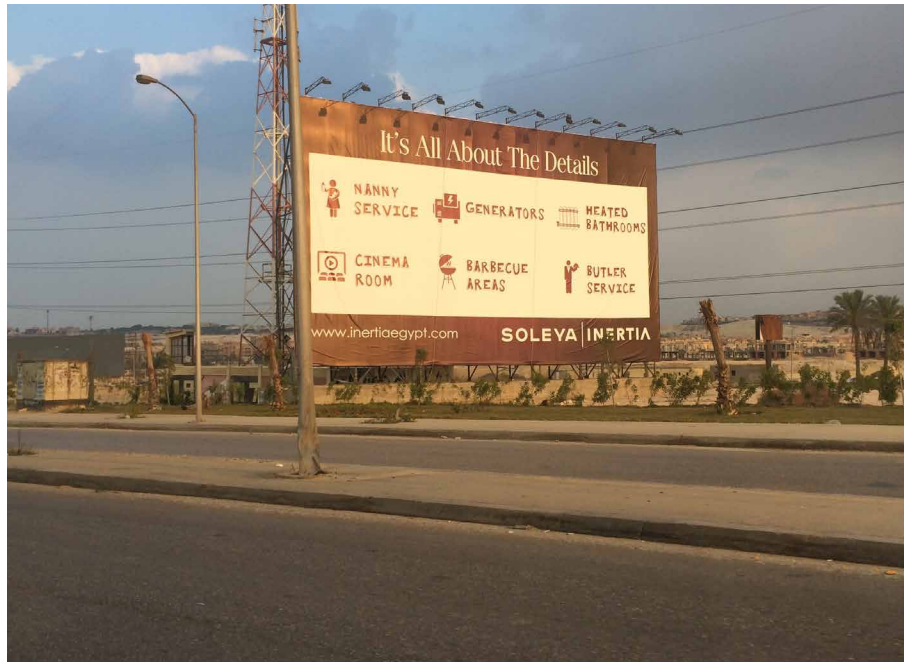


FIG. 5.9 Marketing the New Town

A billboard between the New Towns of Sheikh Zayed City and 6th of October advertises exclusive amenities in a new residential development. Source: Author, 2016

‘Moreover, the spatial seclusion of social groups in the cities of the Arab world is not a new phenomenon. Urban studies on pre-modern towns depict the socio-spatial and material fragmentation of urban patterns in small and distinct quarters as one of the most typical characteristics of Arab cities’ (Altmatarneh, 2013: 566). The author goes on to draw parallels between the sanctuary from the public realm that Arab houses and courtyards have traditionally evoked, and the enclosed collective space of the gated compound. ‘In contrast with [fortified] European cities of the Middle Ages, cities in the Arab world have seen many conflicts *intra muros*. Therefore, the residential quarters, which were often accessible through only a single gate that could easily be barred and defended, offered protection that the city’s central authorities did not always assure’ (Altmatarneh, 2013: 566).

Other authors, such as Dona Stewart and David Sims, have drawn connections between gated communities in the United States and gated compounds in Egypt, but these authors also insist on the specificity of the Egyptian gated compound as a particular response to a historical moment further specified by socio-cultural, geographic, political and economic contexts. Addressing the manner in which these

gated compounds are marketed, Petra Kuppinger points out that, ‘advertisements [for gated compounds in Egyptian New Towns] in obvious textual references and pictures, and subtle manners, using specific subtexts or locally available euphemisms, address specifically Cairene fears, concerns or demands’ (Kuppinger, 2004).

It is no coincidence, then, that NUCA has managed its New Towns with much stricter enforcement of regulations than Cairo or other Egyptian cities. Sheikh Zayed City does not allow for (architectural representations of) the informal economy such as kiosks, appropriative uses of public space, commercial uses of residential space, or privately managed transport options (such as minibuses or *tuktuks*). Instead, the New Town adamantly forces informal processes to the unregulated edges.

In contrast to the vibrancy of downtown Cairo, the lack of these urban actors gives the New Town a somewhat sterile aspect that most inhabitants seem to appreciate. Residential streets are quiet and empty. No one walks in Sheikh Zayed, as distances are far and walking would imply that one cannot afford a car. A male resident (22) of the Zayed 2000 compound recalls his parents’ reasons for moving there in the 1990s: ‘They liked that it was a quiet place, outside of the city. We could have a bigger house there, so that was better for us. We already knew that our lives would still be in Cairo; all our activities would be in Cairo. Even after twelve years, there is no interaction with our neighbors, there’s no social activity inside the gated community.’⁴³

Gated compounds function as semi-autonomous areas, with private security, special regulations and rules enforced by the managing authority. The more than fifty compounds in Sheikh Zayed City vary in terms of their relative luxuriousness, but all of them are of course out of range for the average Egyptian (Daily News Egypt, 2014). One of the original compounds, Al-Rabwa offers the most complete list of amenities, including a school, shopping mall, mosque, golf course and club, medical services and 24-hour security. The compound includes 970 villas, designed according to 12 different plans, ranging in size from 220 to 637m², encircled by a 10m wide horse track (Al-Rabwa, 2016).

Claims of increased security are often one of the major selling points for gated compounds, alongside implicit or explicit references to ‘world class lifestyles’ and the suggestion of demographic homogeneity. In an effort to better articulate the pull factors used in advertisements for gated compounds in the Greater Cairo Region,

⁴³ Interview by the author December 2015.

Almatarneh identifies a number of references that are repeatedly used in marketing materials for gated compounds around Cairo. She breaks these down into their prevalence among affordable, moderate, and high-end gated compounds, but across the board there is repeated reference to five distinguishable factors: friends, sense of community, community activities, meeting places, and homogeneity. All terms related to these concepts are used more frequently in the high-end gated compounds. As Almatarneh states: ‘Certain real estate developers made explicit reference to homogeneity in the text of the marketing material. Phrases in the materials include, “comfort of folks who are at the same place in life as you are”, “meet others just like you”, and “people of similar lifestyle”’ (Almatarneh, 2013: 569).

5.3.7 Speculative city

Sheikh Zayed City is a result of the combination of both global and distinctly Cairene influences. At the global scale, we can trace the trend towards gated communities as a popular (upper) middle-class housing solution that began in the United States and became popular in Egyptian resorts in the 1980s before finding its way into New Towns in the 1990s. We can also connect the spread of neoliberal policy that characterized many countries in the early 1990s to the simultaneous deregulation of land policy in Egypt. The proliferation of private developers at the end of the twentieth century was in response to this new market for large-scale development and the state’s offer of cheap land in New Towns such as Sheikh Zayed City. The resulting construction boom eventually overtook NUCA’s original plans for a mixed-income development, with the result that Sheikh Zayed is now predominantly a city of gated communities targeting the elite.

While it may be a natural instinct to want to live in an area surrounded by peers, gated compounds remain physically isolated spaces, creating inaccessible enclaves within a city. In Sheikh Zayed, three-quarters of the city are walled-off. So-called ‘public spaces’ are in actuality private spaces. In effect, this creates two very different spatial experiences for two groups of residents: the wealthy and the poor. A resident of a gated community enjoys access to medical, social, recreational, and commercial facilities within the compound, as well as access to a private car, and unchallenged access to shopping plazas. A resident of a public housing project does not have comparable amenities in their immediate environment, may have only limited access to a car, and may be unable or unwilling to pay higher prices for goods offered in international chain stores. As a result, a resident with less spending power may travel longer in a less efficient manner in order to purchase goods and services.

This disavowal of lower income groups and the services they require may eventually backfire. According to the World Bank, 'Land use regulations, zoning, and building regulations are some of the most valuable tools for governments to guide development and promote liveability. Yet certain interventions in urban land markets can negatively affect affordability and access to serviced land if they are not benchmarked against what the local population can afford to pay. Evidence from around the world indicates that inappropriate minimum standards actually increase informal development, even on formally titled land' (World Bank, 2017: 119).

The Egyptian government must do more to address the gap between supply and demand that created and prolongs the current housing crisis. An over-abundance of housing for high-income groups sits empty while low-income groups are forced to search for unregulated alternatives because the official housing supply aimed at this group is so inadequate. Even youth housing and other forms of public housing are inaccessible for the very poor and those reliant on informal economies. Because of Sheikh Zayed's lack of appropriate housing and strictly-enforced building regulations, the lowest income groups are forced to remain in rural communities or in Cairo's labyrinthine, *ashwa'yat*, where the basic amenities of water, electricity, safety and public services are insufficient.

Writing for *Cairo Observer*, a controversial blog documenting architectural and urban issues in the capital city, an anonymous student of the American University at Cairo reflects: 'When I first visited Sheikh Zayed City in 1998 to see our new home under construction, it was in the middle of nowhere. I was struck by the sense of distance, and the vast emptiness of the surroundings. Today, Sheikh Zayed City is a much busier place. Empty desert has given way to chic shopping spaces and villas. Once empty streets are now congested with vehicular traffic on a daily basis. This transformation, which occurred in a few, short years, has been nothing short of spectacular.' (Omar, n.d.). This offers a positive view of the New Town and points to a universal truth: New Towns take time to mature.

In the Greater Cairo Region, there is already a short historical progression of Cairene elite moving - however hesitantly as first - to newly planned areas at the periphery of the existing city. We can see this with Heliopolis, a New Town from 1905 that is now considered a desirable, central neighborhood, and also with large planned suburbs like Maadi (1905) and Mohandessin (1950s). When Sheikh Zayed eventually meets its target population, it may be a very different city than the one experienced today. As Cairo continues to grow and engulf the desert edge, Sheikh Zayed may be absorbed as one more upscale neighborhood. Without the obscuring power of distance, the enclave effect that so many residents currently value may become a specter of a distant past.

5.4 Case Study: Kilamba, Angola

5.4.1 Background on the New Town development

Angola lies in southwestern Africa with 1600km of coastline along the South Atlantic Ocean. It is flanked by the Democratic Republic of the Congo to the north, Zambia to the east, and Namibia to the south. The geographic area now known as Angola was originally home to Bantu people, ruled by kingdoms including the Ndongo, Imbangala and the powerful Kongo. At its height, the Kongo Kingdom ruled the territory from the Congo River in the north to the Kwanza River in the south. The Kongo governed the area from the 1390s until the monarchy was forced into vassalage in 1891 and then abolished in 1914, following war with Portuguese colonizers. From 1914, Portugal governed the occupied area until Angolan independence in 1975 ended nearly five centuries of Portuguese influence.

Angola is characterized by a wide belt of coastal plains bounded by a range of mountains and hills extending from north to south, parallel to the coast. East of the mountains, a central plateau covered by dry savanna grassland extends across much of the country. Numerous rivers flow down from the central plateau across the coastal plains and west towards the Atlantic Ocean. The extensive Okavanga river system also begins in the plateau (known in Angola as the Rio Cubango), flowing southeast and converging in the Okavanga basin in Botswana. The northern part of the country is covered in rainforest. Only four percent of the land is arable, which partially accounts for Angola's reliance on imported foodstuffs, although agriculture is considered to have enormous potential for development (World Bank, 2014).

The capital city of Luanda has a hot, semi-arid climate, and is kept dryer than more inland areas by the Benguela current that sweeps north along the coast from the tip of South Africa. When the Benguela Current is weak, rainfall in Luanda can increase dramatically, as in March 2017 when a month's worth of rain flooded the capital over a period of just 24 hours (Al Jazeera, 2017).



FIG. 5.10 Luanda, Angola, 1665

A map of Luanda from 1665 illustrates how the Portuguese colonial town was informed by the topography of the site, and employed two forts to control the natural harbour. Source: Vongboons, J. (1665) 'D Stadt Loandas Pauli', Map of Loanda St. Paulo/Luanda, Angola. Kaartcollectie Buitenland Leupe, Nederlands Nationaal Archief. Image is in the public domain.

Established in 1575, Luanda's historic center is typical of a Portuguese colonial city. Located about three-quarters of the way north along the Angolan coast, the city's *baixa* (downtown) curves around Luanda Bay and spreads from this central core to cover a semi-circular area of 113km². The main road network is more or less radial, originating from the central *baixa* and extending along the coast as well as into the interior. The colonial city is organized according to a modified grid that curves in response to the underlying topography.

Luanda developed over the twentieth century in accordance with a number of master plans, notably those developed by Portuguese planners and architects Vasco Vieira da Costa and Fernão Simões de Carvalho, both of whom worked at the office of Le Corbusier at different times, and were influenced by his radical planning approach. In 1948, Da Costa was responsible for an elaboration of the *Urbanization Plan for the City of Luanda* designed in seven years earlier by fellow Portuguese architects and urbanists Etienne de Groër and D. Moreira da Silva (Nuñez Silva, 2015b: 70). Da Costa's elaborated proposal envisioned five satellite cities for about 50,000

residents each, placed in a ring around the periphery of Luanda at a distance of 6km from the existing city center (Viegas, 2012). The plan was quickly deemed insufficient to match the rapid population growth after the end of the second World War, and the satellite cities were never built (Viegas, 2012). Two decades later, in the early 1960s, Fernão Simões de Carvalho drew an alternative master plan for the city that rejected satellite cities in favor of redeveloped neighborhood units and a reorganization of the city center. Like its predecessors, this plan was also never implemented, but some of the ideas ‘paved the way for the international expression of an integrative overseas Portuguese policy’ (Viegas, 2012: 4).

Portuguese influence on Angolan urbanization was mainly focused on Luanda and continued until independence in 1975. From 1975 – 2002 the country was embroiled in a violent civil war and experienced very little planned growth, as elaborated in the next section. Since the end of the war in 2002, the idea of redistributing urban services in the form of satellite cities has taken on renewed interest. In post-war Angola, the national government initiated state-led housing projects that include rehabilitation of existing infrastructures and the delivery of more than 100,000 new housing units (Croese, 2017). This housing has taken various forms, including ‘social housing’ townships like Zango, Panguila, Sapú and Projecto Morar. The most widely publicized project, however, has undoubtedly been Kilamba. Criticized by international media as a ‘Chinese Ghost Town’ shortly after completion, this new city south of Luanda deserves a closer look (Redvers, 2012).

5.4.2 Chinese flagship project

On 15 January 1975, a quiet, cobblestoned fishing village on the southern coast of Portugal was witness to the death rattle of colonialism in Africa. Angola was one of the last African countries to declare independence, with only Seychelles and Djibouti becoming independent later. On that day in 1975, an agreement was signed affirming Angolan independence would begin ten months later– exactly four hundred years after the establishment of Luanda by Portuguese traders.⁴⁴ Between January and October of that year, a mass exodus of 300,000 people flooded out of Angola in the general direction of Portugal, taking with it much of the expertise on Angolan governance and planning (The Economist, 1975). Conflicts among the three Angolan nationalist movements steadily increased in violence as independence drew closer.

⁴⁴ Angola officially declared independence on 11 November 1975.

When the power vacuum officially opened on 11 November, uncertainty and riots escalated to outright war. For the next twenty-seven years, a tripartite civil war ravaged the country, leaving an estimated one and a half million people dead, and a nation traumatized by battle.

Because the war raged mostly in small towns and villages that were vulnerable to ranging militias, it also created a massive housing shortage in the country's capital city as people swarmed to the relative safety offered by Luanda.⁴⁵ During the years of bloody conflict, however, construction halted as all efforts focused on the war machine. Between the first days of war in 1975 and the peace treaty in April 2002, Luanda grew nearly tenfold from a city of about 600,000 residents to more than five million.⁴⁶ The combination of this huge rural-to-urban migration and the prolonged absence of any new housing development created conditions that led to largescale expansion of *musseques*⁴⁷ (informal settlements) that have since grown to house an estimated 75% of Luanda's population (Cain, 2013).

The war ended when the People's Movement for the Liberation of Angola (MPLA) achieved victory over the National Union for the Total Independence of Angola (UNITA) and José Eduardo dos Santos was formally recognized as the president of Angola by the opposition. Dos Santos held the position of president from 1979 – 2017, making him the second-longest-serving president in Africa.

In the early days of peace in 2002, the Chinese government issued a communique offering to help reconstruct the ravaged country. Angola was in no state to refuse offers of help and welcomed new credit lines backed by oil sales to China. The resources-for-infrastructure deal appeared to be mutually beneficial: Angola had huge oil reserves and needed cities, China knew how to build cities quickly and needed oil.

⁴⁵ In a 2016 interview with the author, Mayor Israel Marques put this housing shortage at 2 million. In 2008, the African Development Bank placed the shortage at 800,000 units—or roughly 4 million residents without access to adequate housing in Luanda. See: (AFDB/OECD, 2008: 135)

⁴⁶ The 1970 census identified 561,145 residents living in the province of Luanda, however, censuses were not taken between 1970 and 2014, so the data for 1975 and 2002 remains an estimate (Direcção dos Serviços de Estatística, 1971). The 2014 census reported 6.9 million residents in the province of Luanda (INE, 2016).

⁴⁷ The *musseques* (unregulated housing areas) of Angola are characterized by well-defined individual identities and it is extremely simplifying to consider them as a homogenous group. The government of Angola's most recent approach to *musseques* redevelopment has been to remove residents from existing communities and rehouse them in designated areas. This is has had mixed results, with some observers criticizing the forced evictions that have characterized some re-housing projects, the lack of transparency surrounding the larger developments, and resettlement in areas without basic services (Amnesty International, 2003; Human Rights Watch, 2011).

When the *Gabinete de Reconstrução Nacional* (GRN or National Reconstruction Committee), opened the first phase of the Kilamba project to bids, CITIC Group Corporation Ltd. was chosen from a shortlist of international developers. Shortly thereafter, CITIC begin feasibility plans for a new city that could help address the staggering housing shortage.⁴⁸ CITIC is a Chinese state-owned multinational conglomerate with upwards of USD 4.3 billion net profits in 2014.⁴⁹ CITIC Construction Co, Ltd. functions as the company’s global development arm and currently has projects around the world, from Angola to Venezuela to Kazakhstan, with plans to build an additional 30,000 homes across Africa over the next five years.⁵⁰

The city resulting from this partnership was Cidade do Kilamba, a flagship project presented to the public as a key part of President Dos Santos’ electoral promise to combat the housing deficit with one million new homes over the next four years (Croese, 2017). One of the advisors to the (now former) President, Professor Antonio Gameiro recalls the magnitude of the reconstruction task set before the nation:

“Before housing, you must urbanize. Before urbanization can happen, we had to put infrastructure in place. You have to think about one million. One million houses. For the public sector, we gave permission to build 115,000 houses. Public-private-partnerships could build 120,000 houses. Co-operatives or co-operations with NGOs or civil society commissions could built 80,000 houses. Self-built (with some technical support) would make up the remaining 685,000. We also put 200 houses in each municipality, to make these attractive to public servants because the majority of people with higher education remain in Luanda. It’s a strategy to redistribute human resources. We had to think about both complete urban renewal (including demolition) and improvement strategies. Both were linked to land titling and tenure regularization”.⁵¹

⁴⁸ Author’s interview with Ma Baowen, Regional Division of Africa Vice President, CITIC, 15 January, 2016. Simultaneously translated by T.J. Zhai, Senior Regional Liaison and Market Manager, CITIC.

⁴⁹ CITIC Group Corporation was founded in 1979 with support from Deng Xiaoping as the country began to implement economic reforms (CITIC Group, 2016).

⁵⁰ ‘Rapid urbanisation is pushing up demand for housing in Sub-saharan Africa’ (IFC, 2017).

⁵¹ Author’s interview with Antonio Gameiro, National Advisor on urbanism and housing policy, on January 14 2016.

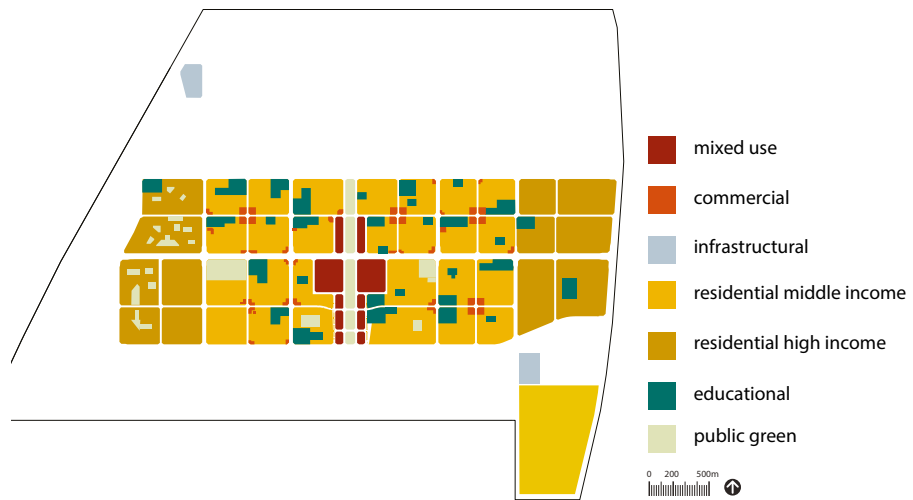


FIG. 5.11 Kilamba, Angola

The master plan for Kilamba shows the rational distribution of services and amenities throughout the New Town. Residential towers were inhabited first, and Kilamba struggled to fill its commercial spaces. Source: Author/INTI, 2019

CITIC broke ground in 2008 and completed construction of 710 apartment blocks just four years later. Midway through construction, Chinese President Xi Jinping made an official trip to Angola in 2010 to visit Kilamba and publicly reinforce Angola's value to China (Power and Alves, 2012). African heads of state from Liberia, Mozambique, and Namibia have all since visited the project, giving their collective stamp of approval to a development model that is entirely new on this continent.

In Angola, Kilamba is seen as a one-off: a presidential prestige project that remains, even after additional rent subsidy schemes, far out of reach for the vast majority of Angolans (Buire, 2015). Still, its power lies in both its popularity and the transnational influence it has achieved in just a few years. Other African leaders are eyeing the Kilamba model as an alternative to dealing with piecemeal urban development in cities that are suffocating under gridlocked traffic congestion and underfunded municipal governments. Outsourcing urban development has obvious benefits for governments struggling to make ends meet. The spatial effects of the Kilamba model, however, are more complicated than they may first appear.

5.4.3 **Novas Centralidades**

Angola's Housing and Urbanism program was set up six years after the end of the war, as the first step in honoring the President's electoral promise to build one million houses. At first, the program's main priority was social housing, but Angolan youth also lacked access to appropriate housing. Speculation was out of control in Luanda, so the focus quickly became affordable housing, with fewer restrictions for potential buyers. Kilamba was part of this state-led program, together with five other *novas centralidades* ('new centralities', or New Towns). President Dos Santos claimed in his 2011 inauguration speech that Kilamba is: "the biggest housing project ever built in Angola and constitutes, at a global scale, a profound example of the social policies engaged in the country to address the housing backlog" (Da Rosa, 2011).



FIG. 5.12 Former Angolan President Jose dos Santos

Jose Eduardo dos Santos served as President of Angola from 1979 until 2017. His presidency saw the establishment of New Towns ('new centralities') including Kilamba as part of a national housing policy aimed at creating one million houses. Source: Public domain/Wikimedia Commons

Other New Towns in the Housing and Urbanism program were low-income New Towns like Panguila and Zango⁵²; built primarily to rehouse people evicted from informal settlements. Because Luanda urbanized without regulation for nearly three decades during the civil war, prime ocean-front locations were quickly claimed by unregistered occupants. As construction picked up post-2008, some communities were resettled in township-style New Towns that were heavily criticized by both academia and new residents in their early days.⁵³

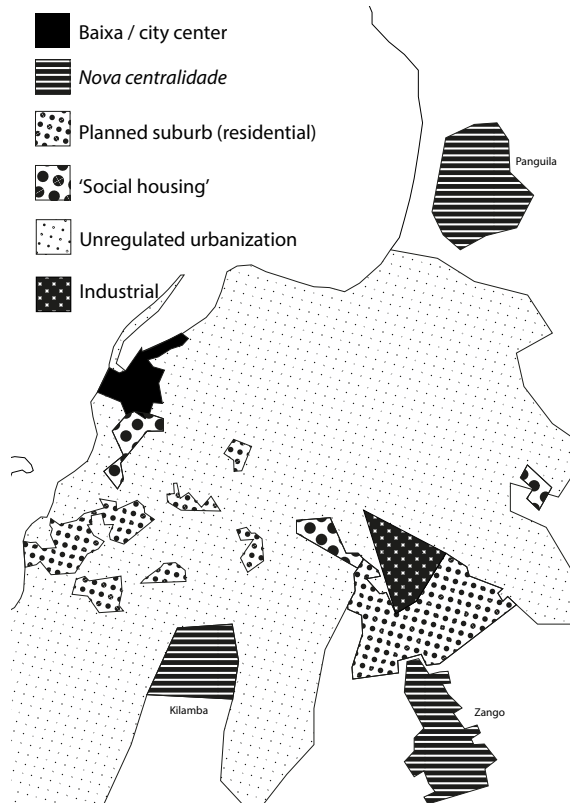


FIG. 5.13 Planned and unplanned Luanda
Novas centralidades (New Towns), planned residential suburbs and social housing around Luanda. *Novas centralidades* include Kilamba, Cacuaco, Zango, Km 4, Capari/Sequele, Dundo and Cabinda, all initiated under the National Urbanisation and Housing Programme. Source: Author, based on works by Chloe Buire and Development Workshop (2015) and Google Earth (n.d.) [Luanda, Angola].

⁵² “Zango was designed over a number of years, it wasn’t a drawing board project in the same way that Kilamba was. Zango is actually a number of projects woven together. There were a range of actors and contractors, some of them Chinese, some South African. The first projects in Zango were built by South African contractors and very much on the model of a kind of township. An apartheid type urbanization. It’s a classic poverty apartheid, not a racial apartheid, but the poor were increasingly displaced from the high value land in the center of the city and to the periphery.” See: Author’s interview with Allan Cain, Director of Development Workshop, 12 January 2016.

⁵³ Author’s interview with Antonio Gameiro, National Advisor on urbanism and housing policy, on January 14, 2016.

That criticism took the same general form that townships have confronted for decades: a lack of jobs, long commutes to and from the urban center, limited access to services, few amenities and the destruction of existing social networks (Steenkamp, 2008). Today, both Panguila and Zango now appear more popular, with three-bedroom houses reselling (illegally) for upwards of 50,000 USD (Gastrow, 2013). Houses along the main streets have been repurposed for commercial use, and families have personalized their property with whatever means are available to them. In contrast, such personalization is impossible in Kilamba's high rise flats—in fact, it was explicitly designed to prevent it. Instead of flat roofs that could be occupied illegally, designers chose for gabled roofs. Instead of apartments that could be finished with materials of varying cost, designers specified the finishing of every flat. Instead of allowing for a range of interior organizational options, only three apartment types were offered.

Although it was originally presented to the public as 'social housing', Kilamba's property prices clearly indicate that it was aimed at middle class buyers. Angola's GDP per capita for 2017 was 3,484 USD, with annual incomes averaging around 10,000 USD (World Bank, 2018). Kilamba's intended function was to help regulate prices in Angola's strained housing market. The main problem with 'social housing', in Angola however, is that access to social housing has yet to be regulated and defined by national legislation.⁵⁴ In August 2010, the President raised the maximum price for social housing from 50,000 to 60,000 USD – an amount that is completely out of reach for most Angolans (Croese, 2012). The lack of an accessible mortgage system has also had widespread ramifications on the housing market. A mortgage loan from Standard Bank, for example, currently comes with an interest rate of 24.5 percent, and at the personal discretion of a loan officer—making housing finance all but inaccessible to the vast majority of Angolans.⁵⁵

⁵⁴ The Centre for African Housing Finance (CAHF) provides a useful explanation of housing finance in Kilamba: 'In 2009, the Angolan government created a Housing Development Fund (FFH) (Decree 54/09 of 2009) to support the financing of social housing for low income households. However, the portfolio of the FFH remains limited to the provision of subsidised loans for public servants in state housing projects, such as the new city of Kilamba. Loans are extended for 30 years with a three percent interest rate. To facilitate access to other prospective inhabitants, in 2013 the government launched subsidised rent-to-buy schemes through Sonangol Imobiliária e Propriedade (SONIP), the real estate arm of the national oil company, to those with formal employment, a national identity card and a tax payer card. Apartments in these projects were initially priced between US\$125,000 and US\$200,000 a unit. These schemes reduced apartment prices to US\$80,000 for a three-bedroom apartment through twenty-year mortgages with a three percent interest rate and monthly payments of US\$390. This brought ownership within the reach of early career professionals and mid-level civil servants earning over US\$1,500 a month. However, government housing projects still remain unaffordable for low income households' (CAHF, 2018).

⁵⁵ According to the Centre for African Housing Finance, 'In 2011, only 2.2 percent of Angolans above the age of 15 had an outstanding mortgage at a financial institution' (CAHF, 2018). The state also offers a mortgage program for public servants at 3% interest. See: Author's interview with Antonio Gameiro, National Advisor on urbanism and housing policy, on 14 January 2016.

When Phase I of Kilamba was completed in early 2011, there was no mortgage system in place to allow potential residents to buy properties. As a result, only the 5,000 handpicked public servants with housing financed through the government were able to move in. 5,000 residents in a city meant for 100,000 certainly looks bleak, and in July 2012, the BBC's Louise Redvers reported on 'Angola's Chinese-Built Ghost Town' with film footage of empty streets (Redvers, 2012). *Business Insider* and *The Daily Mail* quickly recycled the striking images (Badkar, 2012; Daily Mail Reporter, 2012). In November 2012, CNN's David McKenzie reported on a, 'Chinese-built Angolan city feels like a ghost town' (McKenzie, 2012). The story gained traction internationally, playing on Western paranoia related to collaboration between China and African countries. By 2017, the dated narrative had become accepted truth, perpetuated in books like *Atlas Obscura: An Explorer's Guide to the World's Hidden Wonders*, and *The Lonely Planet Kids Travel Book: Mind-Blowing Stuff on Every Country in the World* (Foer, Thuras and Morten, 2016: 213; Lonely Planet Kids, 2015: 133).



Chinese-built Angolan city feels like a ghost town

434,022 views

709 357 SHARE SAVE ...



CNN
Published on Nov 1, 2012

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FIG. 5.14 Ghost town

Screenshot of David McKenzie in Kilamba before residents moved into the New Town. Source: CNN (2012) 'A New Town, with few residents'. CNN. Online: <https://www.youtube.com/watch?v=V8HyDGCNxpo>, retrieved 10 September 2018.

Despite this international saga of homes without occupants, by 2014 Kilamba was actually facing a very different situation. On September 4, 2013, state media outlet ANGOP announced that all available Kilamba apartments had sold out, with 40,000 residents living in the New Town, and waiting lists for future buyers (ANGOP, 2013). The story on the ground transformed from one of empty apartments to a much more complicated narrative that questioned the lack of transparency in the housing sales process. It became widely suspected that apartments in Kilamba were being awarded based on personal connections to power (Onishi, 2017). Kilamba was becoming one of the most sought after addresses in the country. What changed during that year? According to researcher Chloe Buire, the answer has everything to do with housing prices and access to housing finance: 'In February 2013, President dos Santos ordered that the apartments be made affordable and the state-backed mortgage scheme open to all Angolans. When the smallest unit (T3) dropped in price from US\$125,000 to US\$70,000, Kilamba suddenly became Luanda's most accessible property market. Hundreds of applicants queued for days outside the offices of SONIP' (Buire, 2015).

The first mayor of Kilamba, Israel Marques, was personally appointed by dos Santos to oversee the start of the New Town. In an interview with Marques in 2016, he reported steady growth, claiming that Kilamba was 97 percent occupied with about 100,000 residents. 'BBC, CNN, they all came during the time after the opening when we were trying to figure out how to sell the apartments without access to bank mortgages. They never came back.'⁵⁶

After the first phase of Kilamba was completed, the government instructed Sonangol Imobiliária e Properties Lda. (SONIP, a subsidiary of state oil giant Sonangol), to build an extension to the project with more affordable housing.⁵⁷ The new 76.15 ha extension was added at Kilamba's south-eastern edge. Known as KK5000, the area includes housing for about 30,000 residents. The five story apartment blocks have only one apartment typology: 5,000 three-bedroom apartments (T3). In September 2018, a T3 flat in KK5000 was listed for 8,000,000 AOA (27,6000 USD).⁵⁸ KK5000 offers the same urban infrastructures as Kilamba, with efficient road access, electricity and street lighting, clean drinking water supply, drainage,

⁵⁶ Interview Marques 2016

⁵⁷ SONIP was replaced in 2014 by state real estate company IMOGESTIN, who took over management and property sales.

⁵⁸ Flats listed for sale at <https://www.olx.co.ao/imoveis-casas/apartamento-casa-a-venda/q-kk5000/>, retrieved on 24 September 2018. Converted at a rate of 1 AOA = 0.00345947 USD, valid on 24 September 2018.

sewage, and a telecommunications network. The area includes two kindergartens, a primary school, and secondary school. No commercial or mixed-use areas enliven this residential district, and aside from educational facilities, urban amenities are non-existent. According to Marques, 'You go there, you will be shocked. The quality of design is so bad... KK5000 looks like a military camp. I always say, "this is going to be my headache"...Of course, your life is your connections, not just a house... Here in Kilamba, we are taking a risk with KK5000. [Residents of KK5000] have to travel too far for shops or any services.'⁵⁹



FIG. 5.15 KK5000

KK5000 is easily recognizable as a lower-income housing section of Kilamba: windows are smaller, the architecture is more modest, and the finishings are cheaper. There are almost no amenities or services in KK5000, apart from a single school. Source: Author, 2016

⁵⁹ Author's interview with (former) Mayor of Kilamba, Israel Marques on 18 January 2016.

If Kilamba's final phase is completed according to plan, it will eventually house 750,000 residents. By the time it is completed the surrounding area may have a completely different character: in 2015, minister of State Edeltrudes Costa announced the General Metropolitan Master Plan (PDGL) for Luanda Province. The new masterplan shows a proposed commercial and business area north of the New Town, a massive change that would provide Kilamba with the urban amenities it will need to become a vibrant city.



FIG. 5.16 Mayor Marques

Mayor Israel Marques sits behind his desk in Kilamba. A photograph of former President Dos Santos appears on the wall behind him. Marques was personally appointed by the former President, which reportedly created some distrust between the mayor and his constituents. Source: Author, 2016

5.4.4 The Chinese city in Africa

In Kilamba, the strict deployment of the grid at the scale of the superblock is problematic. The model provides a strong organizational framework but stops short of integrating this structure with more human-scale development. As a planning tool, the grid plan was introduced in many parts of Africa under European colonizers, particularly the French. Prior to this, however, the grid plan was also used in some ancient African urban planning projects, most notably in the Senegalese heartland (Senegambian royal capitals such as Kahone, Maka and Daikhao, as well as the clerical cities of Pire and Koki), and ancient Egypt (Nuñez Silva, 2015a). In China, the grid pattern has also been used in urban planning for millennia. In addition to this traditional link to the grid, contemporary Chinese planning models show the influence of the modernist CIAM-principles as laid down in *The Athens Charter* (1933). In fact, according to author Duanfang Lu, *The Athens Charter* has had a profound influence on Chinese urban planning since the 1980s (Lu, 2006: 94). Specifically, *The Athens Charter's* call for 'highrise apartments placed at wide distances apart [to] liberate ground for large open spaces' can be read back in contemporary Chinese planning models (CIAM, 1933). Soviet planning principles also inform contemporary Chinese urban planning (Lu, 2006 :94). Both models advocate for a functionalist approach, with clear divisions among urban functions, rational organization, and heavy road infrastructure.

Although the Chinese grid model and its infill of apartment towers is an unfamiliar typology in Africa, Angolan planners and architects recognize the value of this efficient model, while still questioning its application in this context. As Antonio Gameiro, National Advisor on urbanism and housing policy and a professor of urban planning revealed: 'The politicians didn't like the idea of verticalising in the beginning [of Kilamba]. But infrastructure in places like Zango [township] is so expensive. When we started thinking of new cities, some people said, "we are Africans, we don't want to live like this, we want to have our chickens, our backyard." And I said no, this the way to go. It's cheaper in terms of infrastructure.' ...[However,] Kilamba doesn't yet have much mixed use, but that will come. Maybe for the second phase of Kilamba there can be some change. Something that responds more to the context".⁶⁰

⁶⁰ Interview Gameiro 2016



FIG. 5.17 Rainbow City

An aerial view of Kilamba provides an impression of the residential towers in their surrounding context. Kilamba is also referred to as the 'Rainbow City' for its multi-colored roofscape. The Estádio 11 de Novembro football stadium can be seen in the top right corner of the image. Source: CITIC, 2016 (used with permission).

According to Ma Baowen, Regional Division of Africa Vice President at CITIC, the first step for Kilamba was a demographic analysis and forecast for population growth – a standard starting point for most Chinese urban planning projects.⁶¹ The first phase was designed to accommodate 160,000 residents, with future plans for a total population of 750,000 (Phases II and III). Technical infrastructures, such as water treatment facilities and electricity were based on these numbers.

⁶¹ Interview Ma Baowen 2016

Chinese urban planning employs a standard area of land use for each inhabitant (varying from 60 – 120m² per person) and uses this number to determine the final area required for a new urban plan.⁶² In Kilamba, the result is a project that appears very technical, very controlled, and very Chinese. That would be unremarkable for a suburb of Shanghai, but for an Angolan city flanked by the bustling, multi-layered and cosmopolitan Luanda, there is a sense of displacement, as if one has been teleported out of Angola by crossing the freshly paved road that delimits the New Town. Designed by Chinese architects in China according to Chinese planning principles, built with Chinese machinery and materials shipped from China in 15,000 sea containers, Kilamba provides an insight into the export of a streamlined urban planning process.⁶³



FIG. 5.18 Chinese urban planning

CITIC's masterplan for the first phase of Kilamba shows a typically Chinese urban model, with orthogonal super blocks used to structure the urban form. A central green park is flanked by the city's main commercial and mixed-use program, while residential towers of varying heights make up the majority of residential options. Schools are included in the residential blocks. Less dense areas with single-family housing are planned for the green areas at the eastern and western edges of the project, although these had not materialized at the time of writing. Source: CITIC, 2016 (used with permission).

⁶² Many of the standards related to urban land use are set out in the Chinese national planning document 'Standards for Urban Use and Construction' (*Chengshi jianshe yongdi fenlei yu guihua jianshe yongdi biaoqun*), which, according to author Remi Curien, 'plays a key role in urban planning. This figure is approximately 100m² per person, though it can vary from 60 to 120m² per person depending on the size and characteristics of the city' (Curien, 2014: 27).

⁶³ Interview Ma Baowen 2016

The New Town also reveals the planners' conviction of the universal applicability of their approach.⁶⁴ With all eventualities quantified, there is little room for consideration of the messy ways in which people actually conduct their lives. Numbers become the rationale for every design decision. Creativity, innovation or informality within this system become unpredictable variables that are too costly to consider. According to Allen Cain, an advisor for the project and Director of Development Workshop, a research group based in Luanda for more than three decades, 'the first consultation with Angolan planners (including myself) happened after plans had been prepared in China. To be blunt, the consultation with Angolan planners happened after the fact. I think the people who participated in that first consultation (all heads of departments and experienced planners), I think they knew it was a consultation meant to legitimize the process. A thesis that we have been defending is that the more appropriate model for urbanization here in Angola is in-situ upgrading, a pro-poor approach, and transformation of slums.'⁶⁵

5.4.5 Services and comfort

Kilamba follows the hyper-functionalist urban planning principles that have become standard Chinese practice. Cartographic analysis of the master plan reveals a hierarchical grid that informs the road system, with street widths of 20m, 40m and 60m. Commercial functions are located on the 40m wide streets, with larger setbacks from the 60m roads to protect pedestrians from faster traffic. The 20m roads are mostly within residential blocks. Every street is lined with sidewalks, and intersections have pedestrian crosswalks and traffic lights. Large orthogonal blocks are split into mono-functional areas, with public services (such as education and health facilities) applied evenly across the plan, corresponding directly to residential numbers. Dispersed among the superblocks are 24 kindergartens, nine elementary schools, and eight junior schools.⁶⁶ There are two transformer stations that power the 710 buildings, with reserve capacity for further expansion.

⁶⁴ During the construction process, CITIC made a considerable effort to train Angolan foremen at a rate of one Chinese to five locals. The establishment of a scholarship-based vocational school that has graduated 500 students per year has also been a contribution to local capacity-building.

⁶⁵ Author's interview with Allen Cain in Luanda, 12 January 2016.

⁶⁶ The schools are free, as public education in Angola is compulsory for eight years beginning at age seven. There are, however, school-related fees and identification requirements that make access to education problematic for some groups.



FIG. 5.19 Apartments and parking lots

Views of residential towers in Kilamba show the architectural monotony of the single repeated typology. Source: Author, 2016

Water is pumped in from the Kwanza River, 15km away, and treated locally to World Health Organization standards (although it is still recommended to boil the water before drinking). The sewage treatment plant has a capacity of 35,000 tons per day.⁶⁷

Housing and infrastructure were delivered first, and a visit in 2016 revealed that many commercial and business spaces were not yet occupied. A few cafés, banks and other amenities were in use and appeared popular with residents. The potential for a bustling urban atmosphere was there, but not yet crystalized. At the time, residents were mostly traveling outside of Kilamba to obtain the goods necessary to support daily life and the result was a city of wide streets that felt languid and sparse.

⁶⁷ Interview Ma Baowen 2016

The architecture in Kilamba is familiar to anyone with experience in China. Mid-rise apartment blocks stuccoed in light shades march along in strict formation. The roofs of these buildings are pink, yellow, green, blue, and white, giving rise to the New Town's alternative name: Rainbow City. Interiors are finished in high quality materials straight from China: aluminum door and window frames, polished tile floors and taupe-colored drywall. Each apartment has a corresponding parking space, and almost all are in use. There are three layout options for apartments: 110m², 120m², and 150 m². This is larger than typical Chinese apartment sizes and a nod to Angola's high fertility rate—one of the only concessions to contextual specificities discernible in the master plan. In Angola, families have an average of six children, and that number was the basis for the large apartment sizes. But Kilamba, like almost all contemporary African New Towns, has mostly attracted young, highly educated families—and almost none with more than two children.⁶⁸ Some people associate this discrepancy with the higher income group, but according to Marques the demographics will likely change over time: aging grandparents will fill empty bedrooms, children will marry and remain in their parents' apartments, or families will have more children as time goes by.



FIG. 5.20 Apartment typologies

There are three apartment typologies on offer in Kilamba. These range from the three-bedroom starter unit (110m²), to the largest five-bedroom unit (150m²). The apartments were designed by Chinese architects based on demographic data from Angola, including an average family unit size of seven members. In Kilamba, however, most housing is owned by young professional couples with only one or two children. Source: CITIC, 2016 (used with permission).

Kilamba is, more than anything else, a city of condominiums: privately owned apartments with shared common spaces. This is a housing organization concept that

is wholly foreign to the Angolan context. Residents have never before contributed to a lighting bill for collective spaces. They have never gathered on Saturdays to plant geraniums in the shared plant beds. They have never, perhaps, had to take their trash down an elevator to put it in the underground waste collection point. Learning to live differently in this New Town is part of the social cost, but one that is readily embraced by residents who are tired of the unpredictability of service provision in Luanda.

This is probably the main factor behind Kilamba's popularity. Residents in Kilamba have clean water, reliable electricity, new infrastructure, and a responsive—if underfunded—urban management team. Wherever else one might choose to live in Angola, power outages, traffic jams and poorly treated water are the norms. Kilamba is unique. With its large, modern apartments, it appeals to a group of Angolans that is upwardly mobile but without many options.

5.4.6 Thinking green in the Rainbow City

It has become a familiar truism that environmental sustainability is a luxury of the wealthy. The highly technical approach taken by designers in Kilamba upholds this axiom. As Ma Baowen revealed: 'CITIC wanted to include solar powered water heating, but the idea was scrapped by the owner as being too expensive. We have reserved a socket in each house to install a solar panel, but it doesn't come with the unit. We will continue to suggest to the owners to put in more ecologically friendly systems, but the costs are often prohibitive.'⁶⁹

Zooming out to a regional scale, Kilamba represents an increasingly common approach in New Town design that deals with the physical parameters of a site and leaves edge conditions unconsidered. Within the city, land has been appropriately graded and sits 100m above sea level. The site slopes gradually about 10m downhill from south to north. Adjacent to Kilamba, on its eastern flank, an informal settlement has grown up with the New Town since 2012. This community sits on ungraded land and has no street paving or drainage system. As a result, heavy rains periodically cause property damage, loss of lives and environmental degradation in the surrounding areas.

⁶⁹ Interview Ma Baowen 2016

Although this is a logical way of dealing with property limits, it can also be read as a missed opportunity to address the increasingly frequent natural disasters plaguing Luanda and its surrounding region. Just since 2015, flooding in Angola has resulted in the deaths of hundreds and the displacement of tens of thousands.⁷⁰ The (flash) floods are the result of heavy rains and overflowing rivers. According to Cain, 'The succession of floods may be attributable to a combination of factors including the increasing climatic variability, the concentration of people with limited coping abilities in low-lying areas, environmental changes induced by settlement in vulnerable zones, and the removal of natural vegetation in upstream river basins' (Cain, 2015: 3).

Floods cause immediate damage and loss of life, but in Luanda and surrounding areas poor water management also results in long term public health issues such as cholera, malaria, and yellow fever. 'Ponds of standing, stagnant water occur in some flatter areas more distant from the coast, in the *municípios* of Cazenga, Viana and Kilamba Kiaxi, after heavy rains. Clay soils predominate in these flat areas, whereas sandy soils through which water drains more rapidly occur closer to the coast' (Cain, 2015: 8). When flooding occurs in low-lying areas near Kilamba, the sharply defined edges of the development will not protect it from air-borne health threats.

Article 24 of the original Angolan constitution asserts the right of all citizens to live in 'a healthy and unpolluted environment', and acknowledges the state's responsibility 'to protect the environment and national species of flora and fauna throughout the national territory and maintain ecological balance.'⁷¹ However, the enforcement of these assertions remains limited and unpredictable. There is an opportunity here to show greater commitment to the value of natural landscapes and their contribution to high-quality urban environments.

⁷⁰ January 2017: 1800 households displaced. April 2016: 19 dead, 800 households displaced. March 2016: 50 dead, 182 households displaced. January 2016: 10,000 displaced. April 2015: 500 displaced. March 2015: 62 dead, 1770 households displaced. See: <http://floodlist.com/tag/angola>, retrieved on 10 February 2017.

⁷¹ Constitution of Angola 1975 Online: [https://en.wikisource.org/wiki/Constitution_of_Angola_\(1975\)](https://en.wikisource.org/wiki/Constitution_of_Angola_(1975)), retrieved on 10 July 2017.

5.4.7 A country of musseques

According to a survey done in 2008-2009, 90.9 percent of the Angolan urban population lived in 'inadequate conditions' at that time (INE 2010). In the decade since this survey, the national government has claimed the provision of housing as one of its main priorities. However, they have not been able to keep pace with the rapid urbanization facing Luanda and other large cities, and as a result, unregulated housing construction in the form of *musseques* has become widespread. Development Workshop estimates that roughly three quarters (75%) of Luanda's housing provision is still 'informal' or unregulated, and these areas are most vulnerable to the threats posed by climate changes (Cain, 2010).



FIG. 5.21 Kilamba's sister city

The musseque across the road from Kilamba provides a reminder of the stark differences between the planned New Town and the unplanned community adjacent to it. When compared to Kilamba, the musseque offers fewer services, inadequate infrastructures, and higher crime rates. Although schools in Kilamba (and across Angola), are officially free and open to everyone, they often require identification documents that may be inaccessible for some students. Source: Author, 2016

The *musseque* that abuts Kilamba's eastern boundary has developed in tandem with the New Town and exchanges between the two areas are manifold and intensive, economic as well as social. Spatially, however, the four-lane road dividing the areas embodies a clear division between legal tenure and urban services on one side, and illegal tenure and the absence of basic services in the adjacent informal community. The spatial divide accentuates the physical advantages of formal planning, no matter its urban form: efficient drainage and sewage that reduces the impact of flooding and associated health risks; asphalt roads that increase access and have the capacity to support public transport networks; availability of potable water and in-house sanitation systems that eliminate health and safety risks; reliable electricity that supports access to lighting, digital systems, refrigeration, etc.; and legally recognized tenure that cannot be subjected to forced eviction. These advantages are brought into sharp focus when contrasted with the insecurities of life in the *musseque*.

5.4.8 Planning in an unplanned place

To consider Kilamba's spatial challenges is to realize that formal planning offers residents many benefits: safety from flooding, reliable urban services, internal social cohesion, and (the perception of) safety. In this case, however, it also drives the growth of an adjacent informal settlement with no access to Kilamba's services and compounds existing classism by increasing the visibility of existing inequalities.

While the urban plan of Kilamba can be read as a series of direct responses to quantifiable data, an alternative approach might be a closer examination of both the *baixa* and *musseques*—and what their (self-)organization can teach future planners about alternative land management, local social networks, existing interdependencies and different ways of moving through life.

Before it can become a vibrant city, Kilamba needs more diversity, more urban amenities, and more integration between existing formal and informal systems. These things take time, and Kilamba is very young. Still, Kilamba already succeeds in many ways, by efficiently providing quality housing, infrastructure, and services to 100,000 residents. As it grows and changes there may be ways to stretch these clear benefits into adjacent areas, and thereby achieve a more socially inclusive and environmentally sustainable urban future.

5.5 BuraNEST Case Study

5.5.1 Background to the New Town development

Ethiopia lies in the Horn of Africa. Landlocked by Eritrea, Djibouti and Somalia to the Northeast, the country shares western borders with Sudan, South Sudan, and Kenya to the South. The landscape is diverse, ranging from jungles to mountains, plateaus, and fertile plains. River systems cut through the country, flowing in all directions: towards endorheic basins, the Indian Ocean, and the Mediterranean Sea. Some rivers originate deep in the Ethiopian Highlands, the largest range of mountains in Africa. Throughout the country, Ethiopia's fertile agricultural fields are maintained by roughly 80 percent of the population.⁷²

Lake Tana, the source of the Blue Nile and home to island monasteries from the tenth century, lies 560 kilometres northwest of Addis Ababa. At the southern shore of the lake is Bahir Dar, a city of about 600,000 people and administrative capital of the Amhara region. The area has a tropical savannah climate, with intense dry and wet seasons. Average temperatures are warm, usually between 25°C and 30°C during the day, with chilly nights. The landscape offers panoramic views of gently undulating hills and plains, while the Simien Mountains rise like a wall across the horizon.

Following the two-lane road to Gondar north, out of Bahir Dar, farming communities momentarily materialize on both sides of the road: individual family houses that appear strikingly similar from the exterior. The rectangular houses are constructed from vertical eucalyptus wood held in place by horizontal braces at roughly 50 cm intervals. Most houses have either small windows, or none at all. All houses are roofed in sheets of corrugated iron, which must be replaced every five years or so, depending on the quality of their coating. A lack of diagonal bracing has led to the common occurrence of 'dancing houses': houses leaning at terrifying angles and facing imminent collapse.

⁷² The World Bank and The United Nations Population Division's World Urbanisation Prospects both estimate Ethiopia's urban population to be 20 percent (2017). See: <https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS>, retrieved on 12 February 2018.



FIG. 5.22 Dancing houses

Typical houses along the road from Bahir Dar to BuraNEST have no diagonal bracing and tend to collapse after a number of years. These so-called 'dancing houses' are also present in Bura Kebele. Source: Author, 2017

Local homes are spacious from the inside: two doors placed symmetrically at the front and back ensure adequate daylight and air circulation. These doors open into a main room, which generally takes up two-thirds of the house and is used for cooking, eating, talking and the events of daily life. The remaining third may be divided into two bedrooms, or a bedroom and storage area. At night, livestock sleep in the main room, a small indication of the close bond between farmers and their livestock. Most houses appear wooden from the exterior, but are fully, and artfully adobed in a mixture of mud and hay from the interior. Smooth walls jut out into built-in seating areas and sink back into recessed shelving. Movable furniture is often limited to beds.

These rectangular houses are referred to locally as 'modern houses' and seen as an improvement on traditional round houses, or *tukuls*. *Tukuls* can still be seen intermittently in the landscape, but they are becoming much less common in this area. Circular *tukuls* are generally smaller and have thatched roofs rather than corrugated iron sheets. They are also clad in vertical eucalyptus sticks. The architectural aspiration towards modern materials and design thus seems tempered by a deep appreciation for traditional building techniques and proven methods.

Continuing north, the scenes outside shift back and forth between small, brightly coloured towns, and achingly beautiful open landscapes. Children play outside, and farmers drive cattle along the road. Women carry yellow five-gallon jugs back and forth to communal hand-pump wells. Maize gives way to rice fields and grazing land. The bucolic setting is painted in shades of green and brown, with the bright sunlight casting shadows in heavy contrast. A sharp right turn 72 km from Bahir Dar is marked by a hand-painted blue and white sign: 'Amhara Model Town BuraNEST Laboratory'. Asphalt gives way to a packed dirt road. This is BuraNEST.

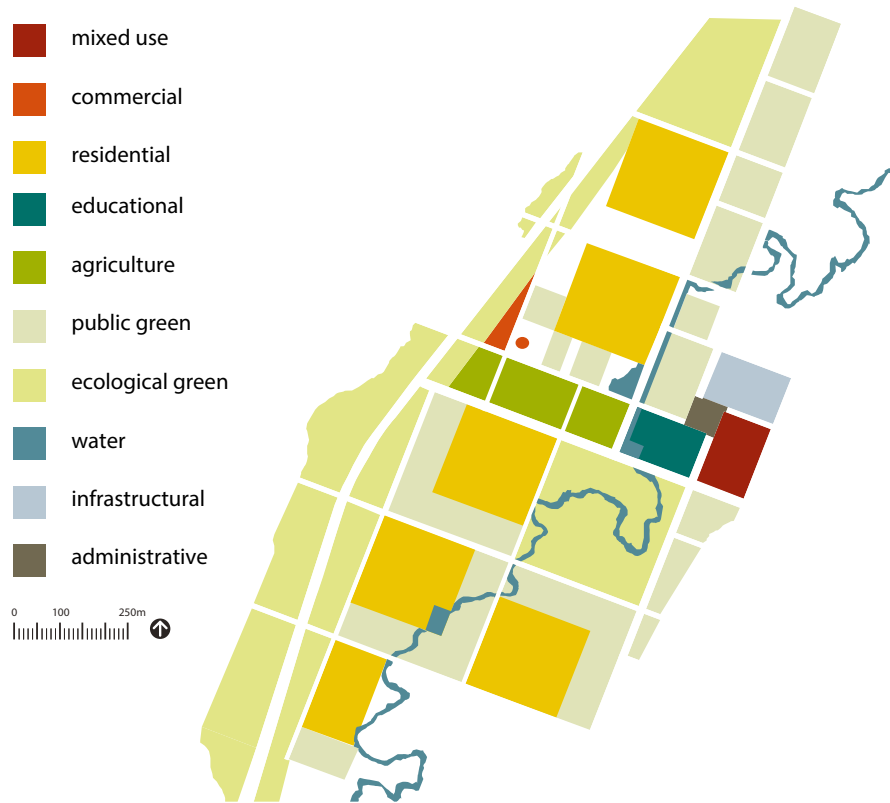


FIG. 5.23 BuraNEST, Ethiopia

The master plan for BuraNEST is conceptualized around four nuclei (Education, Energy, Exchange and Ecology) and the ambition to densify the community to support commercial trade and urban services. Source: Author/INTI, 2019

5.5.2 Rural and urban development in Ethiopia

BuraNEST is the name of NESTown Group's first model town. The NESTown (New Ethiopian Sustainable Town) concept is an urban development strategy based on four E's: Ecology, Energy, Exchange, and Education. BuraNEST is the first test of that concept, and thus, as the initiators put it: a 'real life experiment'. It is located at Bura, in the Amhara region, and so named for its site: Bura New Ethiopian Sustainable Town (BuraNEST). Following the project development at Bura, there are two other sites in Ethiopia that have expressed interest in becoming future NESTowns.⁷³

The model is also being considered by partners of the Rural-to-Urban Transformation project, an ambitious plan to develop 8,000 New Towns in rural areas over the next 10 years. The plan was initiated by two powerful Ethiopians: Tsedeke Woldu, a developer, and Bereket Simon, a politician. That influential combination has enabled the project to pick up where a 2015 state plan for the development of 8,000 new rural centres left off. The development of rural locations is a key part of the national government's strategy to decentralise development by slowing rural depopulation and resulting urban growth (Gardner, 2017). Some studies have shown that rural to urban migration in Ethiopia is partially driven by erratic climate variation (Hunnes, 2012). Subsistence farmers who depend on rain-fed agricultural production are sometimes forced to migrate to cities (whether permanently or temporarily) to diversify their incomes through other types of labor. With the intent to increase quality of life and economic and educational perspectives in the countryside, the new rural New Towns will offer schools, health centres, local government administration offices, new housing options, and alternative employment opportunities.

Ethiopia has been pushing for rural development since the adoption of the 1994 constitution, which anticipated an urban transformation based on autonomy and diversity of individual urban nodes (Oswald, 2012: 15). More recently, since 2006, the national government has made it a priority to develop new affordable housing in existing cities, and plans to develop new urban centres in rural areas to stem the flow of migration that has put massive pressure on cities like Addis Ababa, Dire Dawa, and Bahir Dar. Housing deficits disproportionately affect lower-income groups, who are often forced to settle in inadequate housing with limited access to public services (Tahir and Ibrahim, 2014).

⁷³ One of these, Awra Amba, is an exceptional community founded by Zumra Nuru in 1972. The settlement has 570 current residents and practices complete gender equality and egalitarian distribution of goods. There is no religious belief system, but children are educated according to the 'Golden Rule', and older or unwell residents are cared for communally.



FIG. 5.24 Birhan Abegaz

Birhan Abegaz and his family sit inside their current home. They were some of the first to commit to the BuraNEST project. According to Abegaz, 'A New Town should consist of legal ownership plans. In my view, that is vital. Trade activities should also be in Bura...We need to have access. And electricity.' Source: Author, 2017

Ethiopia's pro-active approach differs significantly from other examples presented in this book, and Ethiopia is one of the few African countries prioritising a systematic shift in internal migration flows. The country's strong economic growth over the last decade has translated into public investment projects and overall poverty reduction.⁷⁴ Recent public projects include ambitious public housing schemes in Addis Ababa⁷⁵, rural development and densification projects, and large-scale infrastructural projects like the Grand Ethiopian Renaissance Dam (GERD) that are expected to stimulate local development and job creation. These huge infrastructural works stand in sharp contrast to the small-scale, incremental intervention at Bura.⁷⁶

⁷⁴ Ethiopia's economy has grown at a rate of about 10 percent annually for the last decade (World Bank, 2018).

⁷⁵ The Integrated Housing Development Program (IHDP) initiated in Addis Ababa in 2006 is a state-subsidised housing program meant to alleviate the city's acute housing shortage. Sustained political commitment to the project has resulted in the construction of more than 250,000 housing units to date (Gardner, 2017).

⁷⁶ Many of the large-scale infrastructure projects in Ethiopia have been delivered by Chinese companies. In 2017, China was Ethiopia's biggest foreign investor and largest trading partner (Gray, 2018).

5.5.3 Testing a New Town: BuraNEST laboratory

BuraNEST is conceived as a ‘real life experiment’ —a test, in other words— of the ideas that inform it. Those ideas were elaborated by a small group of architecture and planning academics from Ethiopia and Switzerland.



FIG. 5.25 Welcome to BuraNEST

The turnoff to BuraNEST is marked by a small hand-painted sign. Community members are proud of this model town. Source: Author, 2017

The project began in 2007 after a guest lecture on urban capacity building by Professor Emeritus Franz Oswald (ETH Zurich) at Addis Ababa University. In discussions following the lecture, Oswald and Professor Fasil Giorghis (EiABC Addis Ababa University) saw the potential for developing rural centres that would provide the benefits of good planning to communities without access to basic infrastructure. They were inspired by political scientist Elinor Ostrom’s Nobel-prize winning theory of the commons (Ostrom, 1990). Ostrom’s work famously debunks the so-called ‘tragedy of the commons’; the widely-held belief that commonly shared property in effect belongs to no one and will degrade faster than private property. In her research, Ostrom showed how common goods were well-managed and equitably shared among many groups in different parts of the world. That aspect of shared responsibility, risk, and returns provided a strong starting point for a project in a country where land rights have become one of the central issues of contention.



FIG. 5.26 Future and past

A view of BuraNEST looking west towards the main road. Two unfinished Rainwater Units line the left side of the road, while traditional housing lines the right side. The traditional housing will eventually be replaced by more multi-family Rainwater Units. Source: Author, 2017

Helawe Yosef, Ethiopia's ambassador to Israel and a friend of Giorgis, became involved in the project as it started to take off. With strong political connections in Amhara, Yosef was instrumental in securing the Bura site for the project.⁷⁷ By 2010, a research fund was obtained, BuraNEST was inaugurated and a tree nursery was planted. Site plans and architectural prototypes were developed during a joint workshop in Singapore (SEC/ETHZ Future Cities Laboratory), and a *kebele* (ward) council vote on the masterplan in 2011 served as final approval.

BuraNEST is a New Town born from the reality that the vast majority of Ethiopians live in rural areas and practice (subsistence) agriculture. Initiated by Oswald, Giorgis, and Zegeye Chernet (EiABC AAU), among others⁷⁸, BuraNEST is the brainchild of academics, rather than developers. According to Oswald, 'Our premise was: you work for the majority. The other 20 percent will find a way to live anyway.'⁷⁹

⁷⁷ Author's interview with Bizuayehu Jembere, Project Coordinator for BuraNEST, Bahir Dar, Ethiopia, 14 November 2017.

⁷⁸ Other initiators include: Martin Grunder, Dieter Laepple, Surendra Kotecha, Corinne Keunzli, Rene Schaetti, Peter Schenker and Roland Walthert.

⁷⁹ Author's interview with Franz Oswald; Zurich, Switzerland, 25 September 2017.

The project's academic background is apparent in its ambitions. Unlike other examples presented in this book, BuraNEST is based on an ideological roadmap⁸⁰ that offers seven 'propositions' for the New Town (Oswald, 2015):

- The town governs itself autonomously and acts with solidarity
- The town sustains itself by self-defined urban quality and self-sufficiency
- The town controls its metabolism and offers all basic urban activities
- The town lives from renewable resources and generates its own energy
- The town develops free exchange internally and externally
- The town educates as practice and laboratory
- The town has open institutions and gardens

From the beginning, Oswald and Giorghis had ambitious plans for participation from the local farming community but faced skepticism from farmers. The initiators also questioned their own role, as Oswald says: 'Participation becomes a very difficult issue because it immediately provokes the question: *do they want what I can offer?* ... One has to have the courage to explicitly ask; to put that question in the centre of a discussion.'⁸¹ As the project moved forward, the group quickly learned that the most effective way of involving the residents was simply to do everything together, so the residents would see the reasoning behind various activities. Working together and learning by doing, thus became a successful method of communication between initiators and the local community. Reflecting on those early days, Oswald concludes, 'If you want a project to be sustainable, one has to address these hidden dimensions, because if you cannot communicate clearly, how can you provide a service?'⁸²

In the decade since the project started, the issue of communication has proved to be a constant challenge. Seminars, workshops, interviews, and presentations were carried out repeatedly within the community. BuraNEST coordinator Mastewal Chane describes the participation process: 'We did presentations and workshops to convince the people. We also discussed in the church. We used many options. Eventually everyone understood. Gradually opinions are changing. So now the number of members of the Bura farmers' cooperative is increasing. More people want to join [the project].'⁸³

⁸⁰ NESTown Group also developed a *Charter for Rural New Towns*, that has since been ratified by the Amhara regional government.

⁸¹ Author's interview with Franz Oswald; Zurich, Switzerland, 25 September 2017.

⁸² Author's interview with Franz Oswald; Zurich, Switzerland, 25 September 2017.

⁸³ Author's interview with Mastewal Chane at BuraNEST, Ethiopia, 16 November 2017.



FIG. 5.27 Mastewal Chane

Mastewal Chane represents the local government as woreda coordinator, and has been involved in the BuraNEST project since 2010. According to Chane, 'Our biggest achievement is that this is a new model for this area. The organization with housing, cistern, livestock, and garden. They see how they can live in a different way now. And our second achievement is the Rainwater Units. This is also inspiring the government, they want to use this model for different rural areas.' Source: Author, 2017

5.5.4 An urban plan and urban agriculture

The residents of Bura are farmers with limited education, but they have clear ideas of what a New Town should be, and for many of them, good infrastructure is the priority. One female head-of-household stated: 'A modern town should have electricity, water, and telephones. It should be convenient for the cultivation of vegetables and fruits. And a market is mandatory. In the future, I want to make the front of my house into a shop, a mini-market.'⁸⁴ Another beneficiary pointed to the need for secure tenure: 'A town should consist of legal ownership plans. In my view, that is vital. [There should also be] trade activities in Bura. It should be active. And have infrastructures like water, electricity, schools, and telephones.'⁸⁵

⁸⁴ Adugna is highly committed to the BuraNEST project. She also stated: 'I was introduced to the project six years ago, when I came here after my marriage. I want to live in a place with infrastructure, a modern house and integrated town agriculture (ITA). I was divorced a year ago because of my interest in BuraNEST. I want to live in the new project and own my house. Because of this, we divorced.' See: Author's interview with Adugna at BuraNEST, Ethiopia, on 16 November 2017.

⁸⁵ Author's interview with Birhan Abegaz at BuraNEST, Ethiopia, 15 November 2017.

An older farmer stressed that in addition to public services, effective urban management was key to a successful New Town: 'The town should conform to the planning criteria of the municipality. It should include basic infrastructure like electricity, water, schools, health, and sanitary facilities... Management should be good. Managers should play a strong role and communicate better.'⁸⁶

The planners and architects involved in the project share these views and have incorporated most aspects into plans for BuraNEST. The urban plan has gone through a few iterations, but currently looks like a four-armed pinwheel, extending outwards toward the surrounding landscape. The Town Core, reserved for public (meeting) space, is defined by the intersection of the four arms, which align to axes traced from local churches.⁸⁷ These arms form a square around the Town Core, where a low stone ring encircles a slightly raised grassy area with one large shade tree⁸⁸ and two smaller trees adjacent to a stone platform. This is the largest public space in BuraNEST and is used for formal meetings, announcements, and other public events. The axes traced from the churches meet at the centre of four rectilinear blocks, called 'nuclei', that provide an orthogonal structural framework for the town that may expand, densify, and evolve over time. Oswald is adamant about the need for diverse programming in urban planning. According to him, 'a *town* is not created by building houses. It's a formal intention that allows for phases of development and transformations. A plan has to be there, and it has to allow for subdivision and allocation of land. That is incredibly important.'⁸⁹

In addition to informing the organising principles behind the project, the 4 E's mentioned earlier (Education, Energy, Exchange, and Ecology) also inform the urban patterns (Oswald, Giorgis and Stahli, 2016: 3). In BuraNEST, each 'E' is represented spatially as a nucleus with a different programmatic function. Education (nucleus 1) is represented by a technical skills training centre, and adult education. Energy (nucleus 2) is conceived as renewable resources and transportation infrastructure. Exchange (nucleus 3) references the proposed market and communication. And Ecology (nucleus 4) is regarded as the natural landscape and resource cycles. The landscape is also considered as the primary structuring element for the plan.

⁸⁶ Author's interview with Gebeyehu Endale at BuraNEST, Ethiopia, 15 November 2017.

⁸⁷ The area is intensely religious, and holy days are observed by church attendance and a break from manual labor.

⁸⁸ This tree was planted in memory of Peter Schenker, one of the initiators and leaders of the BuraNEST project.

⁸⁹ Author's interview with Franz Oswald; Zurich, Switzerland, 25 September 2017.

The Education nucleus is the only fully constructed nucleus at the time of writing. The Bura Farmers' Training Centre is located within this 1.45 ha area, with a productive model garden taking up 70 percent of the total nucleus. Rainwater cisterns flank the garden to the north and south, providing easy access to water.⁹⁰ Orange trees, guava trees, avocado trees, and mango trees are planted in orthogonal rows with tomatoes, peppers and other vegetables growing between the trees. Butterflies, rabbits, and birds have all found this garden and it has become the pride of many locals who benefit both directly from the food produced here, and the profits from food sales. The training centre has been somewhat less successful, and although the classrooms and workshops are sporadically in use, they do not yet see the kind of daily traffic many people involved with the project would like.⁹¹

The Energy nucleus is also known as the town factory, with two large workshops and ample space for carpenters to work. There is a timber plantation for renewable building material, and there are plans to build guest rooms and more storage facilities here. The two Rainwater Units currently under construction are also part of this nucleus. This nucleus is further divided into 'closes', or residential neighborhoods. One 'close' is conceived as 2.9 ha, or fifty-two households (6.5 Rainwater Units).⁹² Looking around the site, BuraNEST's target population of 40,000 people sounds ambitious. However, the project's popularity has increased in direct relation to its construction: as the built forms have emerged, farmers from surrounding areas have progressively expressed more interest.

The Exchange nucleus is intended to be a large open market, with trees planted at triangular points to provide shade and spatial definition. The market not yet materialized, and farmers continue to trade in Yifag, a town some 15 km away, commonly reached by cart and donkey. According to plans, the market will eventually be situated next to small businesses, a coffee shop, bank, and transport facilities.

⁹⁰ A new drip irrigation method introduced by local project partner ORDA was first introduced here and will also be implemented in the gardens of Rainwater Unit residents.

⁹¹ These setbacks have been a recurring challenge for people involved with BuraNEST. The project's steering committee has 11 members, and the designers (known collectively as NESTtown Group) have a non-voting membership. Other members include a number of governmental and non-governmental organisations: Organisation for Rehabilitation and Development in Amhara (ORDA), ARNS, BORLAU, Cooperative Promotion Agency (CPA), BOA, AWWA, TVED, MUDH, Libokemkem Woreda, Amhara Development Association (ADA), and Bahir Dar Univeristy (BDU). After decisions are made by the steering committee (which is expected to hold monthly meetings), new plans must be approved by the regional government. Less committed steering committee members skipped meetings and bureaucratic requirements from the regional government have been known to delay implementation.

⁹² See BuraNEST working drawing: BuraNEST - close 1 for plot 10-04-2016-Model.pdf



FIG. 5.28 BuraNEST Town Core

A view of the Town Core from the first technical skills training center. The circular raised platform is currently used for town meetings and public discussions. Three trees have been planted in memory of people who played important roles in BuraNEST's development. Someday, this public space will be at the center of a bustling development. Source: Author, 2017



FIG. 5.29 Farmers' Training Centre

The BuraNEST Farmers' Training Centre provides continuing agricultural education for farmers, as well as ICT classes and other skills. Source: Author, 2017



FIG. 5.30 Model garden

The model garden adjacent to the Farmers' Training Centre has already become a source of food and income for the Bura community. Permaculture planting methods are taught here, and some farmers estimate that production has tripled since the new agricultural methods have been introduced. Source: Author, 2017

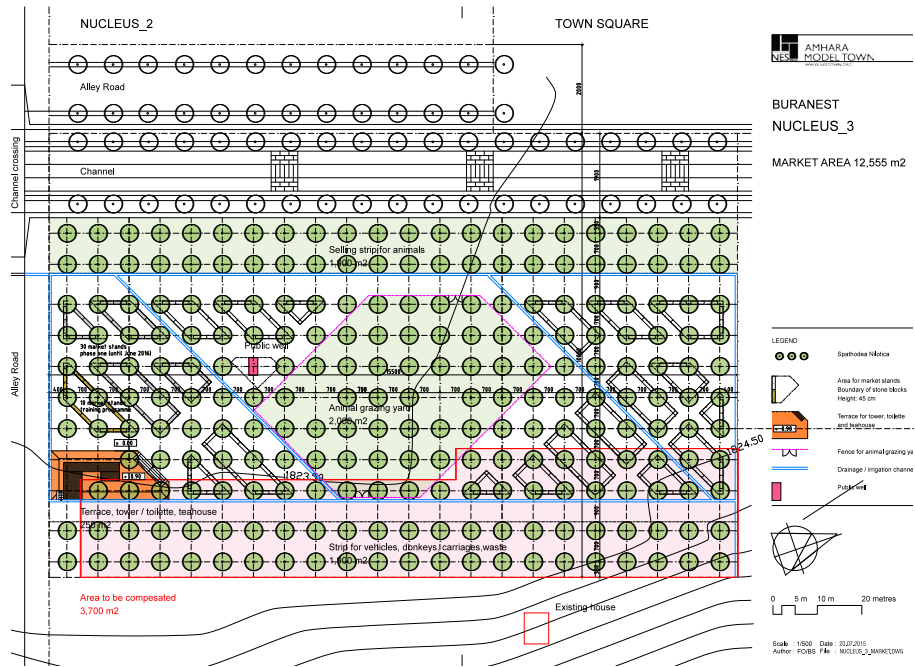


FIG. 5.31 Exchange nucleus

The Exchange nucleus (Nucleus 3) is planned as public space shaded by densely planted trees to create a comfortable respite from the heat. This area is intended for use as a market, with stalls as well as areas for selling livestock and grazing. A small teahouse and public toilets will complement the exterior space. Source: NESTown Group, 2015 (used with permission).

The Ecology nucleus will offer communal recycling services, health care, a kindergarten, an elderly home, and public administration offices. Communal land is currently farmed in this nucleus, and rice, cereals, maize, sorghum, field vegetables and dairy products are produced for the market. Brought together as a whole, the 4E concept provides a framework for careful consideration of the project's programmatic elements.

For both the Swiss and Ethiopian architects, working in rural Bura presented some surprising dilemmas. Protracted discussions and miscommunications between architects and residents contributed to project delays. Frustration on both sides has ebbed and flowed as the project has progressed, but now that the first residents are preparing to move in, the project is more popular than ever. Both residents and initiators expect that subsequent phases will move more quickly. As Oswald elaborates:

Each of those '4 E's' presents choices. Those are planning choices that must be made after an evaluation of advantages and disadvantages. For example, when we made the choice to design water cisterns attached to individual houses instead of a single communal well, we did that knowing that the well had previously functioned as one of the only places where women and girls could come together and communicate freely without male influence. Traditionally, girls carry 20 L of water to the house every day. If I'm the father and I allow the girl to go to school, then who brings the water? If you want to have a certain gender equality, then I think we provided the possibility for equality with the individual cisterns. But those are choices, and the social impact is very real, and sometimes you have conflict between your values and the values of the local residents.⁹³

In the end, the availability of water at each individual home has become a major selling point for the Rainwater Units. The process of winning hearts and minds, however, has been hard fought by project leaders.

5.5.5 Rainwater Units

One Rainwater Unit is 720 m², composed of eight individual housing units of 90 m² spread over two floors. As of 2018, two Units were nearly completion, but were not yet ready for inhabitants to move it. The designers are adamant about referring to the housing as Rainwater Units; in their view, the roofs serve the primary function of collecting rainwater: a more critical contribution to the project than simply sheltering people.⁹⁴ That concern for water is well-founded. The area faces increasing climate variability, with short wet seasons that are becoming wetter and long dry seasons that are becoming drier. The large roof expanse increases catchment capacity, and the ability to store the rainwater collected during the three-month wet season has already changed farmers' lives. Extra water means better irrigation and more crops. More crops yield more profits, and money allows access to life-improving tools like solar panels to charge mobile phones or books for schoolchildren.

⁹³ Author's interview with Franz Oswald; Zurich, Switzerland, 25 September 2017.

⁹⁴ According to Franz Oswald: 'we said that a house has to be a water resource. It is not primarily to protect people. It is a piece of infrastructure which provides water resources, a garden area, and individual and communal spaces. That function and the idea of a town centre are the two most important aspects of the NESTown model.' See: Author's interview with Franz Oswald; Zurich, Switzerland, 25 September 2017.

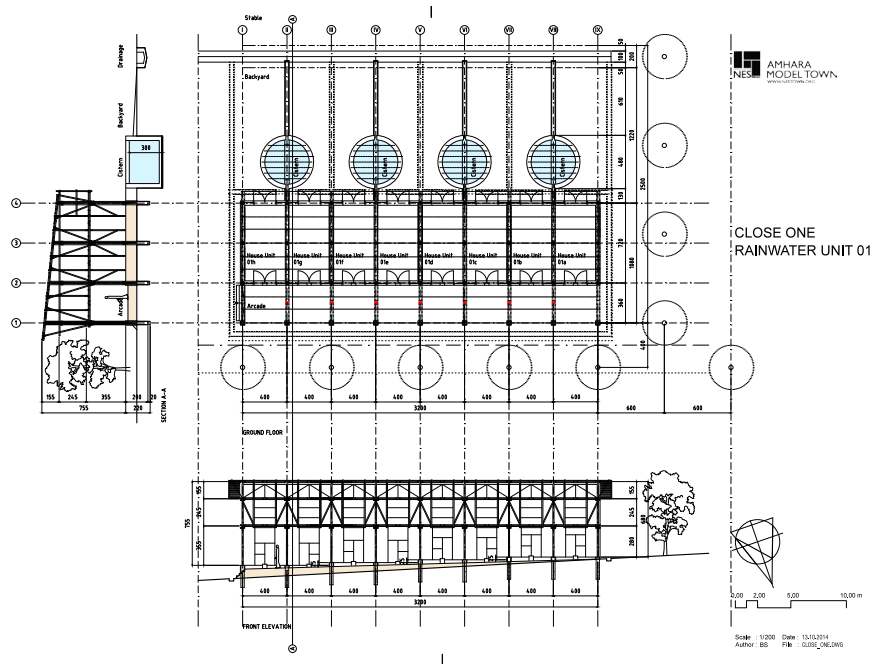


FIG. 5.32 Rainwater Unit 01

A single Rainwater Unit is made up of eight housing units, each about 90m². Eucalyptus wood construction is infilled with adobe bricks to provide insulation and privacy. The wood frame may be left open at the ceiling of the top floor to allow for air circulation and natural cooling. The massive shared roof is designed for maximum rainwater collection, which is then channeled into the four underground cisterns. Source: NESTown Group, 2014 (used with permission).

Farmers seem less convinced about the need for two floors, however. Adugna, a divorced mother of three and future beneficiary of the project describes her early concerns: ‘In the beginning, I was in doubt about the structure, but according to the engineers, they told us that the house can stay for a minimum of 15 years and we have been convinced by this. We intend to use the ground floor for living and dining and the upper floor for bedrooms. We might use the livestock stable for additional rooms.’⁹⁵

⁹⁵ Author’s interview with Adugna at BuraNEST, Ethiopia, on 16 November 2017.

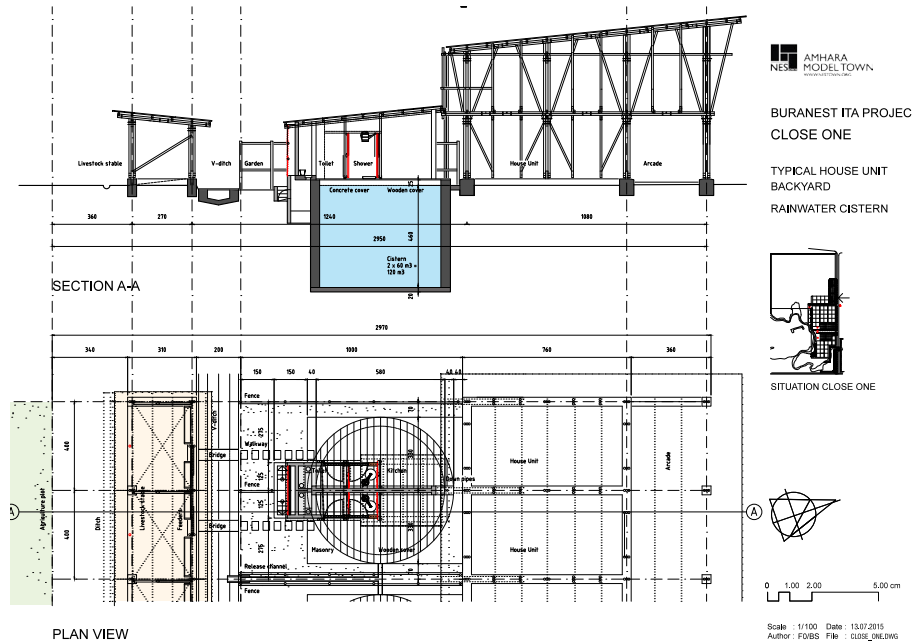


FIG. 5.33 Housing unit

A section through one housing unit in a Rainwater Unit shows the relationship between living space facing the street, a private wet area with toilet, shower and kitchen above the cistern, and a small kitchen garden and drainage channel separating the home from the livestock stables. Some individuals already have plans to transform the stables into guest rooms, workshops, or other uses. One future resident suggested she would transform the ground floor of the house into a shop and use the livestock stable as a storage area. Adugna, another future resident, described her plans: 'If things are going as planned, the first advantage is house ownership, which is not a simple thing for a woman here. I can make money by renting out [part of] the house or by cultivating vegetables and fruits. I hope the infrastructure will be much better facilitated compared to the way I lived before.' All of these transformations are allowed, as long as neighboring residents do not object. Source: NESTown Group, 2015 (used with permission).

Birhan Abegaz, another future beneficiary, echoes Adugna's sentiments: 'At first, when it was just the framing construction, we were in doubt: how can we stay there forever? But now that the [mud brick] walls are in place, we assume that it's going to be a strong house. This convinces us to stay there forever.'⁹⁶

⁹⁶ Author's interview with Birhan Abegaz at BuraNEST, Ethiopia, on 15 November 2017.



FIG. 5.34 Individual wet cells

The wet cell with private water access, toilet, shower, and outdoor kitchen shown here is one of the biggest advantages of the new housing design. Current residents of Bura share communal latrines and wells. Both require long walks to and from local homes. Private access to these services will save residents both time and effort and reduce safety risks associated with walking outside in the dark. Source: Author, 2017

Informed by vernacular typologies and traditional building techniques, the Rainwater Unit frames are constructed from local eucalyptus wood, with adobe brick infill walls. Based on the results of a pilot Rainwater Unit design/build challenge in Bahir Dar⁹⁷, project architect Benjamin Stähli detailed a structural framework using prefabricated bracing (produced on site), concrete piling foundations that could bear the expansion and contraction of the earth during rainy and dry seasons, and wooden nail connections that would also expand and contract at a uniform rate. The ground floor is raised off the ground, with concrete and local stone used to support load-bearing columns. The two Rainwater Units on site as of writing are oriented to facilitate cooling by prevailing winds.

⁹⁷ The Rainwater Units were designed by a group of Ethiopian and Swiss architects and underwent multiple renditions before the current design was settled upon. A prototype was built in Bahir Dar on the shores of Lake Tana in 2012 and acted as a show model to attract local (political) support.

Each Rainwater Unit has four cisterns, divided in half by a concrete wall. Two individual housing units share a single 60,000 L water cistern, located underground at the rear of the building. PVC piping connects the v-shaped, water-collecting roof to the cistern. Above the underground cisterns, each home has a wet unit that consists of an open kitchen, a hand pump, a dry (compost) toilet and an enclosed showering area. The wet units are placed back-to-back, providing both privacy and efficient use of space. Currently, Bura residents use one communal hand-pump well and a single block of latrines. The improvements to sanitation and health offered by this design are apparent to all, as well as the time-saving convenience and safety of a private toilet for each family.

Behind the wet unit is a 28 m² livestock holding shed, followed by a 306 m² backyard garden with drip irrigation for each family. Each beneficiary family is also entitled to participate in an integrated town agriculture (ITA) pilot project to teach farmers new farming innovations with technical support from the Organization for Rehabilitation & Development in Amhara (ORDA), one of the project's steering committee members.

Multiple farmers indicated that the compact spatial arrangement of house, livestock and garden was a key advantage of the BuraNEST project. According to Abegaz: 'If done as planned, [BuraNEST] will bring a vital change to us. The house is modern. The ITA and the way the house is organised with the livestock and water harvesting and backyard garden will bring a vital change to our lives. We are currently using water from the river. We rent a water pump for agriculture. For drinking we use a nearby hand pump well. In my view, those things will be better facilitated in the new house.'⁹⁸ Project coordinator Chane, agrees: 'Our biggest achievement is that this is a new model for this area.'⁹⁹ The organization with housing, cistern, livestock and garden. They see how they can live in a different way now.'¹⁰⁰

⁹⁸ Author's interview with Birhan Abegaz at BuraNEST, Ethiopia, on 15 November 2017.

⁹⁹ According to NESTown Deputy Coordinator Bizuayehu Jembere, the organisational model used at BuraNEST is inspired by a model used by Gurage people in southwest Ethiopia. Author's interview with Bizuayehu Jembere at Bahir Dar, Ethiopia, on 17 November 2017.

¹⁰⁰ Author's interview with Mastewal Chane at BuraNEST, Ethiopia, on 16 November 2017.



FIG. 5.35 Kefyalew Hailu

Kefyalew Hailu has been involved in the BuraNEST project from the beginning. He trains local residents to become registered carpenters and as their skill sets grow, they are able to find work not only on the BuraNEST project, but also in surrounding areas. In this way, the project has not only brought new architectural designs to the area, but also new technical, agricultural, and entrepreneurial skills to local residents. Source: Author, 2017

The Rainwater Units currently under construction are built from the same plan, but the quality of construction is visibly superior in Rainwater Unit 2 — proof of the local construction crew's increasing confidence. Rainwater Unit 1 was built first, after construction crews had completed the Career Training Center, model house and warehouses in other nuclei. Rainwater Unit 1 is not quite finished, at the time of writing. Adobe bricks are laid in place by all-female teams of masons; a unique sight in the male-dominated Ethiopian construction industry. Bura women were interested in masonry work, and according to Chief Mason Tegaye Biadgign, local women have proved more patient and better suited to the subtleties of adobe brick masonry than their male colleagues.¹⁰¹

¹⁰¹ Biadgign also indicated that it was more efficient to hire female masons because 'they ask for less money, so we can hire more of them.' See: Author's interview with Tegaye Biadgign at BuraNEST, Ethiopia, on 17 November 2017.

A carpentry team of five local men completed construction of the eucalyptus framework on Rainwater Unit 1 in one year and twenty-four days, led by Chief Carpenter Kefyalew Hailu. Hailu also oversaw framing construction on Rainwater Unit 2, which was completed in just eighty days, an improvement resulting from the rapid skill development of the carpentry team. Traditional techniques such as wooden nails and complex joinery, which had been largely forgotten in this area, were re-introduced at BuraNEST. The skills developed on site as part of this 'living experiment' have already been transferred to surrounding areas as Bura masons and carpenters take on jobs and share their new talents.

5.5.6 New financing models for the New Town

In BuraNEST, finance is seen as an instrument to build autonomy and emancipation for local farming families. The underlying thesis is that common goods such as public space, shared facilities, and agricultural resources can be equitably shared among a group, and well-managed by that same group. In a sense, this suggests a form of direct self-governance in the public realm. At Bura, that is translated into a cooperative model where both individuals and the group are empowered through collective action.

Farmers interested in joining the project must first become members of the farmers' cooperative. There are currently 80 members, 16 of which will be housed in Rainwater Unit 1 and 2.¹⁰² Cooperatives are a new concept in this area, but the idea has been welcomed. A common financial model in Switzerland, the cooperative model was introduced by Swiss partners from the beginning as a way to increase access to finance and support collective land ownership. Well-structured cooperatives strengthen the role of their participants, and largely prevent speculation. In Ethiopia, a legally organized collective society can also receive land formally from the government.¹⁰³

Membership in the cooperative is the only way to buy a home in a Rainwater Unit. Membership fees are small, but individual families must save 15,000 ETB (550 USD) for a down payment to put their names on the waiting list for a Unit. If space in a Unit is available, the family may move in, and then has 10 years to pay off the remaining

¹⁰² Author's interview with Bizuayehu Jembere, BuraNEST, Ethiopia, 17 November 2017.

¹⁰³ Author's interview with Franz Oswald; Zurich, Switzerland, 25 September 2017.

56,000 ETB (2000 USD).¹⁰⁴ Farmers in the Amhara region earn about 7000 ETB (254 USD) per hectare annually (World Council, 2014). Farmers with more land are wealthier, and it is indeed these relatively high-earning farmers who are moving into the first Rainwater Units. Since construction began, poorer farmers have expressed more interest in the project, and requested more affordable housing types. At the time of writing, there was only one Rainwater Unit type available in BuraNEST, but project leaders were considering the demand for alternatives.



FIG. 5.36 Gebeyehu Endale

Gebeyehu Endale was one of the first farmers to join the cooperative in 2013. He immediately saw the benefit of pooling resources and continues to support the project. According to Endale, 'the BuraNEST model should definitely be repeated around the country. Cooperatives for farmers and carpenters are great opportunities created by BuraNEST.' Source: Author, 2017

Limited access to housing credit puts constraints not only on individual farming families, but also on the construction of Rainwater Unit 3. According to project Coordinator Mastewal Chane, 'For me, my frustration is that you see now two

¹⁰⁴ These numbers correspond to a construction cost breakdown by Benjamin Stahli and Temesgen Atnafu 02/07/2016.

Rainwater Units, and we don't have a credit institution who will invest for the third. We need a person who is responsible for finding credit institutions to contribute to the project... The Rainwater Units inspire people. We want to be able to house all the families who want to live here.'¹⁰⁵

The BuraNEST project is primarily financed through a cost-sharing agreement between NESTown Group and BIUD, the regional government authority responsible for implementation (Oswald, Giorgis and Stahl, 2016: 8). Other steering committee members have financed individual aspects of the project, such as ORDA and Green Ethiopia's support for the tree nursery, and ADA's support for the Career Training Center school building. Funding has also come from philanthropic Swiss partners including the Arthur Waser Foundation, Allgemeine Baugenossenschaft Zurich (ABZ), Holcim Foundation, Zurich, Tesfa Ilg Foundation, Zurich and the Menschen für Menschen Foundation (MfM), Zurich.

Although things have gone relatively smoothly for an international project with a complex governance structure, the project faces other financial threats, especially during the current transition period where responsibilities are shifting from the Swiss NESTown partners to the Ethiopian NESTown partners. Everyone involved in the project has been paid regularly until now, however, the carpenters and masons working on Rainwater Units 1 and 2 were not paid for the month of October 2017.¹⁰⁶ That kind of bureaucratic blip has been disheartening for many.

5.5.7 Governance in Bura

The federal government based in Addis Ababa oversees *kililoch* (regional states) who enjoy a high degree of autonomy. Within the nine regional states, zones, *woredas* (districts), and *kebeles* (wards) hold tiered administrative powers. BuraNEST is located in Amhara region, within the Libokumkum *woreda* and Bura *kebele*. Roughly 19 million people live in Amhara region, with 722 of those located within the Bura *kebele* (1.6 km²).

¹⁰⁵ Author's interview with Mastewal Chane at BuraNEST, Ethiopia, on 16 November 2017.

¹⁰⁶ Mastewal Chane: 'For the moment, we don't have budget for the carpenters and masons who are working. They haven't been paid for October. This must be solved. We are discussing how to solve it. That is crucial for the project to succeed.' Author's interview with Mastewal Chane at BuraNEST, Ethiopia, on 16 November 2017.

Ethiopia is currently led by the Ethiopian People's Revolutionary Democratic Front (EPRDF), a political party that came to power democratically in 1991. The EPRDF currently holds all of the seats in parliament; effectively ruling without opposition. Public protest and low rumblings of dissent have increased in recent years, with government crackdowns increasing in response.

Ethnic resentment from residents of the Amhara and Oromo regions who feel unrepresented by the EPRDF has fuelled the conflict and came to a boiling point in 2015 under Prime Minister Hailemariam Desalegn. After protests and demonstrations related to land rights and political representation in 2015, Ethiopia imposed a state of emergency in October 2016, including 'sweeping restrictions on protests, social media, diaspora television and movement' as well as the ability for police forces to make arrests without warrants (Human Rights Watch, 2017). That state of emergency was lifted in August 2017, although, as Human Rights Watch points out: 'thousands remain in detention without charge, none of the protesters' underlying grievances have been addressed, and politically motivated trials of key opposition leaders, artists, journalists, and others continue' (Horne, 2017).

Another state of emergency followed Desalegn's abrupt resignation in February 2018. Since April 2018, however, Ethiopia has seen major political reforms spearheaded by newly elected prime minister Abiy Ahmed. In contrast to his predecessor, Ahmed has lifted media bans, freed thousands of political prisoners, reached out to begin repairing relations with Eritrea, and generally inspired a sense of optimism despite Ethiopia's job shortage and growing inequality. Ahmed's Oromo ethnicity has also been seen as a harbinger of change. In June 2018 Ahmed lifted the state of emergency two months earlier than planned.

During BuraNEST's development, these events were playing out in the background. While Addis Ababa is far from Bura, political resentment was not difficult to find in Bahir Dar, the regional capital of Amhara where at least thirty peaceful protesters were killed by security forces on 7 August 2016.¹⁰⁷ These machinations and the fragile political situation were made evident in Bura by the regional government's unresponsiveness to land compensation issues and other political roadblocks. As elsewhere in Africa, the issue of land ownership plays a pivotal role in the BuraNEST story. Historically, private land ownership is uncommon in Ethiopia. For 3,000 years, most of the country has functioned under a feudal system with royal and religious

¹⁰⁷ This number (reported by Amnesty International) is disputed, and estimates vary from 12 – 70. Amnesty International also reported hundreds of arrests related to the protests in Bahir Dar (Amnesty International, 2016).

land-owning elites. In 1975, the communist Derg regime introduced state ownership of all land and natural resources, and the government elected to power in 1991 has maintained state control until now. Rural farmers are given lifetime 'holding rights' (excluding the right to sell or buy) and are able to inherit land. Urban residents have a similar right to 99-year land leases.

The state's strict control of land makes supplying adequate compensation for farmers who must be relocated for development projects (as in the case of BuraNEST), difficult and complex — the state owns the land, but farming families with 'holding rights' may refuse to budge. Farmers at Bura were quick to indicate that the delays associated with land compensation at the regional government level were discouraging to potential participants in the project. Gebeyehu Endale, the first farmer to save enough for the required down payment at BuraNEST, shared related concerns: 'I have a threat of losing the land. The regional government might take the land because of the delay. We have a temporary land ownership certificate, but if this delay continues for years, there is a threat that the government might take the land.'¹⁰⁸ That lack of clarity has caused discord among some project participants who are making —by far— the largest investment of their lives.

5.5.8 Natural landscape and the New Town

Despite its picturesque beauty, BuraNEST faces urgent environmental challenges. The site spreads across both sides of the Chane River, a gentle stream with steep, five-meter-high banks in the dry season, and a roaring river spilling over those same banks and into Bura fields during the wet season. The dynamic nature of this Janus-faced water source is difficult to imagine, but parts of Bura can be completely cut off during especially heavy rains, rendering residents home-bound for months at a time. The riverbed excavations made as part of the initial phase of the project in 2012 have somewhat reduced the threat of floods. Excavations also created a dammed pool that serves livestock communally during dry seasons.

¹⁰⁸ Author's interview with Gebeyehu Endale at BuraNEST, Ethiopia, on 15 November 2017.



FIG. 5.37 Bura on the Chane River

The Chane River looks inviting during the dry season but swells over its banks during the rainy season. Parts of Bura can become inaccessible for weeks at a time, which was part of the impetus for the regional government to construct a concrete bridge connecting the banks of the Chane for the first time. Source: Author, 2017

Bura is located in the same part of Ethiopia that was famously devastated by drought and famine in the 1980s. The Amhara region now experiences increasing rainfall variability, and is classified as 'drought-prone', two characteristics that increase the hardships faced by farming communities in this area (Bewket and Conway, 2007).

Before the BuraNEST project, local farmers planted and harvested crops only once per year. The drip irrigation and integrated town agriculture (ITA) techniques introduced as part of BuraNEST now allows farmers to harvest three times per year. Three harvests will effectively triple farming incomes, and farmers see calculation as a convincing argument for change. Much of Bura is already cleared of trees and currently in use as farmland. Local farmers produce teff (a species of lovegrass used for *injera* pancakes), maize, wheat, and rice. Cattle roam freely, grazing on fallow fields and keeping the landscape free of most small flora. Trees, however, are a critical component of BuraNEST. Project leaders incorporated trees from the beginning, and Oswald is convinced of their fundamental impact on the project: 'If you would ask me now what the first step should be when planning a New Town, I would say, "first plant a forest". A forest prevents erosion, which helps reduce flooding, it cleans groundwater and air, it provides free building material, and it is beautiful. If you want to plan a New Town, first plant a forest.'

After just five years, the eucalyptus¹⁰⁹ tree farm planted for construction material is thriving. A local guard is paid to discourage locals from over-harvesting lumber, and a large clearing in the gridded forest functions as a secondary public space for the community. The cool glade offers an intimate space for discussion and relief from the midday sun.

An additional forest of indigenous trees was planted at the main curve of the Chane River as a communal tree planting project—the project’s very first action on the ground, before construction began elsewhere. The indigenous forest achieved several aims at one time, including bringing awareness of environmental issues to the community. The grevillea, Nerium oleander, and acacia trees have since grown to provide spatial definition, a sustainable energy source, ‘lungs’ for the town, increased biodiversity, and erosion prevention.

In addition to the eucalyptus tree farm and indigenous forest, a tree nursery run by residents was started in 2012 and currently produces 75,000 seedlings during the months of June, July, and August. The seedlings are sold locally for communal profit.

5.5.9 Unfinished city

Bura faces an uncertain future. Although only five buildings, a road, a bridge, and new road patterns have been implemented so far, the project has already brought great changes to the local community. Integrated town agriculture and new techniques have increased local productivity and incomes. New water management tools have reduced the threat of flooding and multiplied agricultural production. The architectural design of the Rainwater Units offers residents private sanitation facilities that are currently lacking. A new training center has brought tools for employment to young men and women interested in construction, and the incorporation of traditional and new building techniques has inspired a reconsideration of the single architectural typology present in this area. Those improvements have benefitted the Bura community and will continue to benefit local residents in the future.

¹⁰⁹ Eucalyptus is a strong wood that grows quickly, making it suitable for construction use. However, its oil is toxic to other plant species, limiting local biodiversity. Eucalyptus is an invasive species in Ethiopia. It was introduced from Australia by Emperor Menelik in the 1890s when timber was needed for the construction of a new capital at Addis Ababa.



FIG. 5.38 A different future

The traditional way of life in Bura may change as the BuraNEST project continues to develop. Many farmers welcome and embrace this change, envisioning a nearby future where good infrastructure supports commerce, education, and a lifestyle enriched by access to more urban services. As Gebeyehu Endale put it: 'I believe the BuraNEST organization is completely different than the way we live now. Now everything is mixed up. The advantage is that all segregated spaces will be together in one small plot, and also the multifunctionality of those spaces. The combined houses will also make the community closer. I want to live a modern way of life.' Source: Author, 2017

There have also been challenges and setbacks associated with the project. Management has been a concern for farmers, perhaps primarily due to the complicated, top-down political structure that has created unnecessary delays and roadblocks. Closer to the project, BuraNEST's steering committee has 11 members—some local and some international—with varying levels of commitment, and this discrepancy is evident in the committee's infrequent meetings. Limited access to housing loans has also frustrated farming families interested in the project, but without adequate liquidity.

From a design perspective, the limited housing stock—only one model—precludes many families from joining the project, and squatters have already started to move into adjacent areas. As Chane points out: 'This type of house is for rich farmers. Now the users are asking to have another type of house based on their income.'

So we need different housing models, or we should get the land out of the project [and sell homes on smaller plots], to make it cheaper. Other people have opposing ideas. In general, different options should be available.’ Some locals doubted the structural integrity of a two-story building, and they thought attached housing might not offer enough privacy for the intimacies of family life. The architects also faced resistance to the use of local materials, which seemed strangely old-fashioned for such a ground-breaking design. The Rainwater Unit design has since been widely accepted, but another challenge that may play a role in BuraNEST’s long-term success is its ability to support livelihoods other than farming. Rural Ethiopian youth appear largely disinterested in farming, and if there is no chance for education or self-development, they will move to cities with more opportunities (Sosina and Stein, 2014). To combat this, the plans call for commercial areas, a new market and life-long learning facilities. They also leave flexibility for spatial usage — an attractive opening for entrepreneurs who may use ground floor space in a Rainwater Unit as a small shop or to provide a service.

The BuraNEST project offers many lessons for designers interested in rural development. For example, coming from a Swiss perspective, Oswald was struck by the unexpected intricacies of the project’s progress:

“It was a very slow, very complex process. An example may help illustrate the difficulties that we had... We said from the beginning, ‘this project must be built with local resources’. In this case, that meant either local timber or soil which you can press [into bricks]. It’s too expensive to build with imported materials. We thought, ‘people here have a life experience, a cultural experience, with these materials’. But this is an assumption. Because then you find out that in this particular culture, they’ve had civil wars for the past fifty years. Every generation had a civil war. Which means that all the know-how is gone. Nobody tells you that. You find out by going to see buildings that were beautifully built 100 years ago—complex joinery and wooden nails—and then you think, ‘but why didn’t they continue with that?’. And then you find out that since 1960 Ethiopia has had near-constant civil wars in certain areas. And that means that the younger generation cannot go and see what the older generation did, and learn why and how.”¹¹⁰

¹¹⁰ Author’s interview with Franz Oswald; Zurich, Switzerland, 25 September 2017.

The kind of 'learning-by-doing' approach described by Oswald puts the BuraNEST designers and future beneficiaries in the same position. Every day at BuraNEST becomes, as Oswald puts it: 'confrontation, collaboration, confrontation, collaboration.'¹¹¹ Eventually, BuraNEST's real contribution may be the hard lessons from this 'living experiment' that may facilitate implementation in future New Towns. If the Rural-to-Urban Transformation project initiated by Woldu and Simon moves forward, there may be 8,000 future Ethiopian New Towns that ultimately benefit from the roadblocks and design re-iterations that slowed progress at Bura.

In August 2017, the Association of Ethiopian Architects (AEA) presented NESTown with their annual design award. The New Town's designers appreciated the acknowledgment of their work, but Oswald was careful to differentiate between more traditional planning and the symbolic ideas that inform the NESTown approach and the BuraNEST project more specifically: 'The most important thing is to stick to the principle ideas. The design can be anything. [American architect] Louis Kahn made a beautiful differentiation between order and form. Order remains on a conceptually level, and form is physical, material. NESTown is defined by a clear pattern of associations, but they can take different forms, in different places, for different people. That's what makes this model different from other New Towns... If people learn about this and interpret the ideas for themselves, then that's the idea. We want people to benefit from this.'¹¹²

As stated earlier, BuraNEST is based on seven 'propositions' that can also be read as the project's ultimate ambitions. BuraNEST's success in achieving these propositions can only be evaluated after the project evolves from 'real life experiment' to actual town. The collaborations between Ethiopian and Swiss architects, funding bodies, training agencies and government authorities have proven to be fertile ground for new ideas, and new political commitments. But BuraNEST is at a transitional moment, and a crossroads. Currently, after seven years on the ground, only five buildings have been constructed and none of those are yet inhabited. What happens next will determine the long-term success of this innovative and ambitious project.

¹¹¹ Author's interview with Franz Oswald; Zurich, Switzerland, 25 September 2017.

¹¹² Author's interview with Franz Oswald; Zurich, Switzerland, 25 September 2017.

5.6 Applying the Principles to the Case Studies

In practice, there is not yet an ideal representation of a New Town that is informed by the principles and achieves a specific standard. This chapter therefore takes a practical approach that questions how existing New Towns function and evaluates their performance against the principles. By looking to these examples, we can draw lessons for application of the principles to future New Towns. This section takes each principle as an individual lens through which to view the three case studies.

5.6.1 Planning is an ongoing process

Sheikh Zayed City has changed considerably between its first phase of implementation and the city that currently stands. While this process usually ensures more diversity and the natural incorporation of unregulated practices, in this case it has resulted in a New Town that provides ample leisure and recreational facilities for those in middle- and high-income groups, while disregarding the needs of low-income groups. This disparity can also be seen in the lack of public transportation options. As Sheikh Zayed continues to grow, more affordable housing options and more truly public facilities can make this New Town a more inclusive, vibrant, and liveable city, but it will require constant rethinking of the current situation. At the moment, Sheikh Zayed City feels more like an unfinished project than an evolving city.

One of Kilamba's key challenges has been good urban management since CITIC stepped out of this role in 2017. With the current organization for urban administration processes, this will continue to be a challenge. The municipal government does not have the financial or labor capacity to effectively manage and maintain the city. As we have already seen, this will continue to erode the New Town's image (and physical state) unless alternative management processes are explored. It is crucial that local government continues to monitor, evaluate, and reconsider Kilamba, rather than accepting the New Town as a completed project. That change in mindset can be the key to a sustainable and inclusive future.

BuraNEST is planned from a strong concept that focuses on complimentary programmatic elements (Energy, Education, Exchange, and Ecology) rather than a specific design. If they continue to be used as a strategy for development over time,

those principles, or ‘propositions’, will enable the evolving New Town to grow in ways that make sense as the community changes over time. The community should also be able to re-evaluate the New Town’s progress at specific moments, to determine whether the ‘4E’s’ remain relevant, or whether alternative develop trajectories may be more suitable.

5.6.2 Plan for adaptivity

Very little adaptivity is planned into Sheikh Zayed City. Rather than an integrated approach that addresses local needs and alternative scenarios, it appears that NUCA sells land to private developers with only limited regulation. That has led to a situation with two groups of inhabitants who experience two different cities. Adaptivity speaks to both social and environmental issues, and for this New Town both aspects must be addressed urgently. For Sheikh Zayed City to become more adaptive, NUCA and local leaders must examine citizens’ requirements at multiple levels and with both short-term and long-term solutions.

Kilamba has a number of attributes that could be useful to future adaptation. Perhaps most promising is the grid organization of both streets and utility infrastructures that could be extended to surrounding areas as well as subdivided to increase densities and facilitate more diverse urbanization patterns. Residents’ committees in Kilamba have assumed increasing power since the rent strikes of 2016, and this may signal an increase in participatory governance and municipal decision-making processes. Their insights and ambitions can give the local government insight into necessary changes.

The ‘4E’s’ concept developed by the BuraNEST initiators allow for a certain amount of spatial flexibility. One threat to BuraNEST, however, has been land ownership and land compensation issues stemming from the regional government’s lack of initiative. That threat has changed the project’s timeline dramatically, and as a result, farmers (future beneficiaries) are voicing doubts about the project’s continuation. BuraNEST project leaders must find a way to encourage continued development, whether that is through the design of alternative, cheaper housing options, or more focus on programmatic elements other than housing. The Ethiopian NESTown members must engage this transitional moment and use it to determine an approach that acknowledges the hard lessons of the last seven years. BuraNEST must prove it is adaptive enough to overcome stagnation.

5.6.3 No New Town is an island

Unlike most other New Towns in this book, Egyptian New Towns are part of a comprehensive national spatial planning approach and locations have been decided upon in the context of various national spatial policies. Egypt is one of the few African countries that has this planning tradition. Still, we see difficulties in Sheikh Zayed because of a lack of integrated public transportation. Located 38 kilometers from downtown Cairo, Sheikh Zayed City currently supports a number of large-scale employers, but primarily functions as a bedroom community. Commuters travel daily between the New Town and neighboring 6th of October or Cairo. Although most residents we spoke with expressed resistance to the idea, the proposed metro line to downtown Cairo would increase Sheikh Zayed's connectivity by reducing travel times and costs. Furthermore, the establishment of open markets or commercial facilities aimed at lower-income residents would reduce their need to travel outside of the city in order to find affordable groceries. Other accessible transportation options such as better bus connections within the New Town and car-sharing could also improve the connectivity.

Kilamba fails to adequately take into account its surrounding context from both social and environmental perspectives. This presents a missed opportunity for the New Town and facilitates the growth of unserved *musseques* along its borders. Although the surrounding area is likely to urbanize in the coming years, Kilamba currently functions as a suburban satellite to Luanda, with most of its working residents commuting to the *baixa* daily. 'Public' transport connections in the form of *candonguerios* (private mini-buses) are limited and inefficient.

BuraNEST is 15 km from Yifag, the closest market town. This means that self-sufficiency will be an important aspect of the New Town's growth strategy. However, encouraging mutually beneficial relationships among BuraNEST, Yifag, and other surrounding communities will enable BuraNEST to grow in ways that attract residents.

5.6.4 Use no cut-and-paste universal model

Sheikh Zayed City is visibly influenced by two planning models: gated communities in the style of American suburbs, and a public housing typology that has been prevalent in Egypt since the 1970s. Both models could be seriously questioned. More inclusive models and new ways of mixing income groups could encourage social cohesion rather than contributing to (self-) segregation. Taking a hard look at what is happening on the ground can be a way for planners to begin reconsidering how to address this New Town's specific needs and adapt their plans to those requirements.

Kilamba falls into the trap of embracing a one-size-fits-all model. Chinese planners designed the city based on quantifiable data with extremely limited input from local experts. The results of this process are visible in the urban management challenges the New Town continues to face, as well as the social adaptation challenges faced by residents (cooking on balconies, trash thrown from windows, poor care of shared spaces, and the inability to repair broken elements (elevators, lighting, etc.) imported from China).

BuraNEST is considered a 'living experiment'. It is the first test of a concept that may be applied to 8,000 New Towns in the near future. But BuraNEST is not a design that will be re-used on another site. Rather, the NESTown model is a set of principles that prioritises Education, Energy, Exchange, and Ecology as the basic building blocks of new urban centres. When implemented, those elements will look different in different places.

5.6.5 Embrace new ideas

In the 1990s, Sheikh Zayed City was one of the first Egyptian New Towns to incorporate gated compounds. With the benefit of hindsight, this experiment has proven social and financially problematic. It was not as profitable as expected because NUCA often sold land at below market prices and found it difficult to recoup infrastructural costs. In the spirit of this bold/short-sighted?? approach to urban planning, however, NUCA might look to current best practices around the world that better integrate housing for all groups and supply appropriate urban amenities.

Kilamba can be understood as an experimental New Town in the sense that it is the first entire city imported from China into Africa. Although the circumstances that brought it into being were unusual and unlikely to be repeated, there are lessons to be drawn from what has worked well in this New Town: namely, the efficient provision of basic urban services.

The NESTown model is innovative in its clear move away from design-based urban planning towards conceptually driven development. The '4E's' that provide the framework for development in BuraNEST are innovative in that they are relevant to local life, but also ambitious enough that even at this early stage, the developments at BuraNEST have changed people's lives. If the BuraNEST experiment continues to grow, it will undoubtedly emphasise innovation within the Bura community and inspire others to follow suit.

5.6.6 Infrastructure and mobility for all, from the start

Roads, electricity, sewage, and water networks in Sheikh Zayed are well-organized and functional. Mobility is problematic for low-income groups because the design of the city is based on the premise of private car ownership. It is not too late, however, to strengthen existing transportation systems and add additional options both within the New Town and at the regional scale.

In the Angolan context, Kilamba does an exceptional job of providing urban services and high-quality infrastructures. It falls short of its potential, however, by prioritizing cars as the main mode of transportation and relying on the *baixa* as the main source of employment, leisure, and commerce for its residents. This may change with the new masterplan for Luanda that proposes a large mixed-use node north of Kilamba.

The regional government built a packed dirt road and concrete bridge that connected the existing Bura community to the main road (Route 3) for the first time. Vehicular accessibility has already allowed for dramatic transformation such as riverbed excavations, importation of materials, and access for emergency vehicles. That accessibility may act as an important catalyst for the area as it continues to develop.

5.6.7 Use a blue-green infrastructure as the central framework

Sheikh Zayed City is located 142m above sea level. Extensive use of irrigation keeps some (gated) areas of the New Town vibrantly green, but the majority is powdered in the same sand that extends thousands of kilometres south across the Sahara. This denial of existing environmental conditions is taken even further with golf courses, swimming pools and manmade lakes – which must be refilled regularly due to evaporation.

Water shortages, outages, and increasing water prices indicate that the Egyptian government is aware that this approach is not sustainable. It is not clear whether that will have any effect on the New Town's physical structure.

Kilamba's masterplan does not actively acknowledge the natural landscape. It also relies on twentieth-century modernist solutions to spatial organization rather than taking a forward-looking approach to the effects of climate change and climate variability. Kilamba is 10km from the Atlantic coast, and only 100m above sea level. Deadly floods in Angola leave thousands of people homeless every year, and anticipated sea level rise could cause massive migrations away from the central

urban core. Kilamba's current plan does not take these eventualities into account. Climate change projections for Angola indicate a temperature rise and decrease in rainfall, both of which will affect agricultural production. However, Kilamba makes no attempt to acknowledge local food security or health issues stemming from climate change. These are areas where there is room for great improvement. The towers in Kilamba could easily be adapted to anticipate flooding, while the massive open spaces could be zoned for use as urban agriculture production sites. Kilamba could also benefit from more sensitive consideration of its waste management and the exploration of renewable energy production.

The natural landscape at Bura was taken as the primary structuring element for the New Town, and the environment plays a large role in this project. The Chane River weaves through the site, and part of the project has included excavations to reduce flooding. A new eucalyptus tree farm and indigenous forest have reduced erosion and improved local biodiversity. The model garden at the training centre provides fruits and vegetables, as well as hand-on lessons in new agricultural techniques. New water collection, storage, and irrigation methods allow farmers to harvest three times per year instead of relying on irregular rainfall. By improving existing conditions, BuraNEST offers residents an easier, safer, and more profitable quality of life.

5.6.8 **Incorporate local cultural heritage(s)**

Sheikh Zayed City was largely built according to the global expression of a specific 'lifestyle'. That lifestyle – informed by private cars, gated compounds, and elegant shopping centers – has clearly been embraced by those who can afford it, which should come as no surprise. The rich architectural heritage of nearby desert communities was not incorporated in plans, nor was traditional family life. As a result, parts of Sheikh Zayed feel placeless: their generic style recalls similar typologies from Brazil to South Africa.

Local cultural heritage was not considered before or during the planning process for Kilamba. That is evident in the lack of local historical analysis, and lack of participation from either Angolan professionals or potential residents during the planning process. This has become a weakness for the New Town as residents have struggled to adapt to the specificities of life in mid-rise condos such as shared common spaces and monthly fees. It has, however, presented an experiment in above-average-density housing from which lessons can be drawn.

The Bura community has a strong tradition of small-scale farming and a specific vernacular architecture. Those elements have been closely considered and sensitively incorporated in the BuraNEST plan. The continuous communication with Bura residents through workshops, presentations, church meetings and interviews has given project coordinators deep insights into the dynamics of this community and their priorities.

5.6.9 **Combine top-down and bottom-up**

Residents in Sheikh Zayed City are not accustomed to organizing grassroots initiatives or collective action. One way forward could be for NUCA to extend an outreach program to citizens, to facilitate productive debate between NUCA and residents, and use that as a tool to slowly improve the quality of life in Sheikh Zayed City.

The Angolan national government exerts strong control over its cities. For this reason, real change in the sense of more inclusive housing legislation will have to come from the Ministry of Urbanism and Housing. Within its borders, however, Kilamba's urban management team could explore regulations that embrace a more inclusive and participatory approach when possible.

The BuraNEST project initiators have maintained a focus on clear and consistent communication between project leaders and local residents. That participatory approach has not been easy, or convenient; both project leaders and farmers have expressed frustrations. But the will to engage in meaningful discussions and exchange may show fruit in long-term local commitment to the project.

5.6.10 **New Towns need diversity**

Sheikh Zayed City is a high-income city in a middle-income country. Despite this majority, some middle- and low-income residents still call it home. It is urgent that this New Town finds a way to better integrate these groups in order to achieve a more inclusive and cohesive future for everyone.

Kilamba remains an exclusive New Town. This is largely due to housing prices, but also to existing legislation that inhibits the formal banking sector's ability to offer loans for housing mortgages. The absence of a land cadaster further handicaps the

growth of the formal housing sector, effectively limiting residents in Kilamba to a small percentage of the population; thereby excluding 75 percent of the population without access to legal tenure. The three housing types offered within Kilamba further limit the diversity of potential residents. Because of its tower-in-the-park typology, however, Kilamba has the space to potentially rethink the master plan and alter regulations to allow for more varied housing stock. At the national level, the Ministry of Urbanism and Housing (MINUH) could facilitate this by reconsidering existing housing legislation to legally acknowledge incremental tenure and so-called 'good faith occupation'. Kilamba municipal authorities could also reduce the current spatial segregation between the New Town and its surroundings by changing regulations that penalize the spatial components of the informal economy and instead incorporating these kiosks, minibuses and markets into the New Town in ways that benefit local residents and enrich the public realm.

Bura is currently a community of farmers who share an ethnicity, religion, and livelihood. When it is completed, BuraNEST will offer residents new choices that encourage diversity: the ability to run a shop along the main road, or attend school in town, or sell products at the market. BuraNEST also offers an alternative architectural type to local residents; one that increases density and illustrates the benefits of compact development. BuraNEST can and should offer more alternatives in the future, and residents are already realising this, as they ask designers for cheaper housing options.

5.7 Conclusion

Three cases cannot be representative of a hugely diverse group. However, they can allow us to generalize from case studies to theory. In this research, the principles in question provide an adequate framework with which to approach New Towns in Africa because they are applicable to the diverse range of New Towns identified in Chapter 1.

This chapter answers the question: *how and to what extent can general adaptive planning principles be applied in all African New Towns?* It does so by using the principles as a measure with which to evaluate three existing African New Towns. Applying these principles to three cases establishes that they can effectively be applied to different New Towns despite contextual variables and idiosyncrasies.

This chapter also addresses the question: *To what extent should specific adaptive planning principles be developed for each case, related to the specific social and physical context?* Based on the results of this analysis, the principles do not need to be individually developed, but the social and physical contexts will play a large role in determining how the principles should be *interpreted*. Further elaboration based on local realities, when possible, would be useful to planners and decision-makers involved in the planning process. This elaboration should be heavily informed by local knowledge of the site and its people. Preliminary research, using the principles as a framework to explore (design) decisions, could be a useful first step in the New Town planning process.

Furthermore, the adaptive planning principles do not include criteria for determining when individual New Towns might meet a specific standard. In the New Towns of Sheikh Zayed City, Egypt; Kilamba, Angola; and BuraNEST, Ethiopia, we can see that different principles are addressed to varying levels of sufficiency in each example. However, without a method to quantify performance according to each principle, these evaluations remain interpretive and subjective. Future research could operationalize the principles by defining criteria for ‘successfully’ applying the various principles.



Residents in Kilamba, Angola enjoy the shade in a sidewalk cafe. Source: Author, 2016

6 Short term workshops

Tools for Developing and Implementing Adaptive Planning and Design Principles in New Towns in Africa

Substantial parts of this chapter were previously published as: Keeton, R., Mota, N., Tan, E. (forthcoming 2020) "Participatory Workshops as a Tool for Building Inclusivity in New Towns in Africa". Research in Urbanism Series (RIUS).

6.1 Introduction

Since being introduced as an urgent research topic in 2013, contemporary African New Towns have attracted an increasing amount of attention among researchers (Watson, 2013). In the years since this first investigation, such New Towns have proven to be fertile ground for researchers focused on aspects such as inclusivity (Bhan, 2013; van Noorloos and Kloosterboer, 2017; Côté-Roy and Moser, 2018; Marcinkowski, 2017), housing (Alaya, van Eerd, and Geurts, 2019), economic significance (Murray, 2015b), and governance (Murray 2015a). Many of these studies look to individual case studies or take a comparative approach, while other studies take an overarching, continental perspective (Grant, 2015; van Noorloos and Kloosterboer, 2017; Keeton and Provoost, 2019).

Distinguishing between New Towns developed by national governments and those led by private developers, these studies build a profound critique of contemporary,

privately-developed New Towns across Africa as isolated, exclusive pockets of infrastructure and services. This is seen as partially the result of the top-down planning processes that characterize most privately-developed New Towns in Africa (van Noorloos and Kloosterboer, 2017; Keeton and Provoost, 2019). However, there is growing consensus among researchers that neither exclusively top-down nor exclusively bottom-up development can succeed in the long-term (Grant, 2015; Keare, D.H., 2001; Provoost, n.d.).

Recent literature points to the need for alternatives to the current New Town planning paradigm; alternatives that bring previously marginalized stakeholders into the planning process (Grant, 2015; Keeton and Provoost, 2019). This chapter argues that short-term workshops that bring together diverse stakeholders can be useful tools to stimulate negotiation among groups, thereby not only increasing the diversity of voices in the planning process, but also building empathy and understanding between groups with dissimilar or conflicting priorities. By creating multi-stakeholder forums that support access to different types of information, “different interest groups can be brought together to successfully collaborate on planning for and managing cities, and more appropriate local strategies and projects can be developed and implemented” (Smit, 2018: 77).

Using three examples of recent workshops aimed at influencing the planning of contemporary African New Towns, this chapter provides a reflection on the experiences and outcomes of these workshops. As discussed in section 6.4.1, Workshop A was initiated and organized by the author in collaboration with the International New Town Institute (INTI) at TU Delft, Netherlands, with a group of international, multidisciplinary participants. Workshop B (see section 6.4.2) was initiated and organized by INTI and financed by Rendeavour, a private developer. The workshop took place at Tatu City, Kenya, and brought together local stakeholders with a team of Dutch planning professionals. Workshop C, discussed in section 6.4.3, was organized by the author in collaboration with Play the City (a private game development company), and took place in Mahonda, Zanzibar with a group of local stakeholders and foreign planning experts. Workshop C was initiated by the Zanzibar Department of Urban and Rural Planning (DoURP), a public planning body. The three workshops should therefore be understood as having three different initiators with different ambitions: Academic (Workshop A), Private (Workshop B) and Public (Workshop C).

Although much has been written on the individual subjects of short-term workshops and New Towns, there is not yet much literature that brings these two streams together. This chapter aims to do so by first describing the theoretical background of these concepts, focusing on short-term workshops as tools to facilitate good

planning. The main research question is: 'how can short-term workshops lead to implementation of adaptive planning approaches and the related principles?' Following this, the chapter discusses the setup, ambitions, and experiences of three workshops that aimed to contribute to the development of African New Towns (among other goals). Finally, the chapter concludes by offering recommendations for future research and summarizing the conclusions.

6.2 Planning alternatives for New Towns in Africa?

New Towns can be understood as new, planned urban developments built on previously undeveloped (greenfield) sites. Keeton and Provoost define contemporary African New Towns as comprehensively planned, mixed-use, intended for more than 10,000 residents and displaying some degree of political autonomy (2019). In different parts of Africa, comprehensively-planned cities that meet this criteria have been deployed as an urbanization strategy since ancient times (although these remain exceptional and smaller villages were a much more common form of development) (Smith, 2007; Ozo, 2009; Ross and Bigon, 2018). There is a lack of data available on the planning processes used in these earliest New Towns, but in their analysis of twentieth-century planned capital cities in Africa, Abubakar and Doan write: "Each of these new towns was designed and implemented by foreign consultants with little involvement of the local community. This is not surprising because the modernist model is top-down, context-independent and based on scientific but not local knowledge" (2017). In contemporary examples, this modernist approach continues to be employed, although the design results may stray significantly from the functionalist models associated with modernist urban design.

6.2.1 A Top-down project is not a city

The latest generation of New Towns in Africa repeats the top-down modernist development model, although the majority of contemporary New Town development in Africa is now initiated and led by private developers rather than national

governments (Keeton and Provoost, 2019). Unlike government bodies who maintain the long-term management of new urban developments, private developers may see their role in the development process as more limited and temporary. Because of this, many private developers tend to look at New Town development as the creation of a finite product, or a project to complete and then sell. This approach does not sufficiently allow for flexibility or adaptation over time, and does not accommodate the needs of a pluralistic society.

As Chris Marcinkowski writes, “What is at issue with this particular format [private New Towns] is that much of the housing being produced is simply inaccessible to the general population from a financial point of view without substantial government subsidies that many of these countries simply cannot afford to provide” (Marcinkowski, 2017). Indeed, UN-Habitat estimates that over half (61.7%) of the urban population of Africa is made up of slum-dwellers (2012). Developers and decision-makers commonly see the urban poor and unregulated settlements as a reflection on the failure of urban policies, when comparing their cities with international standards. With this in mind, they may lean towards eviction and slum clearance or prohibition rather than looking for new ways to integrate the urban poor into the planned city (Klopp, 2008). However, researchers point to the need for more collaborative planning processes in order to create New Towns and cities that are more inclusive and reflective of local realities (Scott, 1998; Myers, 2011; Abubakar and Doan, 2017). As Warren Smit argues, even the urban governance landscape alone (one of many moving parts in any urban planning process) in Africa can be complex and often difficult to navigate: “Key urban governance stakeholders... need to be brought together in collaborative processes to jointly develop and implement new strategies that are based on a broader range of interests and meet a broader range of needs” (2018).

6.2.2 **Academia versus Practice**

Rendeavour is currently one of the largest private developers of New Towns in Africa, with projects in five different countries. Tim Beighton, Head of Marketing & Communications for Rendeavour, calls African New Towns an “academia-defying subject” (personal communication, 11 April 2018). His critique reflects the view that academic literature on this topic tends to vilify private New Town development without acknowledging the complexities developers face in the drawn-out process of attempting to secure land, commissioning various studies and master plans, and finally contracting construction companies. While academics may be guilty of simplifying the challenges of implementation, their critique of contemporary

New Towns across Africa as exclusive enclaves deserves acknowledgement. Many developers are unwilling to address this issue with any real commitment, excusing their developments as housing that meets market demand.

Despite this disconnect between academia and practitioners, there are opportunities for researchers to engage directly with developers. Short term workshops are one way to create a forum in which different voices can be heard. This has benefits for all participants, as it may be the first time they are brought into contact with each other and (perceived) power differentials may be temporarily reduced or removed, allowing for real negotiation. In the context of contemporary African New Towns, this form of collaboration may help address the problem of top-down development that prioritizes one aspect of urban development over the needs of the majority. Richard Grant provides one example of what such a collaboration might produce: “The core ideas of these opposing camps [academics and developers] are the antithesis of each other. A more productive way forward is to pursue a dual track that allows for showcase and iconic new urban projects while focusing special attention on slum urbanism and creative thinking that links the two approaches and situates urban projects within a sustainable development paradigm.” (2014: 294).

6.2.3 **Short-term workshops as collaborative and participatory planning tools**

Since the term ‘design participation’ was introduced fifty years ago at the 1971 Design Research Society conference in Manchester, participatory planning and design have gained traction as accepted working methods (Cross, 1972). In their book *Routledge International Handbook of Participatory Design* (2013), editors Jesper Simonsen and Toni Robertson connect the shift towards collaborative design processes to the collective actions and civil rights movements of the 1960s and 1970s (2013: 2). Today, participation in the planning process is increasingly seen as a requirement by both private industries and public bodies engaged with planning and development. Jenkins (2006) even refers to a ‘participatory culture’ of the current climate, as illustrated by new types of media and social engagement through digital forums. In this context, short-term, multi-stakeholder workshops are widely acknowledged as a tool in the ‘design participation’ toolbox to catalyze stakeholder communication and negotiation.

In this study, the composition of the participant groups varied among the three workshops. Workshop A was designed for multidisciplinary professionals, and thus missed input from New Town residents and bottom-up initiatives. As an academic

exercise, this workshop was concerned with refining a set of planning principles and aimed for transdisciplinary insights.

Workshop B was focused on design, and thus the most active participants included local and foreign planning professionals. Other stakeholders participated to lesser degrees, including residents of surrounding communities and tribal leaders. Their participation was limited to open interviews and focus groups.

Workshop C aimed for public participation facilitated by a serious game designed to give voice to groups (politicians, farmers, women, children, elderly) within the community marked for redevelopment. Subsequent phases of Workshop C brought these voices to the planning table, where local and foreign planning professionals implemented the principles and insights from the serious game in new conceptual plans for Mahonda.

As planning tools, workshops have the potential to create environments of democratic decision-making and transparency that can achieve results that other planning tools cannot. By giving stakeholders 'equal' voices in the design or decision-making process, a workshop may be able to bring new ideas, connections, needs, desires, and networks to the foreground. At their best, such approaches can "enable collaboration, negotiation and the co-construction of knowledge" (Wynne-Jones, North and Routledge, 2015: 218).

Despite their current popularity, however, short-term workshops face considerable threats. Because they are a function of interpersonal communication and relationships, there is no way to fully control these events. Researchers have pointed to highly subjective tensions such as trust, loyalty, guilt and discomfort as "complicating ingredients" in participatory design (Wynne-Jones, North and Routledge, 2015: 219). For workshop organizers operating outside of a familiar cultural context, complications can quickly multiply.

6.3 Organizational considerations for short-term workshops

The analysis of the workshops in section 6.4 is informed by the first-hand participation (Workshop B) and organizational experiences (Workshop A and C) of the author, as well as their extensive experience with African cities and planning processes. To make this assessment, the author has compiled and analyzed reports of the workshops, reviewed empirical evidence, interviewed workshop participants, and evaluated published results from secondary data such as newspaper articles, Press Releases and participant websites.

The scope of this analysis is limited to three workshops that took place between 2017-2019, with the stated ambition of improving planning in African New Towns. The three workshops were selected to illustrate a diversity of organization, intention and outcomes. This section addresses the primary organizational considerations for short-term workshops identified by Archon Fung (2006). In his seminal article “Varieties of participation in complex governance”, Fung outlines three dimensions along which mechanisms of participation vary: “[1] who participates, [2] how participants communicate with one another and make decisions together, and [3] how discussions are linked with policy or public action” (Fung, 2006). Short, intensive workshops can be a useful way to bring together diverse stakeholders (whether selectively recruited or self-selected), structure the interaction and communication between these groups to achieve specific goals, and move the planning process forward efficiently. As a precursor to workshop organization, stakeholder analysis should be done in order to establish the ambitions, resources, and interdependencies of various groups (Freeman, 1984; Bryson, 2004).

6.3.1 Who participates?

There is a distinct difference between workshops designed for multidisciplinary experts (professional participation), and workshops designed to access the tacit or indigenous knowledge systems of local residents (i.e. public participation). Public participation events generally occur because planning bodies or decision-makers lack knowledge, capacity or resources (Fung, 2018). Deciding who participates in workshops has a direct impact on whether these deficiencies will be appropriately redressed, and requires consideration of workshop goals as well as workshop

constraints. One may ask, “Are [the participants] appropriately representative of the relevant population or the general public? Are important interests or perspectives excluded? Do they possess the information and competence to make good judgments and decisions? Are participants responsive and accountable to those who do not participate?” (Fung, 2006:67). Designing a successful workshop therefore begins with matching participant selection to established goals. As elaborated in section 6.4, Workshop A was organized with *selectively-recruited participants* based on individual expertise, while Workshop B was organized with *professional stakeholders*. Workshop C brought together *lay stakeholders* and *professional stakeholders*.

The goal of each workshop is unique and one of the main influences in the choice of participants. Examples in section 6.4 include Workshop A in Delft, the Netherlands, which aims to employ peer review to revise a preliminary set of planning principles, Workshop B in Tatu City, Nairobi, which attempts to bring together professional planning experts to contribute to an existing master plan design, and Workshop C in Mahonda, Zanzibar, which attempts to use serious gaming as a tool for implementing adaptive planning and design principles. In all three cases, the workshops were designed to achieve maximum cooperative potential and to reduce threats of obstruction (Fung, 2006).

6.3.2 **How do participants communicate with one another and make decisions together?**

In the three workshops discussed in this chapter, participant communication and decision-making was structured in different ways. Workshop A used presentations by individual experts to frame the workshop goals and provide background information to participants, small group discussions and exercises, and plenary discussions to build towards consensus. Decision-making was characterized by open debate in both small and plenary groups. Each decision (in this case, each revision of the text) was agreed to unanimously by the group.

Workshop B also employed individual presentations to clarify the workshop goals, provide background information on Tatu City, and introduce the participants. Small groups and plenary discussions were used to facilitate communication and decision-making. Design decisions were made primarily by the visiting planning professionals, in consultation with Rendeavour’s planning team. The final design was presented to a group including Rendeavour employees, contracted designers (SOM), subcontractors, local experts, and a community liaison. Following the design presentation, a discussion of the proposal led to the decision by Rendeavour to look

for future modes of collaboration with the designers and INTI. That decision has not yet led to action due to unrelated developments with the New Town.

Workshop C also used individual presentations to introduce the principles and the goals of the workshop, as well as the background of Mahonda and DoURP's ambitions for a New Town. The serious game was designed to facilitate small group discussions and decision-making around the program and conceptual design of Mahonda New Town. Plenary discussions following the game addressed the game outcomes and explored the reasoning behind the decisions made by small groups. The second half of the workshop with the DoURP planning team and foreign planning professionals used presentations, discussion, and collaborative design to reach decisions.

6.3.3 **How are discussions linked with policy or public action?**

Of these examples, discussions among participants were only linked to public action in the third workshop (Workshop C). This is because the first workshop was an academic exercise with the goal of refining a set of principles according to peer review. The second workshop could potentially have resulted in public action if the results of the workshop would be implemented in the plans for Tatu City. At the time of writing, that had not occurred. The workshop therefore remains a design exercise. The third workshop linked discussions with public action by acting as a first step towards a Local Area Plan (LAP), which is an official planning document for DoURP.

6.4 **Peer review, design, and serious gaming workshops for African New Towns**

This section describes the organization, setup and outcomes of three workshops. As described in the first example in this section, a peer review workshop was used to evaluate and refine a preliminary set of adaptive planning principles for African New Towns. In the second example, a design workshop was used to give an alternative perspective on an existing master plan for a private developer in Tatu City, Kenya. The third example is a serious gaming and design workshop that aimed to implement the adaptive planning principles in Mahonda, Zanzibar.

6.4.1 Workshop A: “Urban Lab: Imagining Adaptive Planning for African New Towns” (2017)

The “Urban Lab: Imagining Adaptive Planning for African New Towns” took place on 8 June 2017 at TU Delft. This peer review workshop was organized by the author in collaboration with the International New Town Institute and with financial support from the Delft Global Initiative.

The workshop was a parallel event within the Urban Thinkers Campus on Education at TU Delft from 7–9 June 2017. Twenty-one workshop participants were selectively recruited experts from a range of backgrounds, including academia, urban planning, government, and environmental analysis.¹¹³

The aim of the workshop was for participants to critically examine a proposed set of planning principles from multidisciplinary perspectives, and applying peer review to ultimately build a set of coherent adaptive planning principles that meet the diverse criteria brought into discussion during the workshop. By employing deliberation and negotiation mechanisms, and taking a holistic view of the urban challenges related to African New Towns, the participants collectively arrived at an equitable set of principles to drive inclusive, adaptive planning forward through effective urban design.¹¹⁴ Application of these principles and their spatial implications were explored in subsequent workshops (B and C).

The workshop began with presentations by New Town planning experts, followed by an open question and answer session to engage the other participants.¹¹⁵ Following this, the group broke into smaller workgroups to discuss the ideas and planning solutions presented earlier, and revise the planning principles based on their own expertise. The workgroups then presented their conclusions to each other, with time for discussion and debate between the presentations. At the end of the workshop, the groups came together again to finalize a new set of planning principles based on the insights and recommendations gathered during the workshop.

¹¹³ See Appendix B for a full report on the workshop, list of participants, and results.

¹¹⁴ Archon Fong identifies deliberation and negotiation as a distinct mode of decision-making in public decision-making. “Two features distinguish the deliberative mode. First, a process of interaction, exchange, and – it is hoped – edification precedes any group choice. Second, participants in deliberation aim toward agreement with one another (though frequently they do not reach consensus) based on reasons, arguments, and principles” (Fong, 2018: 69).

¹¹⁵



FIG. 6.1 Workshop A presentations

Workshop A began with a number of presentations by the New Town planning experts with experience in African countries. The discussion was opened to the group following the presentations. Source: Author, 2017



FIG. 6.2 Workshop A small group discussions

The group broke into smaller workgroups to collaboratively challenge the preliminary principles based on the discussions and their own expertise. Source: Author, 2017



FIG. 6.3 Workshop A plenary discussions

Each workgroup presented their findings to the larger group, and plenary discussions were held. The workshop ended with unanimous approval of a new set of planning principles. Source: Author, 2017

The following set of revised principles was collectively agreed upon by all present:

Emphasize innovation

The culture of New Towns is forward looking, with an emphasis on innovation and experiment. This ambition is optimistic and should be fostered. For new New Towns this means looking for emerging best practices, not only in technology but also social, cultural, political and financial innovation. New Towns are excellent laboratories for implementation of the New Urban Agenda.

No city is an island.

The bigger spatial context needs to be taken into account: New Towns must be considered within their regional contexts. Locations should be chosen based on accessibility (efficient connections to surrounding urban areas) local needs, topographic conditions, and potential for growth.

Planning New Towns requires re-evaluating the position of the city in the region and nation, and the changing relation to the mother city. Future New Towns should be based on a national spatial policy and not planned as isolated projects.

Exchange among New Towns and across other urban areas should be encouraged and facilitated to learn from relevant experiences and best practices.

Planning is a process

New Towns will have to address future issues we cannot anticipate. The organizing urban form should therefore create spatial conditions that enable adaptation to a number of variables, including: demographic, economic, and environmental.

New Towns should be considered as a very long-term process, rather than product. They continuously evolve over time, and this evolution should be clearly acknowledged in terms of phasing, sequencing, maintenance and financing (i.e. phased land sell-offs increase profits through rising land values and can be redirected to low income housing development).

Institutional agents should work closely with local residents throughout the process to meet evolving local needs.

Local cultural heritage(s) should be studied and incorporated in plans

Cultural assets of local populations should be integrated in plans and researched throughout the planning process. This supports the development of both identity and community.

Spiritual connections to sacred spaces (waterways, trees, etc.) should be well-understood, respected, and celebrated in the plans. No-go sacred spaces should be zoned appropriately.

Unwritten laws (i.e. statutory versus customary laws), social norms and taboos should be researched and accommodated within the plans.

Capacity-building should be a central aspect of the planning process

Existing governance models can be improved through the planning process and local capacity-building should be undertaken at all levels of exchange.

Performance indicators can codify assessment

Quantifiable indicators based on local conditions can improve monitoring and evaluation through the planning process.

New Towns should be inclusive

Cities should be built for a representative cross-section of society, including low-income and no-income (incremental) housing, and public transport. There is a need for new financial models to achieve inclusiveness. Especially in Africa there is a need to incorporate and facilitate incremental settlements, since they will make up the largest part of urbanization. The provision of incremental housing options should reflect realistic economic capacities and projections for growth to avoid 'low-cost / high risk' settlement patterns in adjacent areas.

Inclusionary policies can ensure job and housing balance, appropriate housing availability and diverse housing stock (which maximizes land sales and land absorption, and increases social cohesion). Developing different sites to varying degrees of completeness can offer financially attractive options to multiple income groups.

Forgoing spatial segregation for diverse urban environments starts with individual choices. Housing stock should be mixed at scales that offer diverse options and reflect the socio-cultural-economic norms of the surrounding context (i.e. access to housing finance, average incomes, culturally specific family unit sizes, etc.).

The spatial components of the 'informal' economy (i.e. kiosks, transport options, markets, etc.) should be accommodated in the plan and engaged as a productive part of urban life.

Infrastructure and mobility for all, from the start

Services, amenities, infrastructure and public transport must be provided and should be initiated before housing becomes available. The provision of adequate health care and educational opportunities is necessary.

The urban plan should not prioritize cars over other transit types, it should encourage slow traffic: carts, bicycles and pedestrians. The provision of public transport to the existing cities from the immediate start of development has proven to be a main factor in the success or failure of New Towns.

Plan for flexibility

Demographic projections indicate continued urban growth over the next century. To adapt successfully, New Towns must be able to absorb influxes (of varying sizes) through increased density and/or extension, becoming increasingly compact over time without degrading public and green spaces.

High quality public space should be preserved indefinitely at different scales (neighborhood, district, urban). Spaces should be permanently reserved for green areas, public gathering, recreation, and communal work areas. Green space can be protected from squatting by giving it (temporary) function(s).

New Towns must have the potential to be adjusted by the residents to respond to their changing needs over time.

Leveraging blue-green infrastructure should inform the central framework for public spaces and stimulate community-building while dealing with the dynamics of environment and climate

Climate change and variability will create extreme situations in the African context and urban planning must address and mitigate these threats.

In the light of climate change and ecological threats, the importance of a network of green open spaces and water is of the utmost importance. This network should underpin every urban plan, combining ecology, flood prevention, water retention with public space and leisure.

Structural planning needs to consider environmental effects: soil erosion, deforestation, waste management and proximity to flood plains can present real threats. Long-term impacts of climate change (flooding, desertification, etc.) should be considered and reflected in design decisions.

Surrounding foodsheds should be protected and growth should be structured so that it does not threaten productive agricultural land.

Renewable energy potentials should be explored at various scales.

Combine top-down and bottom-up

New Towns share a largely top-down approach, with a fixed relation between the government or private party developing the city and the residents. To become more

resilient and fair, and to unleash the vital dynamics that can develop the city, they should provide for a more inclusive and participative approach.

Existing villages or (nomadic) communities using the development site should be included as a priori elements of the plan.

The plan should actively prevent illegal and unfair displacement of people.

Use no cut-and-paste universal model

There is no one-size-fits-all model for New Towns. Models from one part of the world don't guarantee success when exported to another part. Local capacity-building within the planning discipline and education is necessary and should be stimulated, so any country can develop its own urban models, based on local culture, climate, politics, social needs and financial possibilities.

The main changes that emerged from this workshop include the incorporation of considerations present in many urban African contexts, namely: temporary uses of land such as nomadic communities and wildlife; 'informal' spatial users such as markets, kiosks, and unregulated housing; spiritual connections to natural elements; and the presence of both statutory and customary laws in many African countries. Attention to residents' needs and ability to influence the planning process was emphasized repeatedly, pushing the principles toward more public participation.

The principle addressing green networks was also expanded and given more weight. Additionally, two entirely new principles emerged from this process: 'Capacity-building should be a central aspect of the planning process' and 'Performance indicators can codify assessment'. Finally, the original principle addressing 'Stimulate exchange among New Towns' was removed following group consensus.

The workshop benefitted greatly from the expertise of African planners and other professionals with experience in African contexts who were able to identify these issues. The workshop was successful in achieving the goals of the organizer mainly because the invited experts were engaged in the topic and acknowledged the urgency to challenge the current planning paradigm.¹¹⁶

¹¹⁶ For more details on this workshop see Appendix B.

6.4.2 Workshop B: “New Town Lab: Tatu City” (2018)



FIG. 6.4 Workshop B site exploration

Workshop B began with field work throughout the Tatu City site, and to local communities adjacent to the New Town perimeter. KUWA conducted semi-structured and open interviews with local residents prior to the workshop. Source: Christine Waithe, 2018

The New Town Lab at Tatu City, Kenya, was initiated and organized by the International New Town Institute, a “think and do tank” based in the Netherlands. Rendeavour, the private developer behind Tatu City, financed the workshop, and their stated intent was to use the workshop to gain a new perspective on the existing master plan for Tatu City. This was therefore a developer-funded workshop initiated to improve a private New Town. INTI worked with KUWA, a Nairobi-based research and urban planning office, to collect empirical data from local communities before the workshop.

A New Town Lab is a model developed by INTI and characterized by a rapid planning workshop in which a selected group of international and local experts work together for one week with the aim of finding a convincing and innovative concept for urgent planning issues. The Lab took place from 9-14 September 2018 and brought

together Dutch experts on urban planning, water management, circular economy and spatial design, staff from Rendeavour (including Kenya Country Head, Senior Development Manager, Urban Infrastructure Manager, Head of Development Control, and Community Lead) and additional Kenya-based professionals and local residents.

In Tatu City, the workshop addressed the main question: “How can we create a connected network of green and blue spaces that acts as a sustainable and resilient backbone for Tatu City?” This question was developed prior to the workshop based on communications between INTI, KUWA, and Rendeavour.

Because the focus of this workshop directly addressed Principle 7: “Use a blue-green network as the central framework”, the author was invited to join the workshop and use the workshop to further apply and test the principles. To further embed the principles in the workshop, the principles were presented and elaborated at the beginning of the workshop, followed by a discussion on their relevance with Rendeavour employees and the visiting professionals.

The workshop built on previous site research conducted by KUWA that provided valuable insights into the social, economic, spatial and ecological aspects of the surrounding context. Workshop participants spent the first part of the week gaining a deeper understanding of the New Town and its context, while the second part was spent designing an alternative vision for the green and blue network in Tatu City’s existing master plan. The main conclusion was that Rendeavour would benefit from a shift in perspective: from ‘land-use planning’ to ‘framework planning’. The visiting professionals argued that this shift towards framework planning would have multiple benefits for the New Town:

- More flexibility in developing Tatu City
- A coherent blue and green network
- Infrastructure that better links and becomes more efficient
- Readable locations for public services
- Room for a semi-formal informal economy
- A safe space through activity, social interaction and ‘eyes on the street’
- The cohesive element in the plan
- The carrier of an overall identity of Tatu City¹¹⁷

¹¹⁷ See Appendix C: *Tatu City Design Workshop Report*.

Finally, a public presentation of the design results and recommendations was made and the principles were once again reviewed to assess their impact on the design results. Following this, workshop participants and guests discussed potential ways forward.



FIG. 6.5 Workshop B conceptual design discussions

The visiting designers discuss their design proposal with Nick Langford, Country Head for Rendevour Kenya (third from left), the Tatu City planning team, and an SOM consultant. Source: Christine Waitera, 2018

According to Rendevour Head of Country Nick Langford, the design results of the workshop supported a main goal of the Tatu City team: “We are keen to focus on building a cohesive city that embraces not just our residents’ use of public space, but also the use by communities living around Tatu City” (Rendevour, 2018). The principles were furthermore discussed one-on-one with Langford to gain an understanding of his personal impression of their applicability to the Tatu City project. Langford expressed the view that the principles touched on aspects that deserved closer consideration, but that as a private company Rendevour had to look for a return on investment as a bottom line.

Langford left Rendeavour in 2019 to become Managing Director at Adair Estates, Kenya. It is unknown how this change in management will affect implementation of the principles at Tatu City. There has not been any follow-up from Rendeavour with the International New Town Institute since the workshop.

Discussing the principles with a private developer produced some new insights. While there was a willingness on the part of the Rendeavour team to understand and explore the principles as they might be applied to Tatu City, it was also clear that the principles had been taken into 'the real world' and were no longer an academic exercise. In discussions with Rendeavour team members, financial implications were always at the forefront of the conversation. Introducing the idea of 'more affordable housing' was met with an economic equation, while 'expanding a green-blue network' would mean less real estate for sale. These are valid concerns and future research could look at ways to take the principles from abstract to concrete by linking them to financial best-practice models. That step would give developers more information and perhaps influence their decision-making.

One Rendeavour planner commented that discussing the principles felt like being back in architecture school, in the sense that he has little time for reflecting on such broad underlying themes in his daily practice. These results were highly instructive, and show that the principles may be best applied *before* a New Town is designed, when developers, designers, and other decision-makers may be open to different concepts and ambitions. Once a plan exists, in the case of Rendeavour, it seems to be more difficult to justify changing course without a strong financial incentive.



FIG. 6.6 Workshop B final presentations

The final design proposal was presented to the Tatu City team as well as local stakeholders, community representatives, sub-developers and contractors. Source: Christine Waithe, 2018

6.4.3 **Workshop C: “Play Mahonda” (2019)**

The “Play Mahonda” workshop took place from 21–27 September in Mahonda, Zanzibar and Stone Town, Zanzibar. This weeklong workshop was organized by the author and aimed to test the adaptive planning principles developed in Chapter 5 by applying the principles to a real case study. This case was brought forward by the Department of Urban and Rural Planning (DoURP) as one of many new urban developments needed on the island of Unguja. Together with input from African Architecture Matters (AA Matters), the location of Mahonda was chosen as most suitable for a test site. Mahonda is a small farming community of 7000 – 12000 residents (no precise numbers were available), concentrated in linear development along existing roads. It is roughly 20 kilometers north of Stone Town.

In addition to testing a ‘real world’ application of the planning principles, auxiliary goals of this workshop were (1) to build collaboration and strengthen networks among the international experts, the DoURP planning officers, and local residents; (2) to support negotiations among stakeholders; and (3) to make a first step towards the development of a Local Area Plan (LAP) for Mahonda.

The workshop brought together 8 experts in urban planning issues, or ‘resource persons’, with the DoURP planning officers. The week began with a day of introductions to the site and relevant stakeholders. A community meeting at the Mahonda District Council Hall allowed DoURP, local residents, and external resource persons to get to know each other as well as the main opportunities and challenges of the site. A group walk through the site in the afternoon provided the opportunity to observe and document the local landscape and built environment.

The following day, a serious gaming event was held with largely the same participants. The game materialized the Mahonda site at a scale of 1:300, where the (redrawn) site plan was used as a gameboard. The game rules and pieces were developed in collaboration with Play the City, and the game was facilitated by Cristina Ampatzidou. The ‘Play Mahonda’ game was conceived as a test of the principles, and as a way to engage local community members in a participatory design process. 10 teams of ± 5 players used the game to develop different future scenarios for Mahonda. The players included 48 local residents (invited by DoURP), including farmers, teachers, and local community leaders (Shehia).

Serious gaming has developed a rich theoretical underpinning over the last decades and can provide a systematic and collaborative approach to problem-solving that meets the needs of different city makers, whether designers, politicians or other relevant agents (Dorner et al., 2016). ‘City gaming’ is a specific form of serious

gaming that encompasses application to urban issues. In city gaming, participants come together in environments designed to minimize the obstructions, opposing values, or power differentials that may inform communication outside of the game. This environment, which is designed by the game developer, allows participants to exchange institutional and individual knowledge, strategize and (sometimes) come to collective agreements. “By transforming serious issues into a playful and engaging (although no less serious) experience, city gaming unlocks difficult conversations and helps to build communities in the long term. The urban design, policy and action plans generated collaboratively through gaming will increase social coherence and local agency, as well as cutting costs and time in urban development processes” (Tan, 2014). City games thus function as a tool to support the integration of top-down and bottom-up ambitions.

The ‘Play Mahonda’ game results produced new insights for the planning team, including a prevailing desire throughout the community for dense, mid-rise, multi-family housing; a local need to protect agricultural land from encroachment; and a clear mandate for ‘modern’ amenities such as a new hospital, a fresh market, more schools, and a bus station. Some teams showed more sensitivity to specific issues such as the local need for a daycare facility and orphanage, improved accessibility for people with physical disabilities, or the desire to protect existing cemeteries from redevelopment.

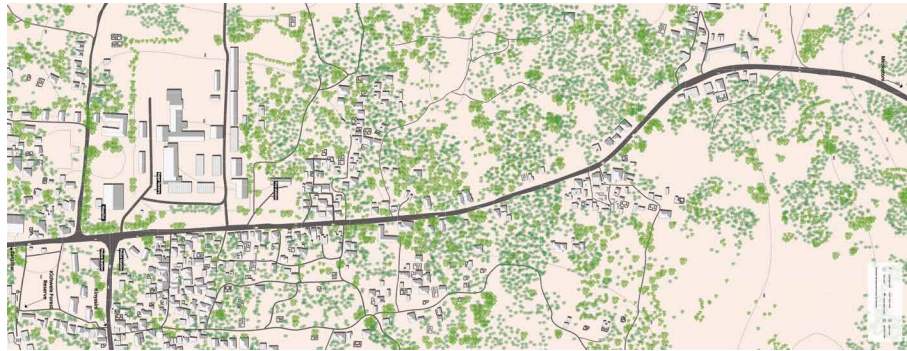


FIG. 6.7 Workshop C gameboard

The site plan of Mahonda was translated to a gameboard and printed at a scale of 1:300. This resulted in a 2m x 5m gameboard printed on canvas that could be placed on the floor. Source: Author / Play the City, 2019

An evaluation round revealed that the players appreciated the opportunity to express their ideas and opinions on the future of their town. They also indicated their appreciation for the resource persons who travelled to Mahonda. One participant noted, “We need a well-structured system to shift from individual houses to more dense development; we are ready to accept the changes.”



FIG. 6.8 Workshop C: 'Playing' Mahonda

The serious game 'Play Mahonda' was successful in bringing together local residents, planning authorities and politicians. By playing on the ground, perceived hierarchies were reduced, and an informal interaction was achieved among players. Source: Author, 2019

Following the game, the final two days of the workshop shifted to a focus on capacity-building with DoURP. For these sessions, both morning and afternoon presentations by resource persons were followed by intense discussions and interactive sketch sessions to produce a conceptual plan for Mahonda. The first sketch session divided the group into two smaller groups who addressed the area's main connections and existing opportunities. The second sketch session divided the group into four smaller groups that explored different future scenarios. The scenarios were meant as thought experiments of extreme situations to help workshop participants think beyond the expected plans. The third session brought these ideas together in one plan at national, regional, urban and neighborhood scales, while the fourth session was used to finalize drawings.



FIG. 6.9 Workshop C conceptual design

The second part of the week was spent designing a preliminary proposal for Mahonda New Town at different scales. The interaction between foreign planning experts and the DoURP team was productive, collaborative, and highly engaged. Source: Author, 2019

At the end of the workshop, the group reviewed the principles individually and evaluated the drawings for Mahonda based on these principles. Although most of the principles had been well-integrated, it was observed that more research was needed to ensure that some of the principles be adequately applied. Following this, DoURP planning officers presented the plan to the Director of the Department of Urban and Regional Planning, Dr. Muhammad Juma. Dr. Juma expressed his satisfaction with the work, and requested that the resource persons maintain contact with DoURP and explore the possibility of further collaboration in the future.

In internal evaluation with the resource persons, it was observed that the workshop had brought meaningful contributions to the DoURP team, and that the principles could have a positive effect on future plans for Mahonda. The visiting resource persons also expressed positive experiences during the workshop, and hoped to continue the collaboration. The workshop achieved its goal of testing implementation of the principles in a 'real world' New Town and affirmed the validity of these principles in this context.

6.5 Analysis

Whether such a workshop achieves the goals laid out by its organizers can be influenced by the decisions the organizers take long before the workshop beings. In this section, a qualitative assessment of the effectiveness of the workshops described in section 6.4 addresses four influential factors identified by the authors and workshop organizers. These include: workshop location (section 6.5.1), participant selection (section 6.5.2), workshop organizer (section 6.5.3), and workshop goal (section 6.5.4). As elaborated in this section, analysis of these individual factors indicates that the effectiveness of a workshop in achieving its goals is the result of an interrelated and hybrid network of factors that may receive varying levels of attention from workshop organizers.

6.5.1 Workshop location

The location of a workshop can have a major impact on the effectiveness of a workshop. For workshop organizers working in cultural contexts different to their own, the geographic location may limit the participant pool, complicate logistics, or create language and cultural barriers or misunderstandings (Unemoto 2001). These considerations must be taken into account whether a workshop is organized locally or remotely.

Not only geographic location, but also the workshop venue itself can influence the effectiveness of a workshop. In Workshop B, the weeklong workshop was held in the Rendevour offices, which allowed for both formal and informal exchanges among participants and fostered interpersonal interactions that benefited the design process. Alternatively, a venue that reinforces perceived hierarchies may stifle open exchanges among participants. For example, Workshop C took place in both the District Council Hall at Mahonda, as well as the DoURP offices in Zanzibar Town. These venues may have conveyed undesired hierarchical implications to local residents.

6.5.2 Participant selection

In the workshops described in section 6.4, participant selection played a major role in the effectiveness of the workshops. Participant selection is closely related to the goal of the workshop. For example, because Workshop B was a design workshop, designers were selected for their experience with global planning issues and complementary design approaches.

As short-term workshops related to New Town development in Africa, the choice of 'who participates' may proceed from different ideological approaches. An inclusive approach may seek to invite a diverse range of participants including representatives of marginalized groups as well as recognized decision-makers. A 'bottom-up' approach may prioritize (future) resident engagement over powerful institutions. Partnering with local institutions can help workshop organizers gain access to groups whose participation is desired.

6.5.3 Workshop organizer

Of the workshops discussed in section 6.4, Workshop B was developed by a non-profit institute for a private developer, and Workshop C was developed by an academic in collaboration with a public body. Based on these experiences, the organizers may influence the effectiveness of the workshop when organizers are unable to connect with the participant group, or when co-organizing groups exhibit different or competing interests. Public and private organizing bodies may also prioritize different values, which may compromise the workshop's ability to meet its goals. In Workshop B, for example, the International New Town Institute (INTI, a non-profit 'think and do tank'), was invited to organize a 'New Town Lab' for Rendeavour (a private New Town developer). This combination resulted in differing expectations for the workshop results, which may have contributed to the lack of follow-up between the partners.

6.5.4 Workshop goal

The goal of a short-term workshop must match the duration of the workshop, the capacities of the workshop participants and organizers, and the location of the workshop. The goal, or goals must also be clearly communicated to the participants. During Workshop C, for example, the workshop participants were repeatedly

instructed that the goal of the serious gaming exercise was not to create a new plan, but rather to begin communicating needs and desires across different stakeholder groups. In this way, the game was successful in achieving the goal of triggering discussion and negotiation. As a workshop, a larger goal was to test implementation of the principles in a New Town. That was achieved through communication with the local community and the design sprints with the DoURP planning team and visiting experts. In the final conceptual plans produced during the workshop, the principles and their influence on design decisions can be clearly identified.

A number of factors determine whether a workshop is able to effectively meet the goals set out by organizers. From the examples discussed in section 6.4, the workshop organizers identified four factors with perceived influence on the workshop's effectiveness: location, participant selection, organizers and goals. While these factors may individually impact the effectiveness of a workshop, they are also related to each other in complex ways. A workshop that effectively meets the goals set out by the organizers must therefore appropriately address these factors while the workshop is in the planning stages. Failing to adequately consider any of the four factors elaborated in this section can threaten the workshop's overall effectiveness.

6.6 Conclusions and recommendations

In their book "To Build a City in Africa: A History and a Manual", Keeton and Provoost build the case that contemporary African New Towns are generally planned in a top-down way, whether by public or private bodies (2019). Especially in the case of private New Town development, the current planning paradigm is not inclusive, and tends to forego participatory and collaborative processes in favor of streamlined production. This approach may fail to give voice to marginalized stakeholder groups, and may insufficiently incorporate local knowledge, capacities, cultures, and heritages (De Satgé and Watson 2018).

Planning, design and governance are deeply intertwined, and the 'inclusivity' of a New Town is a function of all three aspects. There is general agreement among researchers that this approach does not result in inclusive cities, and there is a need for alternatives (Watson, 2013; Grant, 2015; Marcinkowski, 2017; Abubakar and Doan, 2017; Keeton and Provoost, 2019). As Smit concludes: "Collaborative

governance can be messy and conflictual, but only through facilitating engagement and collaboration between different urban governance actors can urban challenges in Africa be effectively addressed” (Smit, W., 2018).

One alternative approach is incorporating short-term workshops into the planning process. Through three recent examples that specifically address African New Towns, this chapter has shown that such workshops can be a useful tool to stimulate negotiation among stakeholder groups, thereby increasing diversity, sharing knowledge, and building empathy during the planning process. However, as Sun, Tai and Yen (2019) point out, planning training *before* the actual workshop would increase non-experts’ understanding of planning-related concepts and potentially increase their ability to productively contribute to short-term workshops.

Some limitations of this study are the small size of the sample, and the lack of quantitative evaluation techniques to measure their effectiveness. For example, it is also unknown whether the design results of Workshop B will be implemented or have any real effect on the existing master plan for Tatu City. Workshop C was seen as an effective tool for forging new alliances and negotiations, knowledge-sharing, and empathy between residents and planners, but has not yet had a tangible impact on official plans for Mahonda, despite being used as a first step for the Local Area Plan. These conclusions are interpretations by the workshop organizers based on qualitative analysis of the workshop results.

Future scholarship should develop workshops as tools for planning African New Towns by including quantitative measures of their effectiveness and focusing on implementation of their results. In Workshop C, this was attempted through the analysis of 26 questionnaires filled-in by workshop participants following the serious gaming exercise. These results are further elaborated in Chapter 7.

While it is clear that more collaboration and participation is necessary to foster inclusivity in African New Towns, it is not always obvious which formats can best achieve the specific goals of planners or decision-makers. Short-term workshops can be one way to bring together diverse stakeholders in the planning process. As Fung reminds us, “specifying and crafting appropriate roles for participation... demands forward-looking empirical sensitivity and theoretical imagination” (Fung, 2006: 74). As workshops become more common practice in New Town planning, it will become possible to evaluate the impact of these short-term events on the spatial results. Until then, they remain a useful tool to catalyze negotiations, build consensus and share information – critical aspects of any New Town planning process.



Faculty at the skills training facility in Kilamba, Angola. The training center is funded by CITIC, a Chinese state-owned developer, and graduates are guaranteed job placement with CITIC. Source: Author, 2016

7 Discussion and conclusion

7.1 Introduction

As this study has shown, contemporary New Towns across the African continent share common spatial challenges and potentials. They are complex urban models with interconnected, diverse systems that change across different timeframes and scales. These unique urban developments are often treated as straightforward projects that can be master planned and “completed”. Unfortunately, this approach leaves New Towns vulnerable to both internal and external shocks. Therefore, this research is motivated by the desire to arrive at a deeper understanding of these complex systems and processes in order to address New Towns from an integrated perspective, and to contribute to more socially and environmentally sustainable alternatives to the current New Town planning paradigm through a cohesive set of adaptive planning and design principles.

Adaptive planning can be understood as planning that allows for flexibility to respond to changes. It addresses both social and environmental aspects of a context, as well as multiple timeframes and multiple scales. In *New Perspectives on Urbanizing Deltas*, the authors conclude that “there is no such thing as a single best or ‘one size-fits-all’ planning and design methodology... It is therefore better to speak of an adaptive approach than of an established planning and design methodology.” (Meyer, et.al., 2015: 219). With this multiplicity of potential methodologies in mind, this study aims towards a *new way of thinking* for the developers, politicians, planners and decision makers tasked with initiating and planning future New Towns across Africa. It does so by framing the considerations integral to an adaptive approach through the principles presented in Chapter 4. By balancing these generic principles with specific site conditions, the research provides a starting point for the strategic choices that are part of any New Town planning process.

In this study, the author acknowledges New Towns as a phenomenon that is currently taking place, and gaining popularity in many African countries (Keeton and Provoost, 2019). To be clear, this study does *not* advocate for New Towns as an ideal response to the demographic growth in many African cities. Rather, it is accepted as a reality of market-driven economics and politics, with the intention to challenge the planning paradigm that currently characterizes these new urban developments.

Therefore, the purpose of this study is to propose an alternative, adaptive planning approach to the traditional 'blueprint' planning model most commonly deployed in contemporary African New Town development. To achieve that purpose, this overarching goal was broken into four main research questions (RQ) to frame this investigation and arrive at the desired results. The research questions used in this study originate from a desire to first understand the current character of African New Towns as a group (RQ1). Based on that understanding, they build a set of adaptive planning and design principles (RQ2). They then look at different applications of these principles (RQ3), and finally move towards implementation of the principles (RQ4). These questions were addressed through the methods and tools deemed most appropriate from a pragmatic approach, as elaborated in Chapter 2. They are:

- **RQ1:** What are the spatial challenges of African New Towns caused by the application of common planning approaches?
- **RQ2:** What are the principles of a more adaptive and sustainable planning and design approach and how can they address these problems?
- **RQ3:** How and to what extent can general adaptive planning principles be applied in all African New Towns, and to what extent should specific adaptive planning principles be developed for each case, related to the specific social and physical context?
- **RQ4:** As a result of the findings, how can adaptive planning approaches and the related Principles be implemented?

The following four sections address each research question and linked objective individually. These sections discuss the content, findings, challenges and answers connected to each research question. Taken collectively, these sections aim to build an effective argument for adaptive planning in future African New Towns. Sections 7.2 through 7.5 are followed by a reflection on the societal impact and scientific implications of this study. Finally, this chapter considers directions for future research and recommendations based on the findings, followed by a concluding section.

7.2 Exclusive, inaccessible, and disconnected: Spatial challenges of contemporary African New Towns

The first step in this research was to identify the spatial challenges of contemporary African New Towns, in response to RQ1. This assessment was critical to gain a detailed overview of this phenomenon and establish whether the current planning paradigm effectively addresses the social and environmental complexities of these new urban areas. Through a database of 146 New Towns built across the African continent since 1960 and more detailed analysis of 50 examples, it was quickly established that contemporary planning practices used in the vast majority of these New Towns do not effectively address social and environmental threats, and the New Towns addressed in this study therefore require an alternative approach. The database was useful because it provided a framework in which to systematize data that was available remotely through project websites, journal articles, newspaper articles, and planning documents available online.

However, while the database allowed for quick scan comparisons in some cases, it also highlighted the lack of consistency in the way these New Towns are presented to the public. For example, it often required extensive further research to discover whether a New Town's 'population' referred to a *current* population or *target* population. In many African countries, censuses are taken every ten years, and sometimes the most recent reports were already a decade old. In other cases, notably Egypt, there were massive differences between publicly reported census data on New Towns and the reports of the NUCA, the New Towns managing authority. Services and amenities were often not reported, or reported vaguely. Urban designs might be published online, while Google Earth satellite images might show a very different built environment. In many cases, the long trajectory between planning and implementation left room for new variables to be introduced. Furthermore, the dataset shows only a snapshot of time, and does not allow for the growth and changes that every New Town experiences. It was not possible to be sure that every number in the dataset was up to date, and this introduced a major limitation to the study.

Once this conclusion was made, it was necessary to reach an understanding of the aspects that could be effectively analyzed in order to determine which, if any, aspects are currently underserved in these New Towns, and where an alternative approach could have a positive effect. Based on the quantitative data in this database combined with empirical evidence from nine African New Towns and three

case studies, an analysis was made of the spatial challenges most common to this group. The findings related to this interrogation are elaborated in Chapter 3, but can be summarized as follows:

Socio-spatial challenges	Enviro-spatial challenges
Lack of efficient and accessible public transport systems	Climate change threats are not addressed
Lack of (high quality) public space	Insufficient waste management
Limited housing stock diversity	Master plans are based on car transit
Spatial segregation at the urban scale	Existing natural areas and green spaces are not protected
Insufficient employment opportunities	Sprawling development models encroach on peri-urban croplands
Displacement of communities already living on sites marked for satellite city development	Land values provoke 'low-cost / high risk' settlement patterns
'Final product' approach produces satellite cities incapable of adaptation	
Housing prices do not reflect the economic realities of surrounding contexts	

FIG. 7.1 Spatial challenges

Spatial challenges in contemporary African New Towns can be classified into social and environmental challenges. Source: Author, 2018

As a result of the findings, the author was able to define the spatial challenges most prevalent in contemporary African New Towns. However, the availability and reliability of data was a substantial concern in meeting this objective. Empirical evidence was therefore used to triangulate data and verify the results. Because not all New Towns in Africa could be identified, it is also possible that results would vary, given different examples. It was also impossible to be exhaustive, as individual cases face unique constellations of challenges that intersect with their geographies, demographic character and other factors in idiosyncratic ways. The list of spatial challenges presented here aims only to identify common issues faced by African New Towns initiated between 1960 – 2018.

Notably, these challenges are related to multiple systems and scales. They are not isolated issues, but rather challenges that also impact each other. This requires an integrated approach that addresses this complexity. Based on these results, it was concluded that the spatial challenges listed above can best be addressed through a more adaptive and sustainable planning approach that weaves together socio-spatial and enviro-spatial aspects. To explore an appropriate alternative, the next step in this research defined the principles of an approach informed by the conceptual framework of adaptive planning.

7.3 From blueprint planning to embracing uncertainty: Defining a more adaptive and sustainable planning and design approach


The second research question (RQ2) was addressed in two different ways, as detailed in Chapter 4. First, a precedent study of planning and design principles was made in order to understand how such principles are commonly formulated and the scope of their instruction. Secondly, the spatial challenges identified in Chapter 3 were translated to potentials that looked to future, adaptive iterations of New Towns. This process was not aimed at a 1:1 direct translation of the spatial challenges, but rather broader, more general principles that could effectively address multiple challenges at once, as illustrated in the following table.

Spatial challenges	Relates to principle(s):	Adaptive planning principles
Socio-spatial challenges		
Lack of efficient and accessible public transport systems	6. / 3.	1. Planning is an ongoing process
Lack of (high quality) public space	7. / 8. / 10.	2. Plan for adaptivity
Limited housing stock diversity	10. / 4. / 2. / 8.	3. No New Town is an island
Spatial segregation at the urban scale	10. / 9. / 2.	4. Use no cut-and-paste universal model
Insufficient employment opportunities	3. / 2. / 9.	5. Embrace new ideas
Displacement of communities already living on sites marked for satellite city development	10. / 8. / 3.	6. Infrastructure and mobility for all, from the start
'Final product' approach produces satellite cities incapable of adaptation	1. / 2.	7. Use a blue-green infrastructure as the central framework
Housing prices do not reflect the economic realities of surrounding contexts	10. / 8.	8. Incorporate local cultural heritage(s)
Enviro-spatial challenges		
Climate change threats are not addressed	7. / 2.	9. Combine top-down and bottomup
Insufficient waste management	6. / 5.	10. New Towns need diversity
Master plans are based on car transit	6. / 4. / 2.	
Existing natural areas and green spaces are not protected	2. / 7. / 8.	
Sprawling development models encroach on peri-urban croplands	3. / 9. / 7.	
Land values provoke 'low-cost / high risk' settlement patterns	10. / 8. / 9.	

FIG. 7.2 Relating principles to spatial challenges

Relating the principles to the spatial challenges illustrates how the principles may address two or more challenges.

Source: Author, 2019



URBAN LAB
Adaptive Planning for African
New Towns

Actions:

1. a. Reflect on the New Town. What kind of city will it be? How will people use the urban space and move through it?
1. b. What spatial challenges can you identify?
1. c. What potentials can you identify? (i.e. is there an underused contextual specificity?)
2. From your collective expertise as a group, what kind of ideas for improvement do you propose? Write the ideas in the circle. Together with the group, evaluate the ideas and put the priorities in the middle of the circle.
3. Discuss with you team: how could these challenges and potentials be translated into planning principles that could be applied to all future African New Towns? What are the key elements for adaptive future New Towns?

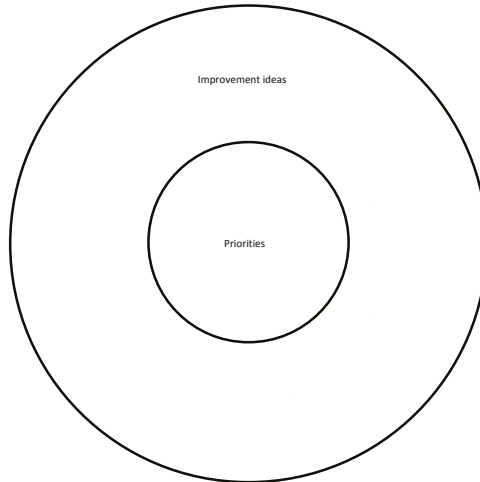
1. OBSERVATIONS LOCATION:

1. a. Characteristics of the New Town

1. b. Spatial Challenges of

1. c. Spatial Potentials of

2. IDEAS FOR IMPROVEMENT



3. PLANNING PRINCIPLES

1. _____
2. _____
3. _____
4. _____

TEAM MEMBERS
Name, Profession

.....
.....
.....



FIG. 7.3 Urban lab worksheet

The small workgroups in Workshop A used this framework to organize their ideas and then presented the results to the larger group for discussion. Source: Author / INTI, 2017 based on a work by Naomi Hoogervorst

This first draft of the principles was then reviewed and revised by 21 international, multidisciplinary experts during a full-day workshop in Delft, the Netherlands. The workshop was designed to allow for constructive critique of the first draft of principles through analysis of each individual principle in a roundtable setting, small group work sessions to prioritize ideas, and finally a concluding roundtable discussion led by the author (see Appendix B).

The workshop was extremely valuable because it brought a multidisciplinary group of relevant experts together. While some experts wondered “How can African New Towns reconnect to historical references, cultural specificities and local urban histories? How can imagination and images and symbols play an increased role?”, other experts pointed out that many “Africans don’t *want* to look to their historical references, they want to modernize.”¹¹⁸ Public participation and co-creation emerged as important, if difficult, themes. As Ghanaian architect and planner DK Osseo-Asare explained: “African culture is oral and deliberative. People want to discuss the same things over and over and that brings a tension to a planning process that is expensive and time-consuming.”

Although many individual viewpoints were debated during this workshop, the group ultimately arrived at a general consensus on an appropriate formulation of the principles. This second set of principles then underwent expert review by three individual planners (DK Osseo-Asare (Ghana), Moses Kimani (Kenya), and Han Meyer (Netherlands)), and was again refined according to their feedback as experienced practitioners.

The results of this collaborative approach to refining the principles highlighted the transdisciplinary nature of New Town planning and design. Experts brought varying concerns to the forefront, informed by their own areas of expertise and international experiences. The results showed that the principles of a more adaptive planning approach address the entire planning process: preceding site selection and continuing throughout the New Town’s growth indefinitely. They are integrated, holistic, and general in nature, providing a simple starting point for imagining future New Towns.

The final set of principles attempts to address and integrate the main spatial challenges identified in the research, however it does not claim to be absolute. For example, more principles could have been incorporated: the selected principles are focused on urban design and not on factors that also have immeasurable influence on planning such as governance, finance, or social norms.

¹¹⁸ See *Adaptive Planning for African New Towns Workshop Report*, Appendix B.

This was a point of disagreement among some of the experts who reviewed the principles, particularly policy experts who felt that planning could not be divorced from governance issues. While this research acknowledges that limitation, it remains beyond the scope of this study to effectively address the impacts of governance on New Town planning and design in 54 different African countries.

7.4 One set of principles for everywhere and everyone? Bringing together general adaptive principles and contextual specificities

Once the principles were refined by peer review, they could be applied to different New Towns in order to test their validity in diverse contexts. As described in Chapter 5, it was then necessary to establish how and to what extent the principles could be applied to different New Towns. This was addressed in three ways: First, by applying the principles to three case studies: BuraNEST, Ethiopia; Sheikh Zayed City, Egypt; and Kilamba, Angola. Because these New Towns are (partially) constructed and inhabited, application of the principles functioned more as an evaluation for the case studies. The results of this application showed that different principles have more urgency in different cases. This is a result of different geographic exigencies (i.e. flooding or desertification) and different managerial priorities. For example, while BuraNEST showed considerable attention to *Principle 7: Use a blue-green infrastructure as the central framework*, there was very little attention to *Principle 10: New Towns need diversity*. While the principles as a coherent whole remained relevant for all three cases, it was found that the principles could be tailored to each New Town as required. This finding supports the assumption that the combination of general principles and specific contexts will produce unique (design) results, which is why principles have become a useful and accepted planning tool in adaptive planning approaches (Nijhuis and de Vries, 2020).

Secondly, the study used different Research Through Design techniques to test the principles 'in the real world'. In order to apply the principles to a New Town currently in the planning stages, the author was invited to join a workshop financed by Rendeavour (the largest private New Town developer in Africa), and organized by

the International New Town Institute at Tatu City, Kenya (see Appendix C). During this week-long workshop, the principles were applied and spatialized through an alternative design proposal developed by a multidisciplinary team. Through on-site analysis by KUWA and discussions with the Rendevour planning team, INTI and Rendevour determined prior to the design workshop that *Principle 7: Use a blue-green infrastructure as the central framework* was the most urgent for Tatu City. This was supported by the outcomes of the workshop, as elaborated in Appendix C.

During the workshop, the principles were positively received at the first presentation by the author, and Tatu City team members expressed their interest in the use of design principles to provide overarching values to such a large, complex project. None of the principles were points of contention. During subsequent discussions, the principles were considered general enough to be applied to New Towns in all rapidly urbanizing countries, and their specificity to the African continent was questioned.

Some principles were considered more urgent than others based on the circumstances specific to Tatu City and the phase of city-making the team presently finds itself in. Because of this, the ordering of the principles becomes more valuable as it provides a procedural approach, although it is not strictly chronological. Design is always iterative, and the principles are therefore also intended to be applied iteratively.

Some of the architects and planners involved found (personal) priorities based on an intuitive evaluation of the principles. 'Diversity', for example, was more important to some than to others, although everyone present agreed on the ability of diversity to enrich an urban space. In future workshops, it would be useful to define the concept of 'diversity' more quantitatively to avoid misunderstandings.

The designers agreed that it would be most useful to bring in the principles at the beginning of a project, although they were still important as a tool to evaluate different aspects of the project. The capacity for change within the project, however, is currently limited to the parts of Tatu City that haven't yet been sold to sub-developers, which creates limitations.

While the workshop succeeded in producing an alternative conceptual plan, it remains unclear whether this plan will be incorporated in further design elaborations by the Rendevour team.

Thirdly, the principles were applied by an urbanism masters student at TU Delft as part of their graduation project, which was supervised by the author.¹¹⁹

In this project, the student applied the principles to Tatu City, and produced an alternative design for the New Town focused on inclusivity, or *Principle 10: New Towns need diversity*, which she deemed the most urgent intervention for this site. This student produced a set of plans at multiple scales that explored the potential for amplifying diversity and inclusivity in the built environment of Tatu City. The project identified sport, culture, urban agriculture, and trade as four 'streams' of activities that could be used to bring together people from different socio-economic backgrounds in public and semi-public spaces.

Based on the results of the case studies, the workshop with Rendeavour, and the student work, the results of this application showed that neither the case studies, workshop nor student work effectively addressed *all* the principles. Different cases showed different strengths and weaknesses, and it was clear that the choice to focus on specific principles more heavily was deeply influenced by the priorities of the designers applying the principles. In other words, the principles can be applied to any example of an African New Town, but must be tailored appropriately to respond to the specificities of each example – as determined by local planning experts. The observation that these principles could be applied *outside of Africa* also deserves further investigation. While the principles emerged from a study of spatial challenges across African New Towns, it is true that many other geographies share similar spatial challenges and the principles could potentially hold relevance worldwide. However, that investigation is outside of the scope of the current study.

Furthermore, this phase of the research showed that different groups applying the principles will have different priorities and therefore may stress one principle over others, as exemplified by the designers' focus on Principle 7 during the workshop with Rendeavour at Tatu City, as opposed to the student's focus on Principle 10 in her graduation project. This result shows that it is critical to view the principles as a cohesive and integrated whole, with linkages and dependencies among the various individual principles.

¹¹⁹ For more on this project see: Sekula, Z. (2019) "An Alternative New Town Paradigm: Towards an Inclusive New Town in Kenya". Delft: TU Delft. Online at: <http://resolver.tudelft.nl/uuid:f77bec33-548a-4adc-94b9-a7e267bfa7e4>

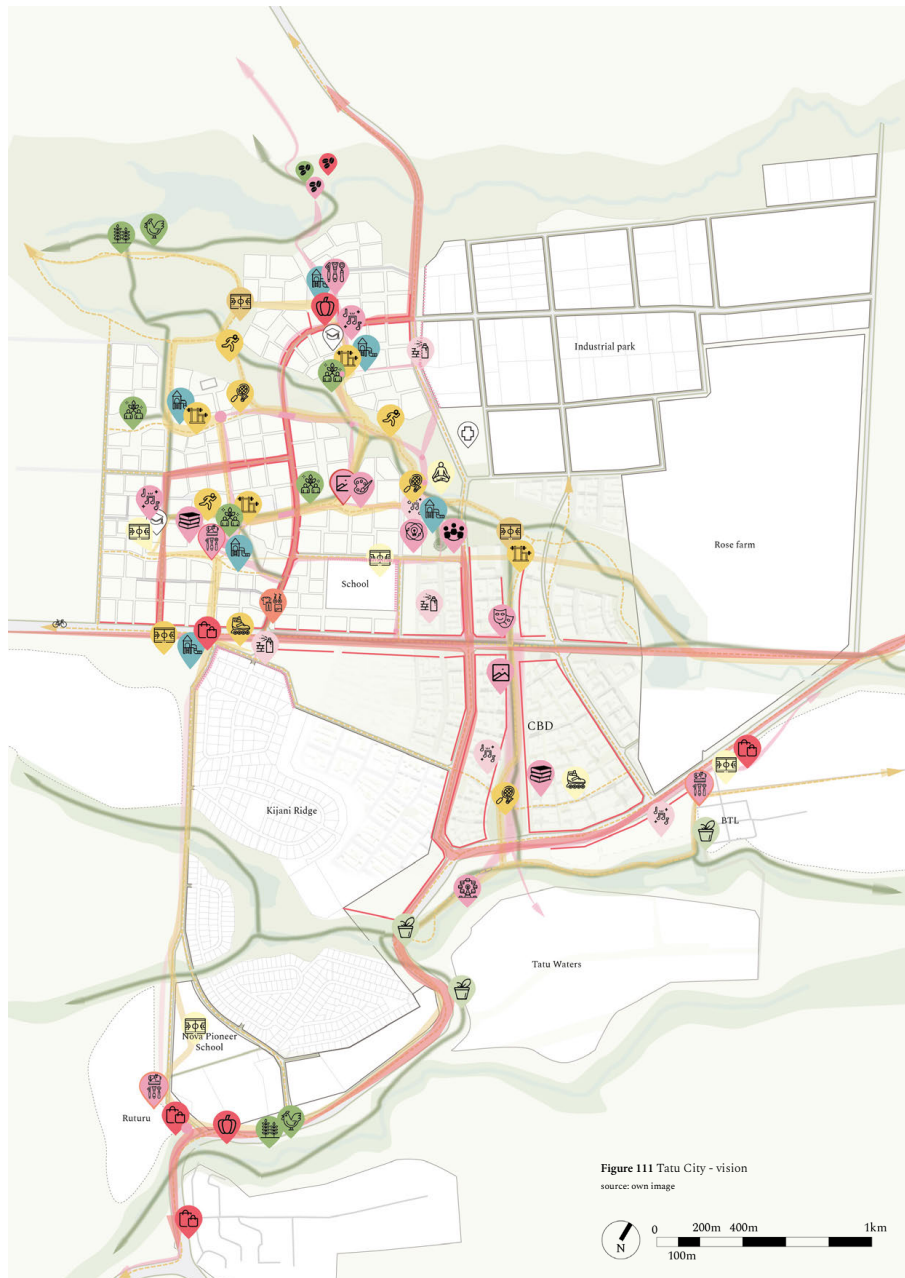


Figure 111 Tatu City - vision
source: own image

FIG. 7.4 Graduation project on Tatu City

Zuzanna Sekula's masters graduation project applied the adaptive planning and design principles to Tatu City, Kenya, resulting in an alternative design for the New Town at multiple scales. This image shows four 'streams' of activities introduced by Sekula at the urban scale. Source: Zuzanna Sekula, 2019

7.5 From theory to practice: Spatializing principles through design for the ‘real world’

Implementation is where research meets practice. Due to the time limitations of this study, it was not possible to plan, monitor, and evaluate an entire New Town based on the principles developed here. While this would be an ideal way to implement and test the principles, it requires political will and commitment, financial investment, and long-term observation. Within the scope of this study, however, it was possible to simulate the planning process in a number of ways to address some issues related to implementation.

As elaborated in Chapter 6, a serious game was developed in collaboration with Play the City to translate the principles into game rules and actions. The game was then played with 48 multidisciplinary players in Mahonda, Zanzibar, and eight international planning and design experts. This week-long workshop was designed to implement the principles in the planning process for Mahonda. The serious gaming part of the workshop was used to make the various stakeholders aware of the different considerations addressed by the principles, and to catalyze both dialogue and negotiation among the stakeholders. The workshop continued with a number of discussion and design sessions with the Zanzibar Department of Urban and Rural Planning (DoURP). At the end of the workshop, the sketch designs for Mahonda produced during the workshop were reviewed through the lens of the principles. According to DoURP, these designs will be used as a first concept for the future Local Area Plan (LAP), an official planning document.

The workshop itself required flexibility on a number of fronts: more than twice as many “players” were in attendance and desired to play. It was determined that facilitating an improvised, shorter version of the game would allow all voices to be heard and accomplish the goal of introducing the principles to the stakeholders. Following the workshop, reflections from participants indicated that the workshop had been useful and that the principles were “valuable and relevant” (See Appendix D).

The results of the workshop in Zanzibar showed that while serious gaming is a useful tool for sharing knowledge and making decision-makers aware of the principles, New Town planning is an ongoing process and long-term, iterative application of the principles is necessary to ensure adaptive results. The simulations and designs

provide a first step towards implementation, but the principles will only truly be implemented when decision-makers and designers commit to them. While DoURP expressed interest in a long-term collaboration and commitment to using the principles to inform future plans, the director of the Department moved to Paris in early 2020, and it remains unclear whether his replacement will share his enthusiasm for this collaboration. This ‘real world’ difficulty gives insight into the complexity of New Town development and small changes that can have a significant impact on a New Town’s growth.

7.6 Who does this benefit? Societal impact and scientific implications

As described in the introduction to this study, more New Towns are currently being developed in Africa than ever before (Keeton and Provoost, 2019). These New Towns are partly a response to rapid, unregulated urbanization that is in turn related to high fertility rates (repopulation) and increasing migration to cities from rural areas as a result of climate variability (Pieterse, 2019). New Towns are seen as an alternative to the perceived chaos or uncontrollability of existing cities. They are marketed as places where one can have access to the urban services often unavailable in existing cities, and where one can live surrounded by peers. They sell – successfully – an idealized, sanitized, regulated version of African urbanity based on foreign models that leaves no room for informality or adaptation (Watson, 2013; Marcinkowski, 2017).

Because these New Towns do not match the complex realities of life in African cities, they can become exclusive islands (whether enclosed by physical walls or perceived social boundaries) surrounded by informal communities without access to the services and privileges beyond those borders. Despite the social and economic exchanges and interdependencies between these two urban forms, they remain spatially distinct, and this sharp edge increases the visibility of inequality. As sociologists have repeatedly pointed out, such inequality increases crime rates and encourages aggression and classism (Body-Gendrot, Garcia, and Mingione, 2012: 371). Inequality is currently increasing in almost all African cities, and New Towns are part of this complicated issue.

New Towns are often marketed as a solution to the overcrowding and congestion of existing African cities. In their current form, however, these New Towns do not adequately answer Africa's housing deficit crisis. Rather, they exacerbate perceived differences and function as an investment vehicle for the wealthy. This study has produced an alternative approach for future African New Towns in the form of a set of adaptive planning and design principles. This set of principles can be applied across the continent, providing a starting point for considerations and negotiations among stakeholders. When effectively implemented, the resulting urban developments can be studied and improved, building on the existing body of knowledge related to contemporary New Towns and creating a feedback loop to contribute to more equitable distributions of urban services and more environmentally responsible development in African towns and cities. As a societal impact, this study could potentially shift the current New Town planning paradigm towards an approach that is more adaptive, more appropriate, and more inclusive.

From a scientific perspective, this research has built on existing research and developed new insights into the number, character, and ambitions of contemporary African New Towns. It has not only identified the main spatial challenges endemic to this group, but translated those challenges in a set of adaptive planning and design principles for future New Towns. It has tested those principles through repeated peer review and spatialized them using Research Through Design. It has taken a first step towards implementation by partnering with the Zanzibar Department of Urban and Rural Planning to apply these principles to the New Town of Mahonda.

Furthermore, this study can provide a step towards bridging the divide between theory and practice regarding African New Towns. While many researchers have written about the shortcomings of contemporary African New Towns (Watson, 2013; Marcinkowski 2017; van Noorloos and Kloosterboer, 2018), few have taken the step to engage directly with developers and decision makers who are initiating and building these developments. This study has attempted to understand both sides of the story by giving voice to government agents, private developers, New Town residents, and academics. By doing so, it is hoped that a more productive and locally-embedded discussion can emerge.

7.7 Recommendations and directions for future research

There are a number of directions on the topic of alternative planning approaches for African New Towns that would benefit from further research. This is a relatively new research topic that has only recently attracted significant academic interest, beginning with Vanessa Watson's indictment of contemporary African New Towns as elitist enclaves and financial 'fantasies' in 2013 (2013: 215). It is not an easy topic to understand because of the complexities and idiosyncrasies of urban systems in general, and the murky waters of postcolonial urban development in particular.

7.7.1 Us and them: Two sides to every story

While it may be 'easy' to leverage critique at a New Town like Appolonia, Ghana from the perspective of an outsider and urban designer trained in Western planning traditions, it is worth acknowledging that (1) many people around the world are attracted to the spatial autonomy of single-family housing and the perceived safety of gated communities, (2) market-driven urban development has identified this demand across nearly every African country, and (3) African politicians often see New Town development as a move towards 'modernity' and the spatial patterns already present in aspirational places like the United States, Singapore and Dubai. This trifecta of motivations is driving more and more New Town development across Africa, with total investments in new cities and towns estimated at \$100 billion in 2019 (Haas, 2019). As a result, the disconnect between academic skepticism and political will seems to be solidifying.

For a striking illustration of this divide, one can look to the new Egyptian capital city, planned to house 6.5 million residents just 45 km east of Cairo.¹²⁰ In 2017, President Abdel-Fattah el-Sissi challenged critics: "Isn't it our right to have a dream? Is it wrong to have 13 cities like this or what? Don't we deserve it?" (Laub and Associated Press, 2017). In response to defensive positions like that of el-Sissi,

¹²⁰ For more on this development see: Radcliff, D. (2020) "Egypt's building a new capital: Inside the smart city in the desert". ZDNet. 28 January 2020. Online: <https://www.zdnet.com/article/egypts-building-a-new-capital-inside-the-smart-city-in-the-desert/>. Accessed 26 February 2020.

Côté-Roy, and Moser have initiated a deeper discussion on what they call the “right to development” argument among African elites, and the ways in which this attitude “precludes criticism of new city ventures and circulates problematic assumptions about modernity and development” (2019: 2391).



FIG. 7.5 Appolonia, Ghana
Appolonia, Ghana is a New Town planned with single-family housing in gated communities that encourages individual car usage. * Source: Author, 2019



FIG. 7.6 Gated community in Appolonia
Affordable housing options in Appolonia start at USD 70,000, which is far out of reach for most Ghanaians. Source: Author, 2019

For researchers, studying this topic requires a careful balance of differing – and sometimes conflicting – viewpoints. Most recently, Enns and Bersaglio have pointed to the ‘colonial moorings’ of new mega-infrastructure projects in East Africa, and the “uneven patterns of mobility and immobility set in motion during the colonial scramble for Africa and reinforced after independence” (2020: 101). This position adds nuance to Côté-Roy and Moser’s conclusions and links historical oppressions to current developments.

While this study has aimed to focus on current planning approaches and take a continental scope, investigations into more case studies would give greater insights into the similarities and difference of national and regional planning trends. Future research on this topic should also more deeply explore a historical perspective of New Town production in African countries, and the complex trajectory from past to future New Towns. This study functions as a kind of snapshot in time, and there is a need for longer-term engagement with New Towns to monitor and evaluate their development. A long-term comparative study of different cases would give more insight into different adaptations and evolutions over time. This type of extended engagement could also build trust and access between researchers, decision makers, and practitioners, allowing for deeper insights into the production of these New Towns.

7.7.2 New Towns for everyone

In addition to long-term transdisciplinary engagements, urban planning policy needs to support new forms of planning that acknowledge the realities of rapid urbanization in African contexts. Calls for a shift from traditional blueprint planning towards more adaptive approaches are becoming stronger and more frequent, especially in connection with climate change-related threats (Van Veelen, 2016; Simarmata, 2018; Nijhuis and de Vries, 2020). There are new and exciting possibilities for ‘unplanning’ the hard edges between planned New Towns and unregulated, incremental communities that tend to develop adjacent to them. One example is to create new zones that embrace ‘informality’ or unregulated growth within a structural framework that can support service delivery while still providing an accessible landing zone for rural-to-urban migrants and low-income groups. In and around African cities, unregulated settlements are an inevitable reality (Pieterse, 2011). Instead of designing for enclosed, exclusive ‘cities without slums’, planners and decision-makers should consider where urbanization is already happening, and find ways to support service delivery there while embracing the unpredictability of incremental housing construction. Accepting that uncertainty is difficult for planners, but leaving elements open through adaptive planning approaches can ultimately improve the quality of (urban) life for residents, while maintaining the low-costs that facilitate access for specific user groups. This requires a considerable change of mindset for how we, as urbanists, conceive of acceptable urban environments. Among others, urban theorist AbdouMalik Simone has attempted to help reframe a collective conceptualization of cityness, by redefining Lefebvre’s famous concept of the ‘right to the city’ as the “right to be messy and inconsistent, or the right to look disordered” (2004: 331).

These ideas about integrating regulated and unregulated spaces are not entirely new, but they have been somewhat shelved since peaking in popularity in the 1960s and 1970s.¹²¹ However, a renewed interest in strong frameworks and dynamic infill seems to be emerging. UN-Habitat, one of the most influential multilateral planning advisory commissions in the world, recently came to a similar conclusion, as shown by their “Participatory incremental urban planning” approach presented on 12 February 2020 at the World Urban Forum in Abu Dhabi. This approach advocates for connecting national level planning policy with implementation at the municipal scale. It also condones “social development zones” where security of tenure for renters in self-organized housing would be linked to service provision, access to jobs, and public space (Ramalho, 2020).

¹²¹ For more on the shift away from assisted self-help housing in the 1980s and calls for its return, see Bredenoord, J. and van Lindert, P. (2010) “Pro-poor policies: Rethinking the potential of assisted self-help housing”. *Habitat International* 34: 278-287. DOI: 10.1016/j.habitatint.2009.12.001

7.7.3 **The designer as integrator**

Implementing this and similar ideas on the ground is the next step in realizing solutions that blend planned and unplanned spaces in an adaptive approach. Designers play a key role in this translation from theory to practice: they tie ideas together and integrate divergent priorities through design. Ideally, planners also enable and support a process of co-creation that answers two critical questions: (1) Which procedures, techniques, and design elements must be present to build a strong frame? And (2): What provisions allow for the basics of civic life in this specific context?

Unfortunately, in practice, planners often find themselves faced with substantial limitations. These limitations may come from regulatory bodies who resist innovative practices, developers with conflicting priorities, or financial constraints that can reduce an appropriate, coherent design to a hodge-podge of different elements. Good designers are needed in order to act despite these limitations. For many African planning schools, it is therefore critical to improve planning education programs to ensure that the next generations of designers have access to the tools and knowledge necessary for purposeful design.

7.7.4 **Words are not enough: Tools to implement these principles need more development.**

This study has attempted to develop and test a set of adaptive planning principles. While the principles have been reviewed and refined again and again, a critical piece of the puzzle is missing: how can planners and decision makers implement the principles once they have been accepted?

It was beyond the scope of this study to design and construct a New Town, but different methods have been employed to simulate the planning process (the design workshops in Kenya and Zanzibar, and master's student design work). These simulations showed a number of places where more research is needed.

For example, this study employed a questionnaire for the 48 participants of the workshop in Zanzibar as a tool for reflection (see Appendix D). The questionnaire results show that the participants found the game useful as a tool for negotiation, and agreed with the premise of nearly all the principles with the notable exceptions of Principle 3: No New Town is an island and Principle 4: Use no cut-and-paste model. Follow up discussion based on these results showed that local community

members valued efficient urban infrastructures and ‘modern’ services, and did not object to urban models being imported from abroad if they included these aspects (Keeton, 2019). This was a surprising result that deserves further investigation. Future follow-up workshops and training events in Zanzibar would ensure that the public enthusiasm and momentum created by the first workshop does not fade without effect.

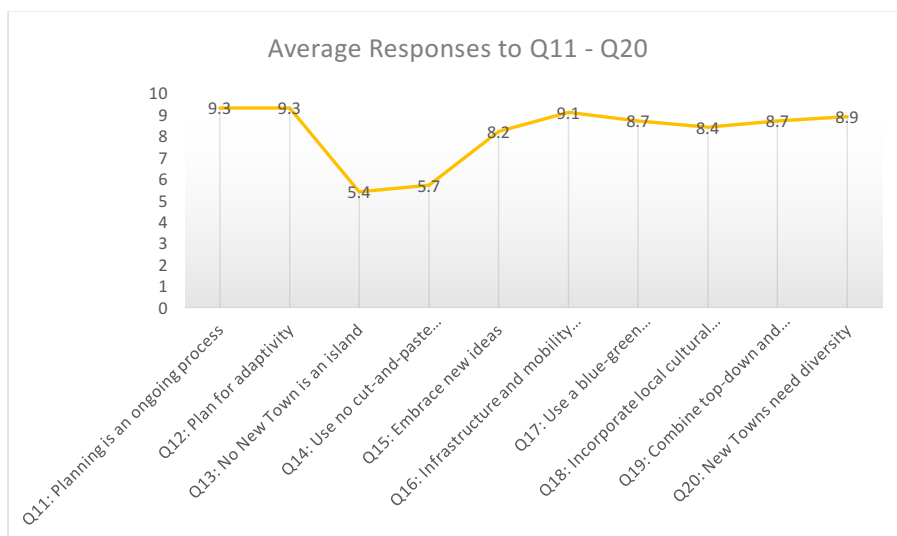


FIG. 7.7 Questionnaire results

As part of a questionnaire filled in by 48 workshop participants in Mahonda, participants were asked evaluate how strongly each planning principle influenced the game results on a scale of 1-10 (1 being ‘not at all’, and 10 being ‘as much as possible’). Most of the principles were seen as highly influential on the outcomes of the game (8.2 – 9.3), while two principles were ranked significantly lower: ‘No New Town is an island’(5.4) and ‘Use no cut and paste model’ (5.7). Source: Author, 2019

Future research should also look to the development of a new serious game to apply the principles that could be adapted to any (social and geographic) context and focus on engagement with developers and decision makers. While the workshop in Zanzibar showed that serious gaming is an effective tool to bring together diverse stakeholders in a democratic setting, it also revealed that the local planning department found the discussion and sketching sessions much more effective as tools to more deeply understand and apply the principles. Development of a cohesive combination of these methods deserves more exploration.

Furthermore, it became clear that the principles defined in this study can most effectively be applied before the site for a potential New Town is even selected. Future research on the decision-making process regarding site selection for New Towns could give greater insights into how and when to most effectively introduce the principles to potential users.

Based on the results of this research which showed that the principles could effectively be tailored to specific sites and contexts, it is also recommended that future research could explore how to clarify this tailoring process for transferability *without the presence of the researcher*. This would make the principles more accessible and applicable for a larger user group. Taking this one step further, interpreting and applying the principles at a policy level could have a much greater impact than individual applications. To encourage this, it would be necessary to strengthen adaptive governance capacity at municipal, regional and national levels to support adaptive planning approaches on the ground.

In conclusion, this study has taken a first step towards an adaptive planning approach for African New Towns. Real implementation of the principles developed here, however, requires long-term commitment from stakeholders and more productive exchanges between the worlds of research and practice. It is hoped that future research can build on this study to move New Town planning in Africa closer to an inclusive approach that benefits everyone equally and embraces the natural environment.



Hospitality trainees at the training center in Kilamba, Angola. Source: Author, 2016

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Residents in Mahonda, Zanzibar enjoy the afternoon sunlight. Source: Author, 2019

Curriculum Vitae

1984

Born in Norfolk (Virginia), United States of America

2002-2006

Bachelor of Art in Architecture at the University of North Carolina at Charlotte

2006-2008

Master of Science in Architecture, Urbanism and Building Sciences at Delft University of Technology

2009-2015

Project leader and researcher at International New Town Institute

2015-present

Founder and director at Urban Anecdote

2016-2020

PhD at Delft University of Technology; Delft Global Initiative Fellow

2020-present

Researcher at Erasmus Univeristy, Rotterdam

Appendices

- A List of interviewees

- B **Urban Lab: Imagining Adaptive Planning for African New Towns / Report on Proceedings**
by Rachel Keeton

- C **Tatu City Design Workshop Final Presentation**
by Simone Rots / INTI

- D **'Play Mahonda' Workshop Report**
by Rachel Keeton



Local tribal leaders from the communities around Tatu City, Kenya discuss their ambitions for the New Town. Source: Author, 2018

List of interviewees

Sheikh Zayed, Egypt:

Semi-structured interviews

- 1 Nazih Hallouda, resident of Sheikh Zayed City (Zayed 2000 compound)
- 2 Wiebe Ruitenbergh, CILAS teacher and anthropologist
- 3 David Sims, author of Egypt's Desert Dreams and Understanding Cairo: The Logic of a City Out of Control
- 4 Anas Aladdin, Strategic Urban Planning Programme Assistant Manager, UN-Habitat
- 5 Prof. Hany A. Ayad, Department of Architecture, Faculty of Engineering, Alexandria University
- 6 Dr. Ibtehal Abdel Moaty, urban planner at General Organization of Physical Planning (GOPP)
- 7 Dr. Walid Bayoumi, Senior Lecturer at Cairo University
- 8 Dr. Bassem Fahmy, UN-Habitat Principal Advisor and Programme Director
- 9 Dr. Laila Iskandar, Minister of Urban Renewal and Informal Settlements

Street interviews

- 1 Assistant Manager at Egyptian Engineers (male, age 38)
- 2 Three high school girls (females, ages 17, 18, 19)
- 3 Two Coptic Christian women (female, ages 39 and 40)
- 4 Family garage business patriarch (male, age 68)
- 5 Community Service Center manager (male, age 42)
- 6 Gated community resident (female, age 53)
- 7 Production Manager at socks and tights factory (male, age 37)
- 8 Assma Saleh, employee at Kids Only (female, age 24)
- 9 Kids Only PR Manager (male, age 32)
- 10 Ukrainian business manager at Kids Only (female, age 35)
- 11 Kids Only Marketing Manager (male, age 37)

Kilamba, Angola

Semi-structured interviews

- 1 Manuel Zangui, Director of Urbanism at Ministry of Housing and Urbanization (MINUHA)
- 2 Adriano de Silvo, Director of Housing at MINUHA
- 3 Allen Cain, Director of Development Workshop (DW)
- 4 Thomaz Romalho, Human Settlements Officer at UN-Habitat
- 5 António Gameiro, Professor of Architecture at Agostinho Neto University and Advisor for the National Urbanization Program
- 6 Ma Baowen, Regional Division of Africa Vice President, CITIC
- 7 T.J. Zhai, Senior Regional Liaison and Market Manager, CITIC
- 8 Elissandro de Sousa Jaime, local architect
- 9 António Teixeira Flor, Secretary of State for Construction, Angolan Ministry of Construction
- 10 Israel Marques, Mayor of Kilamba Cidade

Street interviews

- 1 Resident of informal community (male, age 28)
- 2 Resident of Kilamba (male, age 22)
- 3 Resident of Kilamba (female, age 34)
- 4 Resident of Kilamba (male, age 19)
- 5 Resident of Kilamba (female, age 31)

BuraNEST, Ethiopia

Semi-structured interviews

- 1 Adugna, Resident of BuraNEST / beneficiary of Rainwater Unit 1
- 2 Mastewal Chane, Libokemkem Woreda BuraNEST Laboratory Coordinator
- 3 Ato Kefyalew Hailu, Chief carpenter at BuraNEST
- 4 Ato Tsegaye Biadgign, Chief mason at BuraNEST
- 5 Bizuayehu Jembere, NESTown Group Deputy Coordinator at BuraNEST
- 6 Ato Worku Shumye, Resident of BuraNEST / beneficiary of Rainwater Unit 1
- 7 Ato Gebeyehu Endale, Resident of BuraNEST / beneficiary of Rainwater Unit 1
- 8 Franz Oswald, Initiator of BuraNEST, Prof. Em. ETH Zurich
- 9 Prof. Fasil Giorgis, Chair of Conservation of Urban & Architectural Heritage, Ethiopian Institute of Architecture Building Construction & City Development (EiABC)
- 10 Rahel Shawl, Founder of Raas Architects, Ethiopia

Additional expert interviews

Semi-structured interviews

- 1 Preston Mendenhall, Executive Vice President of Rendevour
- 2 Antoni Folkers, Architect and planner, World Bank consultant
- 3 Moses Kimani, Head of Development Control at Tatu City, Kenya
- 4 Gareth Edwards, AICP, Associate at SOM
- 5 Mohammed Juma, Director of Zanzibar Department of Urban and Rural Planning
- 6 DK Osseo-Asare, Architect and planner, Principle of Low Design Group
- 7 Michelle Provoost, Director of the International New Town Institute
- 8 Han Meyer, Professor of Urban Design at Delft University of Technology
- 9 Steffen Nijhuis, Associate Professor Landscape Architecture at Delft University of Technology



Two women provide food for a salvage crew working to disassemble a old ship off the coast of Ningoprampram, Ghana. Source: Author, 2019

APPENDIX B

Urban Lab: Imagining Adaptive Planning for African New Towns

Report on Proceedings

by: Rachel Keeton
8 June 2017

Introduction



FIG. APP.B.1 Urban Lab

Participants in the Urban Lab: Imagining Adaptive Planning for African New Towns on 8 June 2017 at TU Delft. Source: Author, 2017.

The *Urban Lab: Imagining Adaptive Planning for African New Towns* took place on 8 June 2017 at TU Delft. This event was organized by Rachel Keeton in collaboration with the International New Town Institute and with financial support from the Delft Global Initiative. The workshop was a parallel event within the Urban Thinkers Campus on Education at TU Delft from 7-9 June 2017.

The twenty-one attendees were experts from a range of backgrounds, including academia, urban planning, government and environmental analysis (see page 5).

The full-day workshop was structured as follows:

Agenda

Registration / coffee

9:45 – 10:00 [Berlagezaal 1]

Keynote lecture (open to all conference participants):

10:00 – 10:30 [Berlagezaal 1] DK Osseo-Asare
Founding Principle, Low Design Office: <http://lowdo.net>
-Workshop moves to closed session in Berlagezaal 2-

Introductions

10:45 – 11:15 [Berlagezaal]
Organizers describe workshop goals, expected outcomes, how to use the case studies to reflect on the planning principles, and the existing planning principles (made available to participants in advance).

11:15 – 11:25
Lightening round of participant introductions (name and background)

Presentations

11:25 – 11:45
Markus Appenzeller
Managing Director of MLA+: <http://www.mlaplus.com>

11:45 – 12:05
Michelle Provoost
Director of INTI: <http://www.newtowninstitute.org>

Q&A

12:05 – 12:20
Participants can question DK Osseo-Asare, Markus Appenzeller and Michelle Provoost

Lunch break

12:20 – 13:30

Brainstorm in small groups

13:30 – 14:30

Participants will be split into groups to revise planning principles in round table teams, using the examples to test their ideas against reality.

Break

14:30 – 14:45

Presentations

14:45 – 15:45

Teams present their results (10 min); other teams can react during Q&A (5 min)

Break (Organizers compile results)

15:45 – 16:00

Discussion

16:00 – 17:00 [outside, weather permitting]

Time to reach a consensus: go through principles one by one and address main points of contention / agreement.

Conclusion

17:00 – 17:45

A final list of principles is agreed upon by all / disagreements are noted.

Refreshments

17:45 -

Borrel at the Bouwpub (2 drinks included)

Participants*:

- 1 Dr. Michelle Provoost, Director of the International New Towns Institute
- 2 Prof. Dr. Wouter Vanstiphout, Chair of Design as Politics at TU Delft
- 3 Prof. Dr. ir. Han Meyer, Professor of urban design at TU Delft
- 4 Meng Meng, PhD Candidate in urbanism at TU Delft
- 5 Xiong Liang, PhD Candidate in urbanism at TU Delft
- 6 Grazia Tona, assistant researcher at the International New Town Institute
- 7 Els Leclercq, PhD Candidate in urbanism at TU Delft / urban planner at Studio Aiken
- 8 Catherine Allinson, director at Future Earth
- 9 Ellen Geurts, housing specialist at the Institute for Housing and Urban Development Studies (IHS)
- 10 DK Osseo-Asare, founder and planner at Low Design Office
- 11 Markus Appenzeller, director and planner at MLA+
- 12 Nico Keijzer, Netherlands representative at Slum Dwellers International
- 13 Anteneh Tesfaye Tola, PhD Candidate in architecture at TU Delft
- 14 Dr. Nelson Mota, assistant professor in architecture at TU Delft
- 15 Diky Avianto, masters student in International Development Studies at Utrecht University
- 16 Dr. Femke van Noorloos, assistant professor of International Development Studies at Utrecht University
- 17 Ziv Weitz, Environmental Analyst at Assif Strategies
- 18 Entela Shkreli, Executive Director GO2 / Project Coordinator at EuroVelo Project
- 19 Jean-Paul Hitipeuw, Director at Urban CODES
- 20 Mike Emmerik, Teacher and Researcher, Design as Politics at TU Delft
- 21 Jacobo Herdoiza, Secretario de Territorio, Hábitat y Vivienda del Municipio del Distrito Metropolitano de Quito, Ecuador

* Additional review submitted by: Dr. Peter Gotsch, Principal, Expert on Cities for People at GLORA – Lab for Research and Design in Urban Planning and Development

Summary of Proceedings

Keynote Presentation by DK Osseo-Asare: Low Design Office projects and Anam City, Nigeria (New Town)

DK Osseo-Asare is a Ghanaian planner and architect based in Accra. His keynote presentation was open to all Urban Thinkers' Campus (UTC) attendees. His presence was generously sponsored by Delft Global Initiative.



FIG. APP.B.2 DK Osseo-Asare

DK Osseo-Asare presents Anam City and other projects at the Urban Thinkers Campus on 8 June 2017 at TU Delft. Source: Author, 2017.

DK elaborated on a variety of projects initiated by Low Design Office (<http://lowdo.net>), all of which addressed 'low design' – defined by DK as 'low environmental impact', 'low funding', and 'low tech'. The designs made apparent what is possible with limited resources.

The presentation detailed DK's experience as a graduate student at Harvard GSD, where he and group of like-minded students brought their architectural knowledge to local communities in an effort to widen their own perspectives of what architecture can do. This resulted in projects including the transformation of a dilapidated church into a community meeting space for local youth, as well as other projects related to community empowerment.

DK also discussed Anam City, an urban development project in Nigeria for 30,000 Anam people. The project was planned with a long-term participatory process including surveys, interviews, focus groups and community meetings. The final plan is ecologically sensitive (constructed with local materials, energy and water self-sufficient buildings, and adapted to potential flood threats). It is also designed to acknowledge and celebrate local social and cultural norms.

Introduction by Rachel Keeton

Rachel Keeton is a PhD candidate from the chair of Design as Politics at the urbanism department of TU Delft. Her research focusses on improving adaptive capacities in contemporary African New Towns. She designed and led this workshop in collaboration with the International New Town Institute and with financial support from Delft Global Initiative.



FIG. APP.B.3 Rachel Keeton

Rachel Keeton presents a short history of New Town planning across Africa, and background on the factors driving current urbanization patterns in Africa. Source: Author, 2017.

After moving the proceedings to the Berlagezaal 2, Rachel introduced workshop participants to the goals and expected outcomes of the workshop. She followed this with a concise overview of New Towns as a specific urban model, their history in the African context and the most critical factors related to the current situation. She also presented the draft planning principles (which were made accessible to the participants in advance), and instructed the participants to think critically about these principles based on their individual expertise.

The introduction also served as a moment to have participants introduce themselves to each other and state their reason for attending the workshop.

Presentation by Marcus Appenzeller: Ningo Prampram, Ghana

Markus Appenzeller is founder and planner at MLA+, a design office based in Rotterdam and Shanghai. He is currently working on a masterplan for Ningo Prampram, a massive urban extension for 1.5 - 2 million inhabitants outside of Tema, Ghana.



FIG. APP.B.4 Markus Appenzeller
Markus Appenzeller presents Ningo Prampram, Ghana to workshop participants. Source: Author, 2017.

Markus' presentation focused on the UN-Habitat supported master plan for Ningo Prampram and the planning process behind the project. His conclusions were:

- The Grid is a universal structuring solution endemic to every continent. It can be densified and extended over time
- Flooding is a huge challenge in Ghana. Planners must reserve space and planning in reserved space for flood plains already provides a degree of specificity.
- Multiscalar approaches must be done simultaneously.
- Look at what's already there: what villages? What roads? What landscape? Use that to structure and kickstart the growth from existing nodes.

- Roads drive development in Africa. Where there are roads, settlements will align.
- Protect green space by giving it a function (people won't build in urban agriculture plots).
- Amenities must be mathematically related to densities.
- Incremental growth can be achieved by starting small (water trucks in Phase 1; water tanks in Phase 2; decentralized sewer systems in Phase 1, etc.). But you must reserve space for future interventions.
- Allow for uncertainty, negotiation, surprises, and complexity to emerge over time.
- Frequently discuss with local residents and take a pragmatic approach.
- Main challenges: Energy shortages, traffic congestion, land ownership complexities (potential solution: one big landbank), elections / politics

Presentation by Michelle Provoost: Tatu City, Kenya

Dr. Michelle Provoost is an architectural historian by training and director of the International New Town Institute. She is an expert on post-war New Towns, including Tema, Ghana. She recently returned from fieldwork in Tatu City, Kenya and is partnering with Rendevour to improve the New Town's inclusivity.



FIG. APP.B.5 Michelle Provoost
Michelle Provoost presents Tatu City, Kenya to workshop participants. Source: Author, 2017.

Michelle presented Tatu City, a private development by Rendevour outside of Nairobi, Kenya. The project has faced scandal in local papers, and legal proceedings have delayed construction. It is currently moving forward, however, with main construction happening in the attached industrial park and on a gated residential community. Michelle's presentation detailed her discussions with Rendevour representatives and their desire to create an attractive alternative to Nairobi for middle-class families.

Roundtable Q&A



FIG. APPB.6 Wouter Vanstiphout

Wouter Vanstiphout discusses cultural heritage in African New Towns during the roundtable discussion.
Source: Author, 2017.

- **Wouter Vanstiphout:** How can African New Towns reconnect to historical references / cultural specificities / local urban histories? How can imagination and images and symbols play an increased role?
- **DK Osseo-Asare:** Africans don't want to look to their historical references ("mud bricks are from the past, we are looking forward"). We have to 'hack their psychologies' to change this thinking.
- **Jacobo Herdoiza Bolanos:** The government should negotiate directly and openly with the market to achieve a balance.
- **Nico Keijzer:** HOW can communities be involved? It's easy to talk about participation, but HOW do you do that?
- **DK Osseo-Asare:** African culture is oral and deliberative. People want to discuss the same things over and over and that brings a tension to a planning process that is expensive and time-consuming.

- **Anteneh Tola:** Investment should be on the research not on the physical objects (example: tree sculpture).
- **Catherine Allinson:** We don't have time for small ideas! This is an urgent problem that is not being addressed by these tiny projects. Don't worry about the middle (class or scale). It will take care of itself. We should bundle projects together to be able to attract massive funding (example: green bonds). We have no time, and the scale is too small, and we need more (long term, locally held) investment.
- **Markus Appenzeller:** Planning should leave gaps. It should be permeable.
- **DK Osseo-Asare:** We have to think *beyond* individual projects in terms of scale, time and investment.

Group Brainstorm Session

Group 1: DK Osseo-Asare / Anam City



FIG. APP.B.7 Group 1
Group 1 fills in the poster with their observations of Anam City and recommendations for universal principles. Source: Author, 2017.

Results

Observations

New Towns (satellite cities) can present different spatial challenges: scale (massive), speed of development, destruction of nature and identity, connection and mobility issues, local and national financial complications, questions regarding the incorporation of informality, and complex land ownership.

Ideas for Improvement

A toolbox with different layers could address scalability, replicability, speed, collaboration, a decision-making model, climate adaptation and integral plans based on robust evidence.

Planning Principles

Keywords: collaborative, integrative, 'climatic', toolkit model, flexible, dynamic

Group 2: Markus Appenzeller / Ningo Prampram



FIG. APP.B.8 Group 2
Group 2 discusses the potential for adaptive planning principles through the lens of Ningo Prampram. Source: Author, 2017.

Results

Observations

The Ningo Prampram masterplan lacks recognizable places (places have an important wayfinding function in many African cities). The grid allows for flexibility (specifically: densification and expansion). The presence of the TransAfrican Highway is a good connection to existing infrastructure.

Spatial challenges include: flooding, absence of a reliable water source, green corridors could become squatted, plot sizes (large) might compromise density, potential clash of stakeholders could postpone development.

Spatial potentials include: large plots can be used to generate income, and the plan is flexible (adaptable) because of the regular grid structure.

Ideas for Improvement

Phasing and development priorities could be more clarified. A clustering strategy based on local norms and needs might compliment the grid. Local capacity building should be built into the planning and construction process. Governance and implementation structure could be refined. Cycling infrastructure could be added. 'Sweat equity' could be incorporated for low-cost / no-cost housing.

Planning Principles

Learn to cope with uncertainty. Consider socio-economic and legal issues. Develop capacity- building and governance structures simultaneously with the plans.

Group 3: Michelle Provoost / Tatu City



FIG. APP.B.9 Group 3
Group 3 brainstorms over the spatial challenges and potentials present in Tatu City. Source: Author, 2017.

Results

Observations

No resettlement was needed because the land was a former coffee plantation / greenfield site (agricultural production). Housing, industry and manufacturing create a good home/job balance. It is an isolated private urban development using the gated communities model: an “elite ghetto”. Tatu City is designed for middle and upper income groups; no low-income housing is offered. Symbolic heritage (tree sculpture) is lacking in depth. Borders are well- defined.

Spatial challenges include: lack of possibilities for incremental development (i.e. low/ no- cost), preservation of ecological qualities, future adjacent informal settlements will be seen as a problem by the developers, the plan increases segregation and reduces interaction within the city, there is no hierarchy of roads, and the program is designated in mono-functional blocks.

Spatial potentials include: the integration of cultural heritage and oral traditions, the integration of environmental functions (existing ecological networks) and public space, a spatial solution for integrating informal settlements / incremental housing in the development, the integration of natural corridors throughout the plan at the urban scale, and mixed-use at the micro-grain.

Ideas for Improvement

The plan could be improved by: a training center (to build local capacities), an adapted grid to diversify streetscapes, increasing attention to heritage and increasing access to that heritage, preserving and building upon the existing natural landscape, a flexible plan for the city centre, the incorporation of agriculture as part of compensation costs, allowing informal

commerce within the development, leaving space available for incremental housing, and increasing governmental power to negotiate and enforce regulations.

Planning Principles

Plans should be inclusive and accommodate the lowest income groups with space reserved for incremental housing. Top-down and bottom-up should be combined. Planning as a process should increase flexibility. Existing green and blue networks should be used as the basis for urban development plans.

Group Discussion of Brainstorm Results

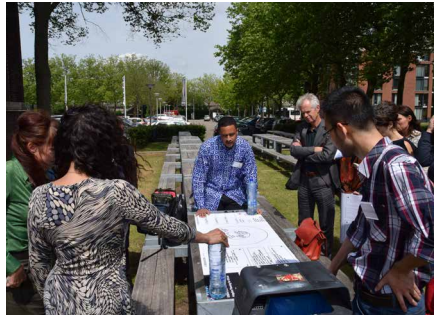


FIG. APPB.10 Group 1 presentation
DK Osseo- Asare presents the results of Group 1 for open discussion. Source: Author, 2017.



FIG. APPB.11 Group 3 presentation
Femke van Noorloos presents the results of Group 3 for open discussion. Source: Author, 2017.

Revision of (draft) Planning Principles

The group was instructed to review the following planning principles in detail before the workshop. During the workshop they were asked to consider how their suggestions could improve / replace / compliment / refine the draft principles. At the end of the workshop, those suggestions were clarified during a roundtable discussion and incorporated into the existing principles.

DRAFT Adaptive Planning Principles for African New Towns - 7/6/2017

Emphasize innovation

The culture of New Towns is forward looking, with an emphasis on innovation and experiment. This ambition is optimistic and should be fostered. For new New Towns this means looking for inventions, not only in technology but also social, cultural, political and financial innovation. *New Towns are excellent laboratories for implementation of the New Urban Agenda.*

No city is an island.

The bigger spatial context needs to be taken into account: New Towns must be considered within their regional contexts. Locations should be chosen based on accessibility (efficient connections to surrounding urban areas) local needs, topographic conditions, and potential for growth.

Planning New Towns requires re-evaluating the position of the city in the region and nation, and the changing relation to the mother city. Future New Towns should be based on a national spatial policy and not be planned as an isolated project.

Planning is a process

New Towns will have to address future issues we cannot anticipate. The organizing urban form should therefore create spatial conditions that enable adaptation to a number of variables, including: demographic, economic, and environmental.

New Towns should be considered as a very long-term process, rather than product. They continuously evolve over time, and this evolution should be clearly acknowledged in terms of phasing, sequencing, maintenance and financing

(i.e. phased land sell-offs increase profits through rising land values and can be redirected to low income housing development).

Institutional agents should work closely with local residents throughout the process to meet evolving local needs.

New Towns should be inclusive

Cities should be built for a representative cross-section of society, including affordable housing and public transport. Because contemporary New Towns are often undertaken as commercial projects they are often not able to provide for the lowest incomes. There is a need for new financial models to achieve inclusiveness. Especially in Africa there is a need to incorporate or facilitate self-built settlements, since they will make up the largest part of urbanization. The provision of low cost housing options (i.e. sites and services) should reflect realistic economic capacities and projections for growth to avoid 'low-cost / high risk' settlement patterns in adjacent areas.

Inclusionary policies can ensure job and housing balance, appropriate housing availability and diverse housing stock (which maximizes land sales and land absorption, and increases social cohesion). Developing different sites to varying degrees of completeness can offer financially attractive options to multiple income groups.

Forgoing spatial segregation for diverse urban environments starts with individual choices. Housing stock should be mixed at scales that offer diverse options and reflect the socio- cultural-economic norms of the surrounding context (i.e. access to housing finance, average incomes, culturally specific family units, etc.).

The spatial components of the 'informal' economy should be accommodated in the plan engaged as a productive part of urban life.

Infrastructure and mobility for all, from the start

Services, amenities, infrastructure and public transport must be provided and should be initiated before housing becomes available. The provision of adequate health care and educational opportunities is necessary.

The urban plan should not prioritize cars over other transit types, it should encourage slow traffic: carts, bicycles and pedestrians. The provision of public transport to the existing cities from the immediate start of development has proven to be a main factor in the success or failure of New Towns.

Plan for flexibility

Demographic projections indicate continued urban growth over the next century. To adapt successfully, New Towns must be able to absorb influxes (of varying sizes) through increased density and/or extension, becoming increasingly compact over time without degrading public and green spaces.

High quality public space should be preserved indefinitely at different scales (neighborhood, district, urban). Spaces should be permanently reserved for green areas, public gathering, recreation, and communal work areas.

New Towns must have the potential to be adjusted *by the residents* to respond to their changing needs over time.

In the light of climate change and ecological threats, the importance of a network of green open spaces and water is of the utmost importance. This network should underpin every urban plan, combining ecology, flood prevention, water retention with public space and leisure.

Structural planning needs to consider environmental effects: soil erosion, deforestation, waste management and proximity to flood plains can present real threats. Long-term impacts of climate change (flooding, desertification, etc.) should be considered and reflected in design decisions.

Surrounding foodsheds should be protected and growth should be structured so that it does not threaten productive agricultural land.

Renewable energy potentials should be explored at various scales.

Combine top-down and bottom-up

New Towns share a largely top-down approach, with a fixed relation between the government or private party developing the city and the residents. To become more resilient and fair, and

to unleash the vital dynamics that can develop the city, they should provide for a more inclusive and participative approach.

Existing villages or communities on the development site should be included as a *priori* elements of the plan.

Use no universal model and no export of urban models

There is no one-size-fits-all model for New Towns. Models from one part of the world don't guarantee success when exported to another part. Local capacity building is necessary and should be stimulated, so any country can develop its own urban models, based on local culture, climate, politics, social needs and financial possibilities.

Stimulate exchange among New Towns

New Towns share a lot of challenges and opportunities. Research into common urgencies should be stimulated and the lessons learned should be disseminated and exchanged. A best practice network of New Towns should serve this goal.

Revised Adaptive Planning Principles for African New Towns - 14/6/2017

Emphasize innovation

The culture of New Towns is forward looking, with an emphasis on innovation and experiment. This ambition is optimistic and should be fostered. For new New Towns this means looking for emerging best practices, not only in technology but also social, cultural, political and financial innovation. *New Towns are excellent laboratories for implementation of the New Urban Agenda.*

No city is an island.

The bigger spatial context needs to be taken into account: New Towns must be considered within their regional contexts. Locations should be chosen based on accessibility (efficient connections to surrounding urban areas) local needs, topographic conditions, and potential for growth.

Planning New Towns requires re-evaluating the position of the city in the region and nation, and the changing relation to the mother city. Future New Towns should be based on a national spatial policy and not planned as isolated projects.

Exchange among New Towns and across other urban areas should be encouraged and facilitated to learn from relevant experiences and best practices.

Planning is a process

New Towns will have to address future issues we cannot anticipate. The organizing urban form should therefore create spatial conditions that enable adaptation to a number of variables, including: demographic, economic, and environmental.

New Towns should be considered as a very long-term process, rather than product. They continuously evolve over time, and this evolution should be clearly acknowledged in terms of phasing, sequencing, maintenance and financing (i.e. phased land sell-offs increase profits through rising land values and can be redirected to low income housing development).

Institutional agents should work closely with local residents throughout the process to meet evolving local needs.

Local cultural heritage(s) should be studied and incorporated in plans

Cultural assets of local populations should be integrated in plans and researched throughout the planning process. This supports the development of both identity and community.

Spiritual connections to sacred spaces (waterways, trees, etc.) should be well-understood, respected, and celebrated in the plans. No-go sacred spaces should be zoned appropriately.

Unwritten laws (i.e. statutory versus customary laws), social norms and taboos should be researched and accommodated within the plans.

Capacity-building should be a central aspect of the planning process

Existing governance models can be improved through the planning process and local capacity-building should be undertaken at all levels of exchange.

Performance indicators can codify assessment

Quantifiable indicators based on local conditions can improve monitoring and evaluation through the planning process.

New Towns should be inclusive

Cities should be built for a representative cross-section of society, including low-income and no-income (incremental) housing, and public transport. There is a need for new financial models to achieve inclusiveness. Especially in Africa there is a need to incorporate and facilitate incremental settlements, since they will make up the largest part of urbanization. The provision of incremental housing options should reflect realistic economic capacities and projections for growth to avoid 'low-cost / high risk' settlement patterns in adjacent areas.

Inclusionary policies can ensure job and housing balance, appropriate housing availability and diverse housing stock (which maximizes land sales and land absorption, and increases social cohesion). Developing different sites to varying degrees of completeness can offer financially attractive options to multiple income groups.

Forgoing spatial segregation for diverse urban environments starts with individual choices. Housing stock should be mixed at scales that offer diverse options and reflect the socio- cultural-economic norms of the surrounding context (i.e. access to housing finance, average incomes, culturally specific family unit sizes, etc.).

The spatial components of the 'informal' economy (i.e. kiosks, transport options, markets, etc.) should be accommodated in the plan and engaged as a productive part of urban life.

Infrastructure and mobility for all, from the start

Services, amenities, infrastructure and public transport must be provided and should be initiated before housing becomes available. The provision of adequate health care and educational opportunities is necessary.

The urban plan should not prioritize cars over other transit types, it should encourage slow traffic: carts, bicycles and pedestrians. The provision of public transport to the existing cities from the immediate start of development has proven to be a main factor in the success or failure of New Towns.

Plan for flexibility

Demographic projections indicate continued urban growth over the next century. To adapt successfully, New Towns must be able to absorb influxes (of varying sizes) through increased density and/or extension, becoming increasingly compact over time without degrading public and green spaces.

High quality public space should be preserved indefinitely at different scales (neighborhood, district, urban). Spaces should be permanently reserved for green areas, public gathering, recreation, and communal work areas. Green space can be protected from squatting by giving it (temporary) function(s).

New Towns must have the potential to be adjusted *by the residents* to respond to their changing needs over time.

Leveraging blue-green infrastructure should inform the central framework for public spaces and stimulate community-building while dealing with the dynamics of environment and climate

Climate change and variability will create extreme situations in the African context and urban planning must address and mitigate these threats. In the light of climate change and ecological threats, the importance of a network of green open spaces and water is of the utmost importance. This network should underpin every urban plan, combining ecology, flood prevention, water retention with public space and leisure.

Structural planning needs to consider environmental effects: soil erosion, deforestation, waste management and proximity to flood plains can present real threats. Long-term impacts of climate change (flooding, desertification, etc.) should be considered and reflected in design decisions.

Surrounding foodsheds should be protected and growth should be structured so that it does not threaten productive agricultural land.

Renewable energy potentials should be explored at various scales.

Combine top-down and bottom-up

New Towns share a largely top-down approach, with a fixed relation between the government or private party developing the city and the residents. To become more resilient and fair, and to unleash the vital dynamics that can develop the city, they should provide for a more inclusive and participative approach.

Existing villages or (nomadic) communities using the development site should be included as *a priori* elements of the plan.

The plan should actively prevent illegal and unfair displacement of people.

Use no cut-and-paste universal model

There is no one-size-fits-all model for New Towns. Models from one part of the world don't guarantee success when exported to another part. Local capacity-building within the planning discipline and education is necessary and should be stimulated, so any country can develop its own urban models, based on local culture, climate, politics, social needs and financial possibilities.



Salvage workers in NingoPrampram, Ghana. The coastal community is slated for development as a New Town. Source: Author, 2019

Tatu City Design Workshop

Final Presentation



"The City In Between"

**Summary of Final presentation, INTI – New Town Lab
10-14 September 2018**

Team



**INTER-
NATIONAL
NEW TOWN
INSTITUTE**



INTI liaison Nairobi

with experts from



LANDSCAPE
ARCHITECTS
& PLANNERS

jvantspijker & partners



Why this New Town Lab?

New Town Lab - Tatu City

A New Town Lab is a rapid planning workshop in which a selected group of international and local experts work together for one week with the aim of finding a convincing and innovative concept/strategy for urgent planning issues.

The main Question in Tatu City is:

How can we create a connected network of green and blue spaces that acts as a sustainable and resilient backbone for Tatu City?

1st Phase, preparation and input for the New Town Lab, was empirical research on the formal and informal activities within and in the surroundings of Tatu City, to achieve insight in the spatial impact of life and work in the area.



Different interpretations on the outcomes:

“INTI is going to formulate a plan for the 30% natural green spaces of the development”

“INTI is going to make the connection with the local communities”

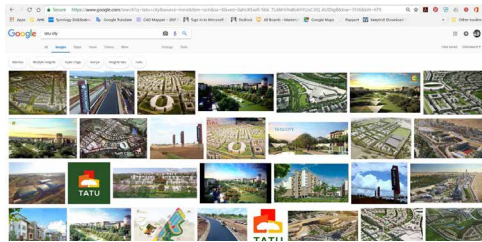
...

WHAT'S YOUR STORY?

Definitely something urban:
a world class city is communicated on the website, a place of history and heritage, social events connecting with the community

What is your ambition?
The structure-plan of 2014 shows the ambition to make an inclusive city, but in reality projects are developed instead of a city.

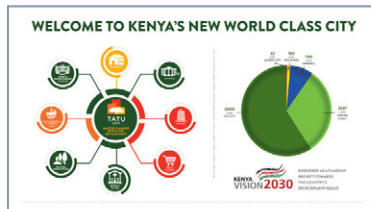
What's your story?



Definitely something urban



A place with history and heritage



A City!



Social commitment

What is your ambition?

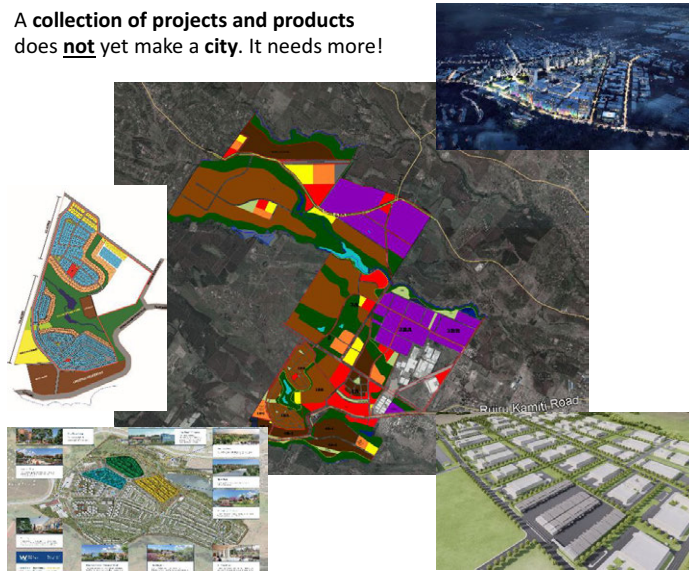
From the 'Tatu City Structure Plan' 2014, page 31:

"The following specific values and principles form the foundation of the Tatu City Structure Plan:

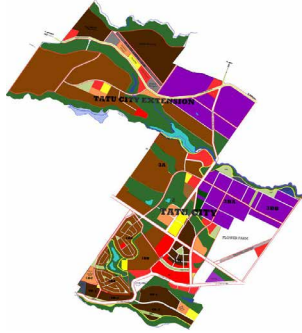
- **protection of the environment** and **capitalising on the environmental assets** (dams, rivers, wetlands and riverine forests);
- a **mixed-use, vibrant urban environment** that embodies the notion of —live, work and play;
- public transport and **pedestrian friendliness**;
- **flexibility** and **accommodation of a variety of lifestyles**;
- **social integration**;
- encouragement of entrepreneurship;
- **spatial integration with the immediate urban context** and the 'Greater Nairobi' as a whole; and
- maximising self-sufficiency (minimise reliance on municipal or government services and infrastructure)."

You talk projects - but you try to sell a city

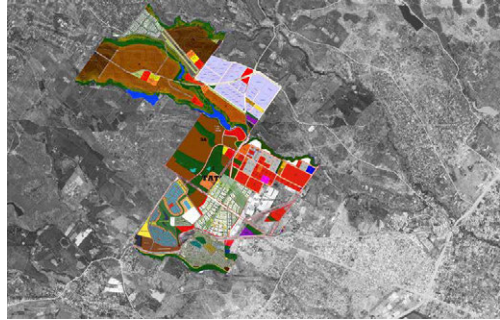
A collection of projects and products does not yet make a city. It needs more!



It looks like a coherent plan...



... which over time has been altered...



... and turned into an archipelago of different islands



You need to look at what is in between

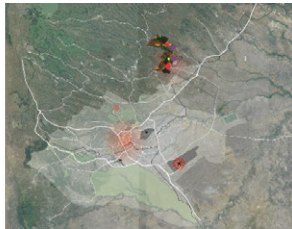


FROM LANDUSE PLANNING TO FRAMEWORK PLANNING

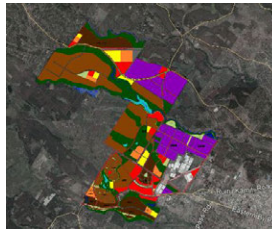
You need a coherent framework that holds your development



Framework on three scales



The regional scale:
How does Tatu City embed itself into the surrounding?



The city scale:
What are the structuring principles of Tatu City?



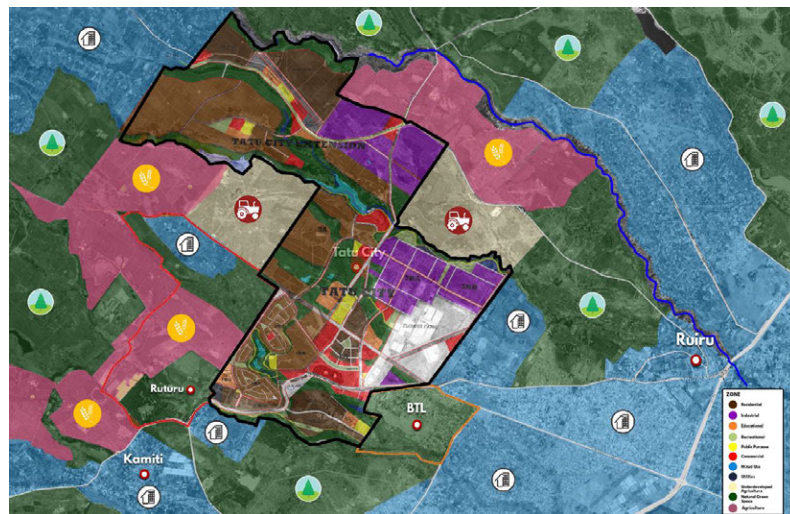
The district scale:
How are districts organized and how do they contribute to the overall narrative of the whole?

What does a framework add?

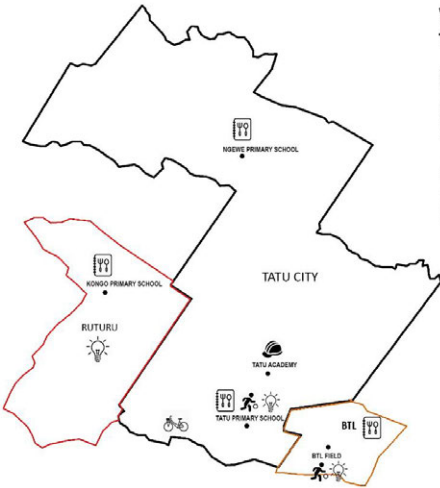
- **More flexibility** in developing Tatu City
- A **coherent blue and green** network
- Infrastructure that **better links** and becomes more efficient
- **Readable locations** for public services
- Room for a **semi-formal informal** economy
- A **safe** space through activity, social interaction and **'eyes on the street'**
- The **cohesive** element in the plan
- The **carrier of an overall identity** of Tatu City

You are not alone!

Connectivity to surroundings by the framework
Physically and socially



You are already offering something



The map shows Tatu City and its surrounding areas, including Ritururu, BTL, and RuiRu Biashara Ward. Key locations marked include Ngeve Primary School, Kongo Primary School, Ritururu, Tatu Academy, Tatu Primary School, BTL Field, Mshaka Children's Home, RuiRu Children's Home, and Watu wa Mbaraka Children's Home. The map is divided into colored regions: a red region for Ritururu, an orange region for BTL, and a purple region for RuiRu Biashara Ward.

WHAT HAS TATU CITY GIVEN THE COMMUNITY?

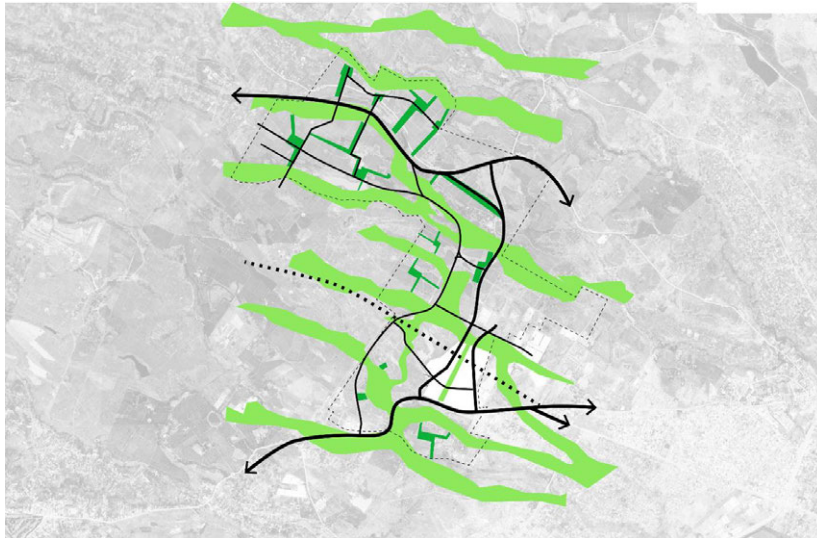
- FOOD PROGRAM**
Tatu City food program targets all the schools within the map, the elderly and the less fortunate in the neighbouring communities: Raturu, Mshaka, BTL and Raiu.
- SPORTS PROGRAM**
Tatu City has provided sports, uniform and equipment to Tatu Primary School and the local BTL Football team.
- ENGAGEMENT PROGRAM**
Tatu City holds an annual road race that aims to unite locals from neighbouring communities and communities living in other regions.
- LIGHTING PROGRAM**
They have provided street lighting within the public spaces in Raturu and BTL.
- LABOUR DESK PROGRAM**
They have created the Tatu Academy that aims to provide locals with technical training and linking them to job opportunities within the industrial park and the overall site.

FRAMEWORK: The City in Between

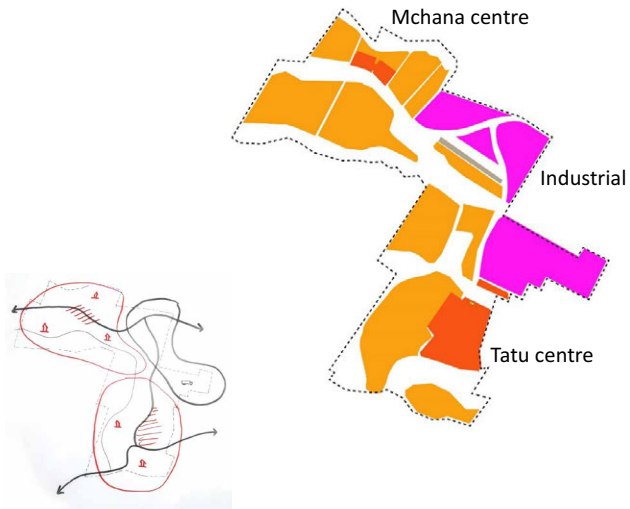
The City in Between

- Is the (blue and green) framework that connects and combines the projects and program clusters (industrial, residential, infrastructure) that are planned and developed within the borders of Tatu City.
- After defining **The City in Between**, it can be planned, programmed and connected to the master plans of the different projects
- Forms the connection with the surroundings of Tatu City. On the locations where **The City in Between** literally meets the borders of Tatu City, **Gateways** form (and can be programmed as) the connecting hubs. A physical and social connection.
- Thus **The City in Between** becomes a framework plan and strategy that will function as the backbone of Tatu City and becomes **the Narrative of the City**.

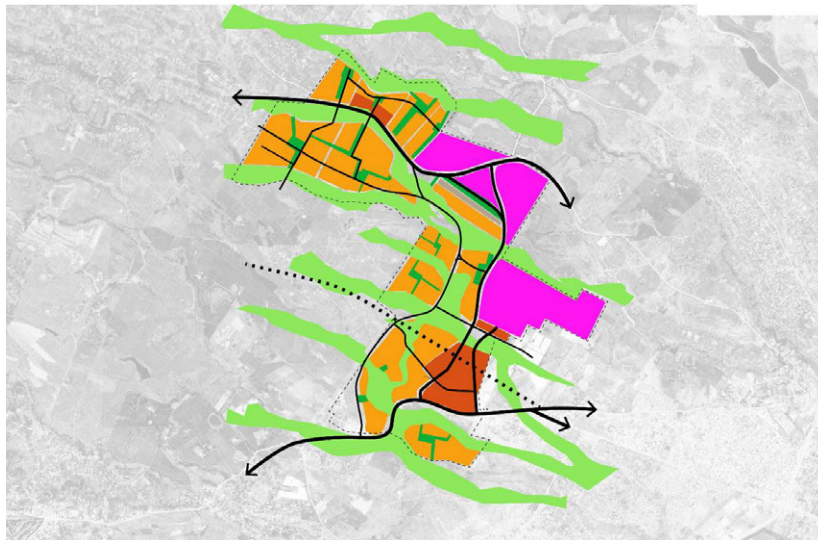
Framework

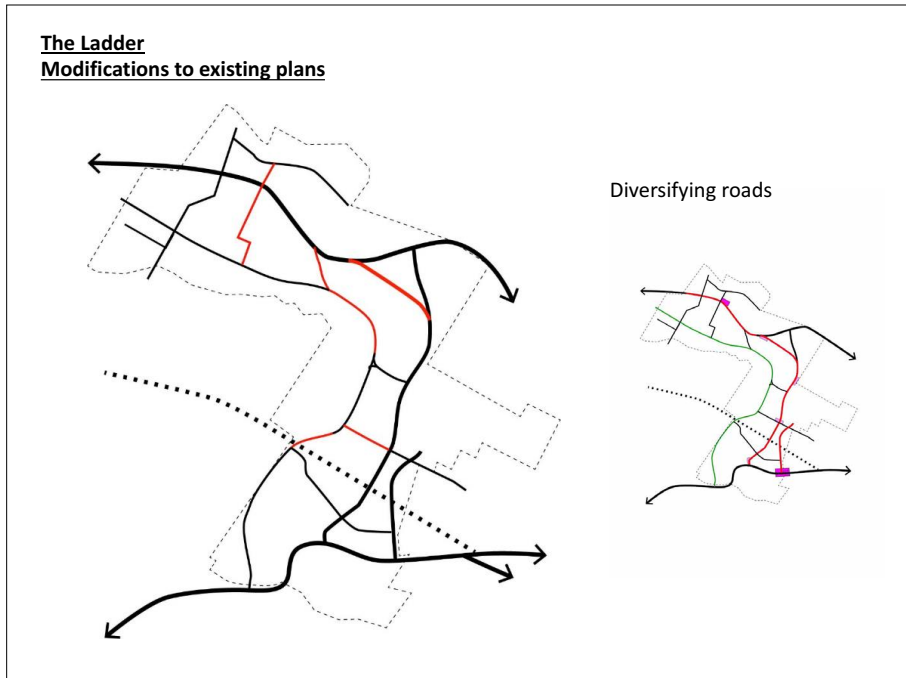
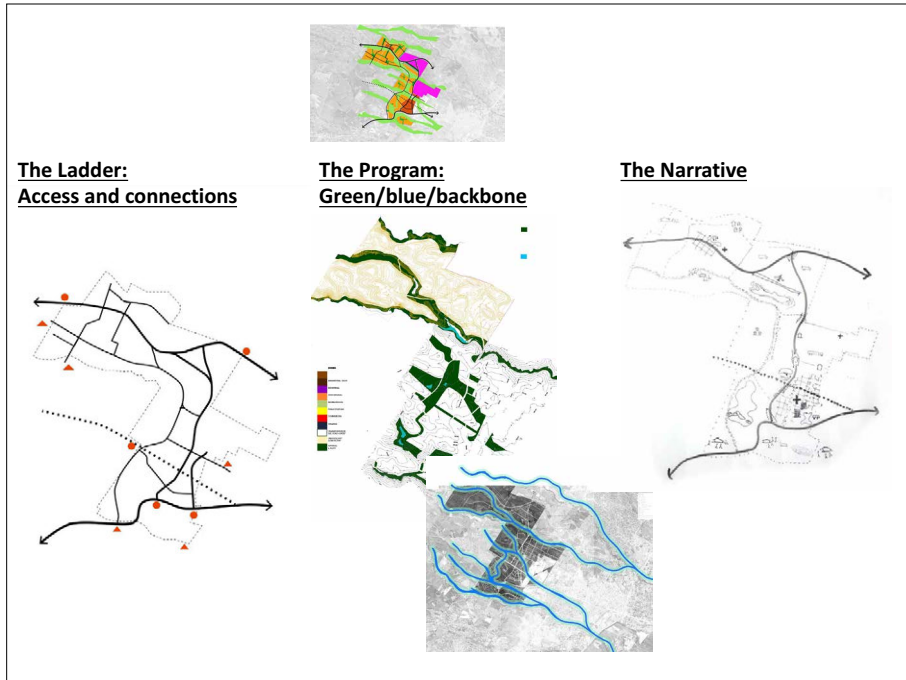


Program clusters

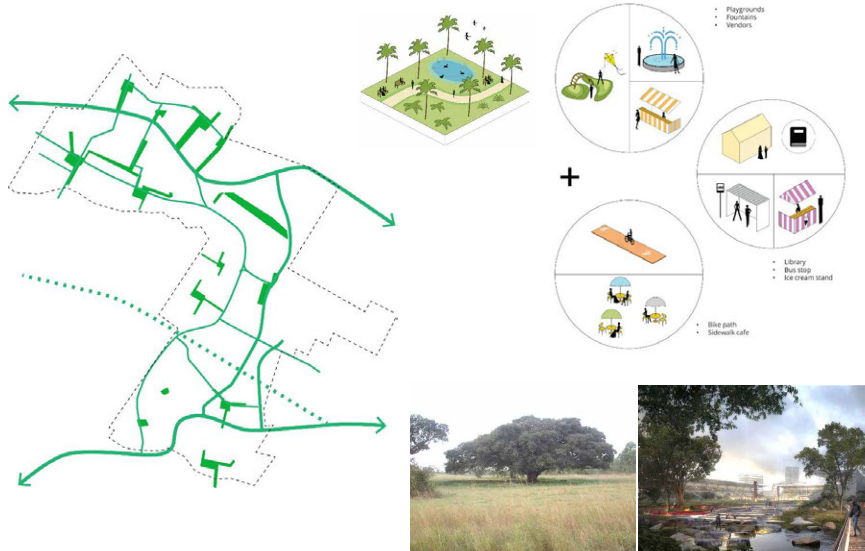


Framework with neighbourhoods





The (Green) Program:
Green/blue, sport, market, heritage ...



The River Values

Three different River typologies (river-stream, dam and wetlands)



Input for Narrative:

"PUBLIC SPACE IS UHURU PARK"

"THE NEW CITY WILL BRING NEW EMPLOYMENT OPPORTUNITIES"

"WHERE IS THE TATU CITY SLUM"

"WE NEED PUBLIC SPACES FOR OUR YOUTH AND CHILDREN"

"TATU CITY PROVIDED SALLY WATER"

"WE WILL KNOW OUR CITY"

"THE LATE 1ST PRESIDENT OF KENYA HELD MEETINGS AT THE MUGUMO TREE WITH THE COUNCIL OF ELDERS"

"TATU CITY WATER NETWORKS HAVE GREAT OPPORTUNITY TO BE INCOME GENERATING"

"WE NEED FORMAL MARKETS IN THIS NEW CITY"

"WE WILL KNOW OUR CITY"

RUTURU

TATU CITY

BTL

RUIRU BIASHARA WARD

"WE SUPPLY FRESH PRODUCE TO BTL AND RUTURU"

"WE SWAM IN TATU WATERS DAM DURING OUR CHILDHOOD"

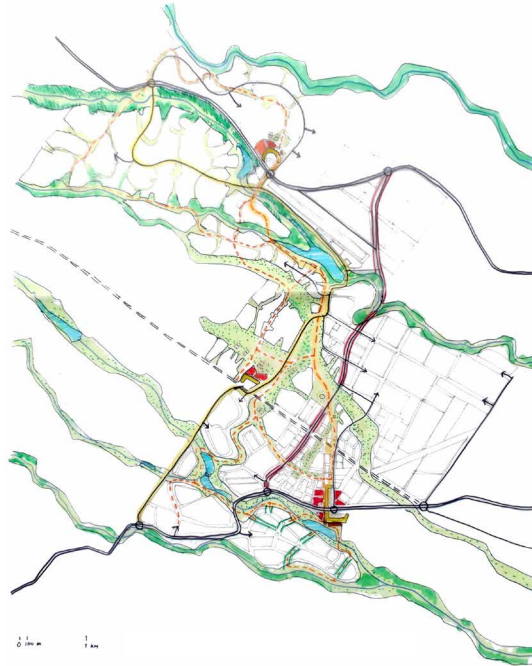
"I SEE TATU CITY UPGRADING OUR LIVES THROUGH INFRASTRUCTURE AND EMPLOYMENT OPPORTUNITIES"

"TATU CITY REPRESENTS A NEW POSITIVE CHANGE FOR THE FUTURE OF OUR CHILDREN"

(Outcome of social research by KUWA)



Tatu Framework



RECOMMENDATIONS

- Who owns the framework?
- Create the narrative
- Formulate and opt for quick gains

Who owns the framework?

- You need **someone that refines the framework and keep it updated** to reflect constant change
- You need someone who is in charge of **integrating all the different aspects** of city development.
- You need someone that **guards the ambitions** of Tatu City as an integral whole

Create the narrative

- Define your **values**
History, location, ambition, infrastructure, stakeholder....
- Formulate your **identity**
Inclusive process with stakeholders (from local community to clients)
- Communicate your **narrative**
Engage on many levels (marketing, CSR, campaigns, events....)

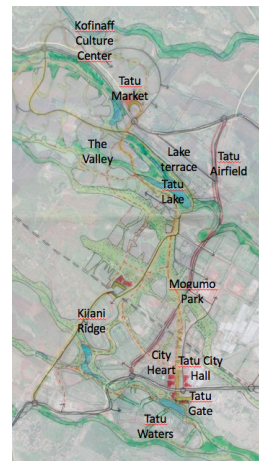
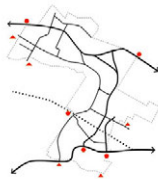
Formulate and opt for quick gains

- Create a **pilot zone** to achieve critical mass and urban feel quickly

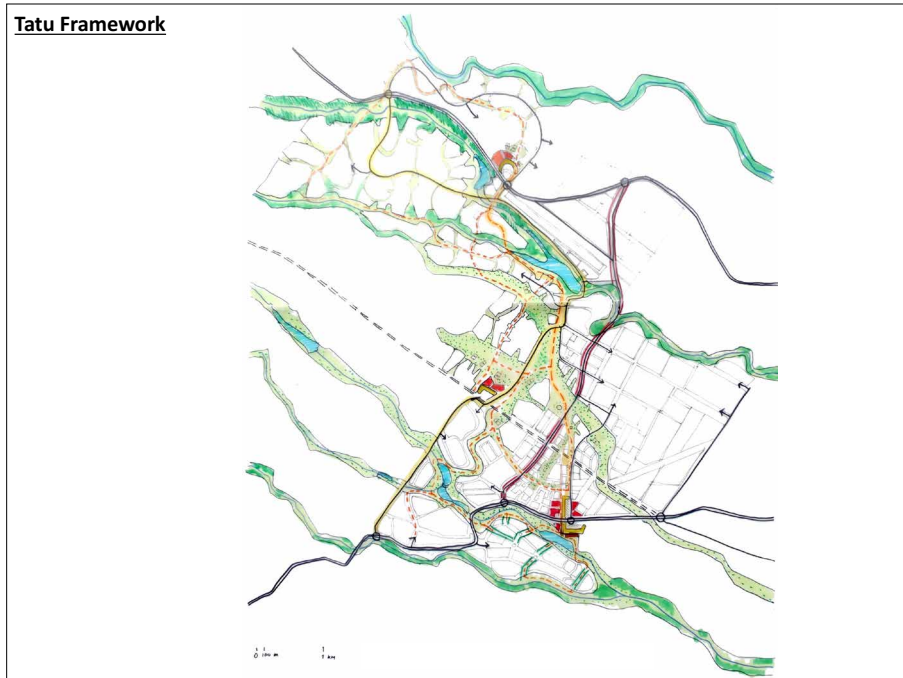


- Give places **names**
- Create **nodes** to link to the surroundings

Access and connections

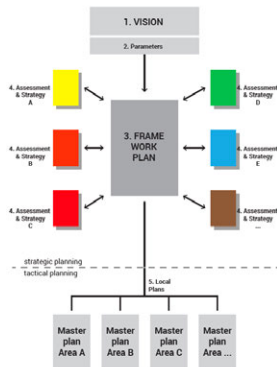


Tatu Framework



Tatu City Framework, the City in between, next step

The presented framework-plan needs an extra round of analysis and a reality-check to make it a final framework that can be used in planning, programming and developing Tatu City, to make it a new town instead of a series of projects.



Define:

- Goal
- Process
- Deliverables

Organise:

2nd New Town Lab, see **Proposal**
September 28th, 2018



Residents occupy a shaded gathering place in Mahonda, Zanzibar. Source: Author, 2019

‘Play Mahonda’ Workshop

Final Report

Assembled by Rachel Keeton

September 21-27, 2019

Organized by

TU Delft | Faculty of Architecture and the Built Environment

SMZ | Serikali ya Mapinduzi Zanzibar

African Architecture Matters

With Support from

Van Eesteren-Fluck & Van Lohuizen Stichting

TU Delft | Global Initiative

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Summary

The 'Play Mahonda' workshop took place from 21-27 September in Mahonda, Zanzibar and Stone Town, Zanzibar. This weeklong workshop aimed to test the adaptive planning principles developed in the book *To Build a City in Africa: A History and a Manual* (International New Town Institute, nai010, 2019) by applying the principles to a real case study. This case was brought forward by the Department of Urban and Rural Planning (DoURP) as one of many new urban developments needed on the island of Unguja. Together with input from African Architecture Matters (AA Matters), the location of Mahonda was chosen as most suitable for a test site. Mahonda is a small farming community of 7000 – 12000 residents (no precise numbers were available), concentrated in linear development along existing roads. It is roughly 20 kilometers north of Stone Town.

In addition to testing 'real world' application of the planning principles, auxiliary goals of this workshop were (1) to build collaboration and strengthen networks among the international experts, the DoURP planning officers, and local residents; (2) to support negotiations among stakeholders; and (3) to make a first step towards the development of a Local Area Plan (LAP) for Mahonda. The workshop brought together 8 experts in urban planning issues, or 'resource persons', with the DoURP planning officers. The week began with a day of introductions to the site and relevant stakeholders. A community meeting at the Mahonda District Council Hall allowed DoURP, local residents, and external resource persons to get to know each other as well as the main opportunities and challenges of the site. A group walk through the site in the afternoon provided the opportunity to observe and document the local landscape and built environment.



FIG. APP.D.1 Play Mahonda

Local area residents prepare to 'Play Mahonda' as a form of participatory design. Source: Author, 2019

The following day, a serious gaming event was held with largely the same participants. The game materialized the Mahonda site at a scale of 1:300, where the (redrawn) site plan was used as a gameboard. The game rules and pieces were developed in collaboration with Play the City, and the game was facilitated by Cristina Ampatzidou. The 'Play Mahonda' game was conceived as a test of the principles, and as a way to engage local community members in a participatory design process. 10 teams of ± 5 players used the game to develop different future scenarios for Mahonda. The players included 48 local residents (invited by DoURP), including farmers, teachers, and local community leaders (*Shehia*).

The game results produced new insights for the planning team, including a prevailing desire throughout the community for dense, mid-rise, multi-family housing; a local need to protect agricultural land from encroachment; and a clear mandate for 'modern' amenities such as a new hospital, a fresh market, more schools, and a bus station. Some teams showed more sensitivity to specific issues such as the local need for a daycare facility and orphanage, improved accessibility for people with physical disabilities, or the desire to protect existing cemeteries from redevelopment.

An evaluation round revealed that the players appreciated the opportunity to express their ideas and opinions on the future of their town. They also indicated their appreciation for the resource persons who travelled to Mahonda. One participant noted, “We need a well-structured system to shift from individual houses to more dense development; we are ready to accept the changes.”

Following the game, the final two days of the workshop shifted to a focus on capacity building with DoURP. For these sessions, both morning and afternoon presentations by resource persons were followed by intense discussions and interactive sketch sessions to produce a conceptual plan for Mahonda. The first sketch session divided the group into two smaller groups who addressed the area’s main connections and existing opportunities. The second sketch session divided the group into four smaller groups that explored different future scenarios. The scenarios were meant as thought experiments of extreme situations to help workshop participants think beyond the expected plans. The third session brought these ideas together in one plan at national, regional, urban and neighborhood scales, while the fourth session was used to finalize drawings.

At the end of the workshop, the group reviewed the principles individually and evaluated the drawings for Mahonda based on these principles. Although most of the principles had been well-integrated, it was observed that more research was needed to ensure that some of the principles be adequately applied. Following this, DoURP planning officers presented the plan to the Director of the Department of Urban and Regional Planning, Dr. Muhammad Juma. Dr. Juma expressed his satisfaction with the work, and requested that the resource persons maintain contact with DoURP and explore the possibility of further collaboration in the future.

In internal evaluation with the resource persons, it was observed that the workshop had brought meaningful contributions to the DoURP team, and that the principles could have a positive effect on future plans for Mahonda. As the organizer of this workshop, my personal feeling is that the workshop can be considered a great success, in that it achieved its goals and affirmed the validity of the adaptive planning principles set out in *To Build a City in Africa*.

Rachel Keeton
r.e.keeton@tudelft.nl
3 October 2019

'Play Mahonda' Workshop Program

September 21-27, 2019

Saturday September 21: Arrival

(Suggested) Arrival and airport transfer to Mangrove Eco Lodge (<http://www.mangrovelodge.com/english/index.htm>)

Sunday September 22: Get a grip on Zanzibar

(Optional: ±\$30pp) The Three Wonders Tour (<http://www.mangrovelodge.com/english/escursioni.htm>)

Sail on a dhow to Bawe Island / lunch on island / visit Changuu (Prison) Island / Stone Town

Monday September 23: Introductions and site visit

Location: Mahonda District Hall

- 10:00 – 10:30 Introductions and official welcome by Muhammad Juma
- 10:30 – 10:45 Explanation of workshop goals by Rachel Keeton
- 10:45 – 11:00 Introduction to the Local Area Plan (LAP) approach by Berend van der Lans
- 11:00 – 11:30 Presentation by Cristina Ampatzidou on 'Play Mahonda' approach and methodology
- 11:30 – 12:00 Presentation Rachel Keeton on Adaptive New Town Planning and Design Principles
- 12:00 – 13:00 lunch
- 13:00 – 17:00 Site visit to Mahonda with DoURP

Tuesday September 24: 'Play Mahonda'

Location: Mahonda District Hall

- 10:00 – 12:30 Site visit and interviews with local residents
- 12:30 – 13:30 lunch
- 13:30 – 16:30 Play Mahonda game, moderated by Cristina Ampatzidou
- 16:30 – 17:00 Assess results of the game, lessons for future implementation
- 17:30 Transfer to Stone Town: Tembo House (<https://tembohotel.com/>)

Wednesday September 25: Capacity building with DoURP

Location: DoURP offices, Stone Town

- 09:30 – 10:00 Lecture Priscilla Izar: 'Exploring Urbanization from the Ground '
- 10:00 – 10:15 Critical reflection from DoURP representatives / discussion
- 10:15 – 12:00 Sketch session
- 12:00 – 13:00 lunch
- 13:00 – 13:30 Lecture Simone Rots: 'Informality and Formality in New Towns'
- 13:30 – 13:45 Critical reflection from DoURP representatives / discussion
- 13:45 – 16:00 Sketch session
- 16:00 – 16:30 Group discussion of initial ideas and sketches
- 16:30 – 18:30 Optional walking tour of Stone Town

Thursday September 26: Capacity building with DoURP

Location: DoURP offices, Stone Town

- 09:30 – 10:00 Lecture Anteneh Tola: 'Making New Towns in Rural Areas, Lessons from BuraNEST, Ethiopia'
- 10:00 – 10:15 Critical reflection from DoURP representatives / discussion
- 10:15 – 12:00 Sketch session
- 12:00 – 13:00 lunch
- 13:00 – 13:30 Lecture Igor Pessoa: 'Participatory Planning and possibilities for continuing education'
- 13:30 – 13:45 Critical reflection from DoURP representatives / discussion
- 13:45 – 16:45 Sketch session
- 16:45 – 17:00 Group discussion of initial ideas and sketches
- 17:00 – 17:30 Way forward / next steps / conclusion

‘Play Mahonda’ Goals

The ‘Play Mahonda’ workshop took place from 21-27 September in Mahonda, Zanzibar and Stone Town, Zanzibar. This weeklong workshop aimed to test the adaptive planning principles developed in the book *To Build a City in Africa: A History and a Manual* (INTI, nai010, 2019) by applying the principles to a real case study.

The main goals of the workshop were to (1) test the validity of the planning principles introduced in *To Build a City in Africa* through a serious gaming event that simulates a New Town planning process. And to (2) initiate collaboration and support negotiations among relevant local stakeholders and make a first step towards the development of a Local Area Plan for Mahonda.



FIG. APP.D.2 Day 1

An image from the first day of the workshop shows local community leaders, Mahonda District Council, DoURP director and planning officers, as well as international resource persons. Source: Author, 2019

A secondary goal was to encourage knowledge sharing by bringing together multidisciplinary experts and representatives of the Department of Urban and Rural Planning to examine various aspects of the site and discuss state-of-the-art planning and design approaches. This was done through a series of short presentations by the visiting experts and round-table discussions among DoURP representatives and the visiting experts.

As further elaborated in the Evaluation at the end of this report, all participants agreed that the workshop had been successful in meeting its goals. As Dr. Muhammad Juma observed during an interview following the workshop, he was “very pleased with the results and hopes this can become a long-term engagement.”

Location

This case was brought forward by the Department of Urban and Rural Planning (DoURP) as one of many new urban developments needed on the island of Unguja. Together with input from African Architecture Matters (AA Matters, a Dutch non profit consultancy firm and partner of DoURP in the development of planning documents for Zanzibar), the location of Mahonda was chosen as most suitable for a test site.

Mahonda is a community of about 7000 – 12000 residents (this is an indication given by DoURP, no precise numbers were available), concentrated in linear development along existing roads. The local community is predominantly made up of farming families, with both men and women engaging in this practice.

The area indicated for development is roughly 20 kilometers north of Zanzibar Town, which is the primary city of Unguja, Zanzibar. Mahonda is roughly 10 kilometers inland from the west coast of the island.

This location gives Mahonda a very different character from the coastal regions. In fact, Mahonda is located in the middle of Unguja’s most fertile farmlands. The area around Mahonda is known for production of pineapples, yams, rice, watermelon and mangos, as well as livestock husbandry. As a semi-autonomous region, food security is a priority for the government of Zanzibar.

The area has a tropical climate, with significant rainfall almost year-round and an average annual temperature of 27.3°C. The temperature is relatively stable throughout the year, with average highs reaching 29.1°C (March) and lows reaching 25.5°C (August).

Resource Persons:

In addition to workshop organizer Rachel Keeton, seven international experts were selected to participate in the workshop as 'resource persons'. These individuals were selected for their relevant expertise.

Anteneh Tesfaye Tola

Anteneh Tesfaye Tola is a doctoral candidate at TU Delft Bouwkunde. He has been an academic staff at the Addis Ababa University – Ethiopian Institute of Architecture, Building Construction and City Development for more than 10 years. During this time, he headed the Chair of Architecture and Design II and was involved in teaching, research and community outreach works. He also worked as a project manager for the development of an urban design for the main city center of Addis Ababa city as part of the master plan revision works of 2014/16 which is a consultancy engagement of the institute.

He received his MAS in Urban Design from the ETH Zurich, in Switzerland. He studied methodologies of analysis and the strategic design and planning of urban territories in emerging economies – taking cases in neighborhoods of Rio de Janeiro and Sao Paulo in Brazil. The continuous confrontation between rapid urbanization and social equity and the use of planning and design as an instrument of intervention is his main area of investigation. He advocates for the changing role of architecture and planning toward the responsibility to build just cities.

Berend van der Lans

Berend van der Lans (1966) has been working as an architect in Europe and Africa since 1992. In 2001, he co-founded the ArchiAfrika foundation, aiming to put African architecture and urbanism on the world map by making knowledge available, connecting people and enhancing the architectural debate on the continent. Berend facilitated the transformation of the foundation to an international organisation with – since 2012 – its base in Accra, Ghana.

In 2010, Berend and Antoni Folkers started African Architecture Matters, a non profit consultancy firm working in the fields of design, planning, research and education focussed on the African built environment. He is involved in many of the projects and is responsible for the office management and communication. He has published articles, contributed to publications and given lectures on various topics on architecture and urbanism in Africa. As an architect, Berend van der Lans has been

undertaking a wide range of projects, from rural hospitals in Africa to complicated European inner city design and execution. Since 2007 he runs Architectureplus, offering architecture and project management services.

Charlie Roelse

Charlie Roelse is an architecture masters student at TU Delft. Her research interests are focused on humanitarian architecture and the potential for architecture to improve quality of life. The site of Charlie's masters project is located in N'gambo, Zanzibar. Charlie has previous research and design experience in Tema, Ghana, and Okana, Kenya.

Cristina Ampatzidou

Cristina is a Rotterdam-based researcher and writer with a background in Architecture and Urbanism, and founder and editor in-chief of Amateur Cities. She works as a film programmer for the Architecture Film Festival of Rotterdam, and has been a doctoral researcher at the University of Groningen on the topic of gaming and urban complexity. Her research investigates the affordances of new media, particularly gaming, for 'citymaking' and the changing roles of professional designers, policy makers and citizens. She previously worked as an embedded researcher for the Amsterdam Hackable Metropolis project, a collaboration of the University of Amsterdam, the Mobile City Foundation and One Architecture. Cristina has been a collaborator of Play the City! Foundation, a guest teacher at the TU Delft Faculty of Architecture and is a regular contributor to several architecture and urbanism magazines.

Igor Pessoa

Igor Pessoa is an expert on participatory planning and design practices. His research looks for possible mechanisms to improve urban resilience with focuses in community empowerment. He tries to transform the broad concept of resilience into practical, objective and implementable practices. In TU Delft he also helped to establish the Global Urban Lab, a collective initiative of researchers that are working to tackle urban challenges in emerging economies. He became an Architect and Urban Planner by the Federal University of Rio de Janeiro, but has always been interested on strategies beyond the traditional design-oriented solution for urban problems. In that sense, Igor is eager to work with experimental and multidisciplinary strategies to solve complex urban challenges.

Priscila Izar

Priscila Izar holds a PhD in Planning, Governance and Globalization from Virginia Tech. She is currently a Post-Doctorate researcher and lecturer at the Institute of Human Settlements Studies (IHSS) at Ardhi University in Dar es Salaam, and a core member of the Dar es Salaam CityLab at IHSS. Combining ethnographic methods, political economy and policy analysis, her research looks at the politics, financing and community practices involved in urban production. She is also involved in the development of methods and methodologies for better reading urban development and transformation in these contexts. She worked previously as an urban planner and practitioner with the city of São Paulo and the São Paulo state government, and as an advisor on housing issues for international development organizations.

Rachel Keeton

Rachel Keeton (1984) is an urban researcher specialised in contemporary New Towns. She obtained her masters in architecture in 2008, and worked at the International New Town Institute from 2009-2015. In 2015 Keeton opened her own office for urban research: Urban Anecdote. She is the author of 'Rising in the East: Contemporary New Towns in Asia' (SUN, 2011), and co-editor (with Michelle Provoost) of 'To Build a City in Africa: A History and a Manual' (Nai010, 2019). She is a board member of Amateur Cities and advisory committee member of the Stimuleringsfonds Creatieve Industries. Since 2016, Keeton is a Global Initiative Fellow, pursuing a Ph.D. in urbanism at TU Delft. Her Ph.D research aims to develop and test a series of adaptive planning and design principles for future African New Towns.

Simone Rots

Simone is an urban historian and partner of Crimson Historians and Urbanists, an office that takes the contemporary city as its starting point, that works, writes, advises and teaches in the field of urban planning and architecture, combining historical research and urban development (www.crimsonweb.org). She is also the Managing Director of the International New Town Institute (INTI), an international think-and-do tank, dedicated to the improvement of the quality of global urbanization with a focus on 'old' and 'new' new towns. She is member of different boards and Advisory Committees and recently started at the chair Public Commissions of the department Management in the Build Environment of TU Delft. Next to that she is finalizing her PhD, titled "the Squatted New Town, modernism meets self-organization" at the TU Delft on the subject of modernism and urban informality. The PhD researches an urbanization model that combines modern urban

planning and self-organization with a focus the “sites & services” scheme applied in the 1960s within the context of the international “aided self-help” policy, which attempted to steer rapid urbanization in large parts of the world.

Day 1: Introductions

Monday September 23: Introductions and site visit

Location: Mahonda District Hall

- 10:00 – 10:30 Introductions and official welcome by Muhammad Juma
- 10:30 – 10:45 Explanation of workshop goals by Rachel Keeton
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- 11:30 – 12:00 Presentation Rachel Keeton on Adaptive New Town Planning and Design Principles
- 12:00 – 13:00 lunch
- 13:00 – 17:00 Site visit to Mahonda with DoURP

The week began with a day of introductions to the site and relevant stakeholders. A community meeting at the Mahonda District Council Hall allowed DoURP, local residents, and external resource persons to get to know each other as well as the main opportunities and challenges of the site, as perceived by DoURP. Following welcome statements and introductions by key persons (District Administration Secretary, District Councilors, Chairperson for the ruling party of the district, and local community leaders (*Shehia*)), Dr. Muhammad Juma (Director of DoURP) gave a presentation outlining historical and cultural aspects of Zanzibar relevant to the plan, as well as quantitative data on national demographics. Juma outlined Mahonda’s role in the National Spatial Development Strategy (NSDS) as a new node for urban development, or “regional center”. The 14 new regional centers indicated in the NSDS document have been selected as growth zones to improve the distribution of urban services across Zanzibar (Unguja and Pemba).



FIG. APP.D.3 Muhammad Juma

Dr. Muhammad Juma presents the project brief on Mahonda to the group. Source: Author, 2019.

The presentation by Berend van der Lans (AA Matters) looked at previous Local Area Plans on Zanzibar, and discussed the participatory approach taken during development of the LAP planning process in past years. Van der Lans outlined the need for long term engagement with local communities and the challenges he and his team faced in previous experiences.

Following Van der Lans, Cristina Ampatzidou gave a presentation on the history of serious gaming as an urban planning tool, and explained the rules of play for the 'Play Mahonda' game. Ampatzidou explained how the game was intended as a method to support co-creation and negotiation among various stakeholders.

Afterwards, Rachel Keeton presented the ten adaptive planning principles from *To Build a City in Africa*, as well as the research that informed them. Keeton gave relevant examples of each principle and explained how they could be considered in the Mahonda context.

A group walk through the site in the afternoon provided the opportunity to observe and document the local landscape and built environment. The group walk began at the 'Quarters' – the former (planned) housing area for employees of the Sugar Factory. First impressions of the site included: the 'handmade' additions and layering of elements over time that enriched the original housing structures; the traditional structure of an unregulated settlement to the south of the Quarters that allowed for a hierarchy of access paths and communal activities; the verdant green growth and fertile soil; the clear boundary between urban and agricultural land; and the commercial development along the paved roads.



FIG. APP.D.4 Mahonda local conditions

A walk through the site with DoURP planning officers and local community leaders enabled a better understanding of Mahonda's landscape and built environment. Source: Author, 2019.

Day 2: A Serious Game

Tuesday September 24: 'Play Mahonda'

Location: Mahonda District Hall

10:00 – 12:30 Site visit and interviews with local residents

12:30 – 13:30 lunch

13:30 – 16:30 Play Mahonda game, moderated by Cristina Ampatzidou

16:30 – 17:00 Assess results of the game, lessons for future implementation

17:30 Transfer to Stone Town: Tembo House

The second day began with a much larger group of participants than expected: 48 instead of 20. This development led Ampatzidou and Keeton to reconsider the way the game had been designed and adapt it to the new number of players. The planned site visit was skipped in the interest of time. 10 teams of ± 5 players were formed. Group formation required extensive negotiation, with every instruction being translated into Kiswahili by Mohammad Habib, a DoURP planning manager.

Once again, Keeton presented the principles succinctly, to ensure they would be present in the players' minds. Each principle was translated into Kiswahili. Each team of 5 players received a black box filled with 1:300 game pieces representing urban programs ranging from single family homes and agricultural land to auto garages and public toilets. Ampatzidou then introduced the game as a collaboration and negotiation tool, and explained the contents of the black boxes and game rules.

Each team had a chance to discuss their 'vision' for Mahonda internally for 20 minutes, then began placing game pieces in individual rounds. DoURP planning officers moved among the teams to explain the game pieces, translate, and answer questions. As a team would place their pieces they would explain their motivations to the group and discuss in more detail with Ampatzidou, Habib, and Keeton. Every team focused on the southeast corner of the gameboard with a compact urban form, as this was the area that had been indicated as the new urban core. However, each team expressed slightly different goals and priorities for their 'vision':

- **Team 1:** Prioritized dense urban development in high-rise apartment blocks south of the existing hospital, with public city squares and farmland protected from encroachment.

- **Team 2:** Started development at the road junction by the district commissioner’s office and factory Quarters. High-rise apartment blocks of 20 floors were proposed, as well as a new university, supermarket and primary school.
- **Team 3:** Proposed mid-rise (5-7 floors) apartment blocks south of the sugar factory, a new football pitch, school, mosque, and public toilets.
- **Team 4:** Recommended keeping the existing hospital, mosque, market and bank, while adding new housing, kindergartens, madrassa (Islamic schools), and guesthouses for visitors.
- **Team 5:** Proposed a new bus station at the road junction, an additional hospital, housing and schools.
- **Team 6:** Recommended adding an orphanage and daycare to the program options on the game pieces, to be located near a school and playground. This team also proposed a new fresh market near the Quarters and a new football pitch.
- **Team 7:** Developed both sides of transverse road south of the sugar factory, and recommended more single family homes with the argument that ‘old people can’t climb stairs’. Also recommended two levels of hospital to be included: one large urban-level hospital, and district-level clinics to support it. This team also expressed the need to preserve existing cemeteries from redevelopment.
- **Team 8:** Proposed a dense, mixed-use urban core at the Quarters, with the expressed wish for three bordering shehia to ‘come together’. Also recommended renovation of the existing police station and schools, as well as a new hospital.
- **Team 9:** Recommended moving the town center east of the Quarters, closer to their own homes, with more single-family housing.
- **Team 10:** Supported Team 9’s ideas, and recommended maintaining all existing facilities rather than demolishing and starting over.



FIG. APP.D.5 Cristina Ampatzidou

Cristina Ampatzidou explains the game rules to the group; Mohammad Habib translated all the instructions into Kiswahili. the gameboard can be seen in the foreground. The black boxes on the table hold game pieces. Source: Author, 2019.



FIG. APP.D.6 Mohammad Habib

Mohammad Habib (standing) moderated the evaluation round with the group. He also generously translated all questions and answers as needed. Source: Author, 2019.

After all 10 teams played, there was an evaluation round where all participants appeared more comfortable and confident expressing their opinions. The informal, shoes-off nature of the game seemed to have relaxed the participants. Different players expressed their appreciation of the resource persons coming to hearing their ideas and opinions. They also indicated that the game was difficult to play because of language barriers and the limitations of the gameboard and game pieces. Multiple players remarked that it was good that they were involved in the planning exercise because they felt they could make a decision about their future(s).

Notably, when Ampatzidou asked who would want to live in a mid- or high-rise apartment building, almost every player raised their hand. One player remarked, “we should change – we should use very little land for residential so we have more for livestock and farming”. Another player added, “we should mix housing so it is also accessible for older and disabled people”.

When asked by Keeton whether there was a special place or space in Mahonda that should be preserved or protected, the players nearly unanimously replied that only the cemeteries needed protection and the rest of Mahonda could be demolished to make room for new development. However, as all communication was being translated back and forth between English and KiSwahili, it is entirely possible that some reactions were misunderstood or ‘lost in translation’.

Most players seemed to agree with the observation that, “we need a well-structured system to shift from individual houses to more dense development; we are ready to accept the changes.” In fact, a majority of the teams showed similar development ideas, with a predominant focus on the Quarters as the new urban core, a desire for better connections through transit and paved roads, a desire to develop more densely in order to preserve land for agriculture, and general sense of welcoming change.

In conclusion, while participants focused on development of infrastructure and facilities, there was very little discussion about a coherent future vision for Mahonda; this was achieved the third day with DoRP. In terms of future iterations of the game, one lesson from this pilot would be that effectively adapting the game to Kiswahili would go beyond translating just the game pieces in Kiswahili. Perhaps in a future example it would be more useful to have a DoURP representative run the game itself, after a session with the gaming specialist. This would eliminate the language discrepancies and misunderstandings that appeared in the pilot. However, the results of the game would then need to be translated to English to be shared with a broader audience.

As a gaming expert, Ampatzidou also noted that participants experienced difficulty working with a plan view, and had a poor understanding of scale. This is another game adaptation that could increase the game design's accessibility.

Day 3: Capacity Building

Wednesday September 25: Capacity building with DoURP

Location: DoURP offices, Stone Town

- 09:30 – 10:00 Lecture Priscilla Izar: 'Urban Planning from the Bottom Up'
- 10:00 – 10:15 Critical reflection from DoURP representatives / discussion
- 10:15 – 12:00 Sketch session
- 12:00 – 13:00 lunch
- 13:00 – 13:30 Lecture Simone Rots: 'Informality and Formality in New Towns'
- 13:30 – 13:45 Critical reflection from DoURP representatives / discussion
- 13:45 – 16:00 Sketch session
- 16:00 – 16:30 Group discussion of initial ideas and sketches
- 16:30 – 18:30 Optional walking tour of Stone Town

The third day of the workshop began with a more intimate group of 8 resource persons and about 8-10 DoURP representatives (with some shifts during the course of the day). The workshop moved from Mahonda to Stone Town, where it was hosted in the DoURP offices. After a short reflection on the 'Play Mahonda' game of the previous day, Dr. Priscila Izar gave a presentation on an exploratory approach to examining on-going urban transformation at the community level, based on her research with CityLab at the Institute of Human Settlements Studies at Ardhi University in Dar es Salaam, and proposed a three pronged approach based on grounded exploration of local environments, extended learning of planning and development communities, and experimentation with local engagement. Dr. Izar's presentation highlighted the richness and value of the informal sector, which make up for 70% of the urban footprint in Tanzania, and posed difficult questions that are relevant to Mahonda and DoURP, such as, "how do we recognize local capacities?" and "how can we facilitate affordable rent?" The presentation triggered a group discussion on these topics.

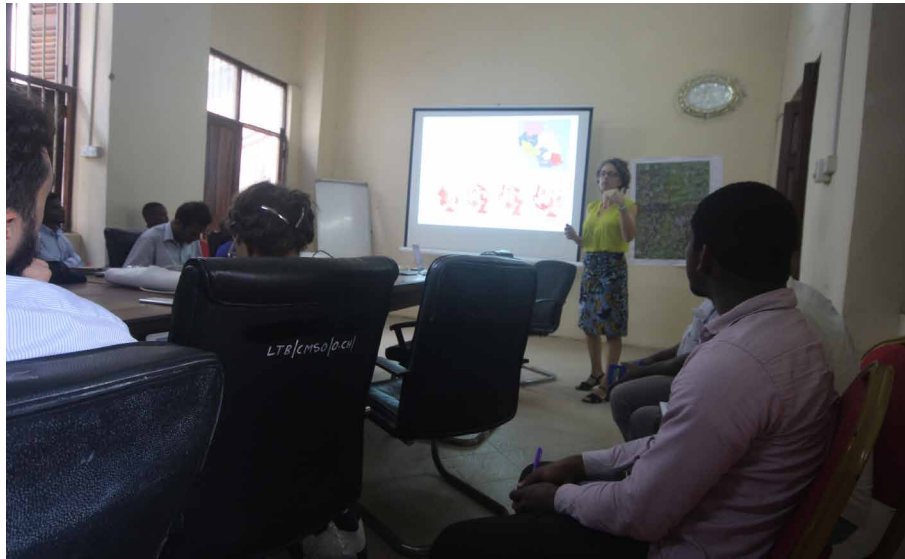


FIG. APPD.7 Priscila Izar

Dr. Priscila Izar presents to the group of DoURP representatives and resource persons. Source: Author, 2019.

Following the discussion, the group broke into two smaller teams with DoURP representatives and resource persons mixed in both teams. The teams were asked to make a first analysis and conceptual plan of Mahonda at the urban scale. Surprisingly, after about an hour of designing, both teams came up with similar proposals. Both teams recommended one main urban node, with smaller nodes distributed at the north, east, south and west extremities of the site. Both designs brought existing connections and networks to the foreground, and both acknowledged the local desire to protect and preserve agricultural land. There was obvious influence from the game results in both plans. The design exercise seemed to open the group up for more intense discussion and debate.

After lunch, Simone Rots gave a presentation on how to incorporate informality into the (New Town) planning process, with a focus on the sites-and-services approach. Rots discussed the sites-and-services approach as a way to cheaply and effectively supply infrastructure (like roads, water, sewerage, electricity), while leaving room for individuals to construct their own homes according to their own capacities. The sites-and-services model is part of the so called aided-self-help policy, in which an important role is assigned to the government in facilitating and assisting the residents in their capacities to build their houses and community. This idea was embraced by the group, and resulted in a detailed discussion of the potentials for the sites-and-services approach in Mahonda.



FIG. APPD.8 Ali Haji

DoURP planner Ali Haji explains his team's approach using nodes to distribute urban services around Mahonda. Source: Author, 2019.

Following the group discussion, another design exercise took place, with the aim to force new design “solutions”. This time the group was split into four teams, and asked to design a plan for Mahonda based on a specific scenario. The scenarios were developed collectively in the group:

- No harbor and no factory. This scenario envisioned a future where the anticipated harbor at Mwangapwani did not materialize and the sugar factory went bankrupt. The design results addressed 15 year, 50 year, and 100 year increments, with the factory ultimately transforming into a center for food technology and Mahonda becoming a dense high-rise city surrounded by productive agricultural land.
- Harbour is coming, factory prospers. This scenario addressed a future where Mahonda would become a New Town related to Mwangapwani, housing harbor employees. A green buffer zone between the sugar factory and the rest of the town would insulate the city from the sugarcane plantation. Long term aspects of this plan included an agricultural university and a dense urban center, characterized by diverse housing solutions including aided self-help.
- Mahonda becomes a regional center. The plan for this scenario proposed three new urban nodes, each with a specific character in response to existing connections. The eastern node would relate to agricultural industry and processing. The northern node

would stimulate transportation to the port, and the southern node would support the oil and gas industry. This design also imagined a green buffer between city and factory, “a place to breathe”, as well as a dense urban core.

- Supercompact Mahonda. This scenario turned out to be difficult to address because it was interpreted as a future without planning control where urban sprawl reigned free. The team charged with this scenario found it problematic and ‘sad’, and the lesson drawn was that planning was needed to guide development.

The results of the scenario planning exercise were discussed as a group, with the intention to bring everything together in one collaborative plan the following day.

Day 4: Planning a New Town

Thursday September 26: Capacity building with DoURP

Location: DoURP offices, Stone Town

- 09:30 – 10:00 Lecture Anteneh Tola: ‘Making New Towns in Rural Areas, Lessons from BuraNEST, Ethiopia’
- 10:00 – 10:15 Critical reflection from DoURP representatives / discussion
- 10:15 – 12:00 Sketch session
- 12:00 – 13:00 lunch
- 13:00 – 13:30 Lecture Igor Pessoa: ‘Participatory Planning and possibilities for continuing education’
- 13:30 – 13:45 Critical reflection from DoURP representatives / discussion
- 13:45 – 16:45 Sketch session
- 16:45 – 17:00 Group discussion of initial ideas and sketches
- 17:00 – 17:30 Way forward / next steps / conclusion

The fourth and final day of the workshop began with a presentation by Anteneh Tola drawing lessons from a New Town in rural Ethiopia: BuraNEST. This presentation gave insights into BuraNEST’s financial and governance challenges, which were of particular interest to the DoURP participants. A discussion on detailed aspects of this case study followed, attended by CityLab director Dr. Nathalie Jean-Baptiste.



FIG. APPD.9 Igor Pessoa
Dr. Pessoa questions the DoURP planners on existing social networks they can tap into with the plan for Mahonda. Source: Author, 2019.



FIG. APPD.10 Conceptual plan for Mahonda
The final plan produced during the workshop incorporated many of the themes and ideas discussed during the workshop week. Mahonda is oriented to the North in this image. Source: Author, 2019.

After the discussion, the day's first sketch session began. The aim of this session was to explore a single plan for Mahonda at different scales. National, regional, and urban scale plans were produced, each highlighting different aspects most relevant to each scale.

Following a lunch break, Dr. Igor Pessoa presented a lecture on bottom-up initiatives in Brazil and how (top-down) planning processes can begin to address these groups. He also spoke about particular challenges when promoting participatory planning process in countries with strong inequalities. This discussion led him to direct a few sharp questions at the group that triggered a fascinating conversation on existing social networks, power dynamics and social inclusion in Mahonda, and Zanzibar in general. This discussion also turned into an exploration of how to foster the inclusion of marginalized user groups like women, children and disabled people in the participatory process and in the plan for Mahonda. Pessoa also spoke about a massive open online course (MOOC) he initiated at TU Delft, and the potentials for free, online education around the world.

The final two-hour sketch session effectively brought all the information and ideas of the previous three days into a plan at the urban scale, with an elaboration of a proposed neighborhood unit. In this plan, ideas from both local residents and DoURP were clearly evident. For example, the final version showed an evolution of thought from the node-approach of the previous morning, to a more nuanced distribution of services at varying levels and intensities. The proposed buffer zone evolved in the final plan into a network of defined green spaces with different functions. The city center remained at the Quarters, with a higher density of services and residential occupation.

When it was completed, Keeton led a group reflection on the plan and the adaptive planning principles, questioning whether the principles had been addressed in the plan, and to what degree. For each principle, the group discussed their influence on the plan. The general consensus was that most of the principles were adequately addressed in the plan, with the exception of 'New Towns need diversity'. For this principle, it was felt that more research was needed in order to better understand the needs and desires of both current and future residents of Mahonda. Regarding the principle 'Embrace new ideas', the group agreed that more research on housing finance options (i.e. aided self-help) would be useful. In regard to the principle 'Use a blue-green infrastructure as the central framework' the group felt that more research on the water-related site conditions was needed in order to adequately address this principle.

Immediately following this discussion, DoURP director Dr. Muhammad Juma joined the workshop and DoURP planning officers presented the 'final' plans for Mahonda.

Evaluation

Dr. Juma expressed his pleasure with the results, and commended the team for their hard work. He repeated that this workshop was a small part of the long-term planning process that would be needed to create a Local Area Plan for Mahonda, and requested that the group as a whole maintain contact and engagement. This was agreed to, and a whatsapp group was set up to facilitate continuing communication.

Dr. Juma also noted that the planning officers might have felt intimidated if he had been present throughout the week, and he was happy to see them gaining confidence in their ideas. Additionally, Dr. Juma referred to the fact that DoURP is a young planning office, as it was created in 2011. He has been director since its inception, and workshops like "Play Mahonda" are seen as a way to expose local planning officers to different approaches and build capacity within DoURP.

In subsequent discussions, it was observed that the resource persons had been well-selected, as each individual brought relevant and useful expertise to the group. Each presentation triggered intense discussions, and allowed space for different ideas and complexities.



FIG. APP.D.11 Final presentation

DoURP planners present the 'final' plan for Mahonda to Dr. Juma. The adaptive planning principles can be seen on the laptop in the foreground. These were projected on a screen during the discussion. Source: Author, 2019.

Regarding the game itself, it was recommended that a research trip to the site before designing the game would have been beneficial, as this would have led Keeton to choose a different area for the gameboard, as well as shown the need to translate the game pieces into Kiswahili. Although this application of the principles can broadly be read successful in attaining its goals, these are some of the many lessons to be drawn from this experience.

Follow up

The results of the workshop were recorded through film, photography, questionnaires, and written notes. Those materials are assembled in this report. This report will be shared with DoURP, EFL Fonds, AAMatters, INTI, CityLab, and Delft Global Initiative, and will be made available to workshop participants upon request. Workshop participants will be made aware of any future collaborations building on the outcomes of the workshop.



FIG. APPD.12 Workshop participants

The workshop participants and the results after a week of intensive engagement. Source: Author, 2019.

In terms of next steps, Keeton will remain in dialogue with DoURP and AAMatters, specifically Dr. Muhammad Juma and Berend van der Lans, to determine an appropriate way forward. Additionally, a WhatsApp group has been set up that brings together DoURP planning officers and the external resource persons. It is hoped that this can be a tool to maintain contact and follow the Mahonda project in the longer term.

Rachel Keeton will publish a paper on the results of the workshop, including analysis of the questionnaires filled in by 30 local residents after the serious gaming workshop. Keeton will also present the results shortly in a public presentation for Delft Global Initiative on Tuesday, 8 October, 2019 in Delft.

Other expected results include:

- The physical design developed during the workshop may be used to inform the Local Area Plan and urban plan of Mahonda New Town
- The outcomes of discussions may be used to inform planning regulations applied in Mahonda
- The interpersonal relationships and dialogues that develop during the workshop may facilitate future collaborations among relevant stakeholders
- The democratic and transparent environment created by the game may improve a participatory and open planning process for Mahonda New Town.

In close, the participants would like to express their gratitude to the EFL Fonds and Delft Global Initiative for their support of this workshop. Although it was a short timeframe, both DoURP representatives and resource persons expressed the belief that the impact can be longstanding and far-reaching. Many thanks to Dr. Muhammad Juma and DoURP for the kind invitation and hosting throughout the week, to Berend van der Lans and AAMatters for their assistance with organization and logistics, to Cristina Ampatzidou for facilitating the serious game, to Charlie Roelse for documenting the workshop, and to all the participants for their positive energy and generosity with their time and expertise.

African New Towns

An adaptive, principle-based planning approach

Rachel Keeton

Since the economic shifts of the 1990s, New Towns have become an increasingly popular approach to urban development across the African continent. While New Towns are not a new development model, their contemporary materialisation often targets middle- and high-income buyers, leaving no space for low-income residents. Strict regulations in these exclusive developments often impede spatial appropriations by the informal sector such as fresh markets, unregulated housing, street kiosks and 'public' transit options. As a result, this approach may exacerbate spatial segregation and increase the visibility of economic inequality.

This research addresses contemporary African New Towns as a group through the lens of urban design, identifying shared spatial challenges across a dataset of 146 New Towns. Through three case studies (Sheikh Zayed City, Egypt; BuraNEST, Ethiopia, and Kilamba, Angola) it takes a deeper look at the idiosyncrasies of individual New Towns, and the diversity of examples within this group. By bringing together wider trends with the case studies, this study translates challenges into potentials for future New Towns in the form of adaptive planning and design principles. Through a series of semi-structured interviews, transdisciplinary workshops and Research Through Design exercises, the principles are tested, refined, and validated by peer review.

The study concludes that these principles can be an effective starting tool for developers, planners, and decision-makers initiating New Towns in Africa. It also concludes that the principles must be adapted locally according to geographic, political, and social contexts and urgencies.

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