



Research Monograph

Urbanization in Mozambique

Assessing Actors, Processes, and Impacts of
Urban Growth



Cities Alliance
Cities Without Slums

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List of Abbreviations

CEDH	Centro de Investigação em Desenvolvimento Humano [Human Development Research Centre]
DFID	UK Department for International Development
DMPUA	Direcção Municipal do Planeamento Urbano e Ambiente [National Directorate of Urban Planning and Environment]
DNTF	Direcção Nacional de Terra e Florestas [National Directorate of Land and Forests]
DNT	Direcção Nacional de Terras [National Directorate for Land]
DUAT	Direito de Uso e Aproveitamento de Terra [Land Use Right]
FCA	Future Cities Africa
FCA	Fundo de Compensação Autárquico [Municipal Compensation Fund]
FUN-P	Forum Urbano Nacional de Pesquisa [National Urban Research Forum]
GIS	Geographic Information System
GIZ	German Development Cooperation
INE	Instituto Nacional de Estatísticas [National Institute for Statistics]
IASISA	Imposto Autárquica de SISA [property transfer tax]
IPRA	Imposto Predial Autárquica [housing tax]
MAEFP	Ministério de Administração Estatal e Função Pública [Ministry of State Administration and Public Function]
MCC	Millennium Challenge Corporation

MDM	Movimento Democrático de Moçambique [Mozambican Democratic Movement]
MEF	Ministério da Economia e Finanças [Ministry of Economy and Finance]
MICOA	Ministério de Coordenação de Acção Ambiental [Ministry of Environmental Coordination]
MITADER	Ministério de Terra, Ambiente e Desenvolvimento Rural [The Ministry of Land, Environment and Rural Development]
MOPHRH	Ministério das Obras Públicas, Habitação e Recursos Hídricos [Ministry of Public Works, Housing and Water]
MoU	Memorandum of Understanding
MT	Meticais (Mozambican local currency). The exchange rate for 1 July 2016 is 1 USD - 65 meticaís.
PES	Plano Económico-Social [Socio-Economic Plan]
PERPU	Programa para a Redução da Pobreza Urbana [Urban Poverty Reduction Programme]
PEU	Plano de Estrutura Urbana [Urban Structure Plan]
PGU	Plano Geral de Urbanização [General Urbanization Plan]
PP	Plano de Pormenor [Detailed Plan]
PPU	Plano Parcial de Urbanização [Partial Urbanization Plan]
PSUP	Participatory Slum Upgrading Project
SPGC	Serviços Provinciais de Geografia e Cadastro [Provincial Services for Geography and Cadastre]
UEM	Universidade Eduardo Mondlane [Eduardo Mondlane University]

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Abstract

In the context of rapid urbanization, land management is a critical issue for sustainable development in Mozambique. Cities are expanding rapidly, through largely unplanned growth accompanied by large-scale occupation of land for housing, mostly with limited or no intervention by the government. As part of a larger research programme on the Future Cities Africa, Institute for Housing and Urban Development Studies (IHS) has conducted in-depth research, by collecting and analysing data on cities and urban land expansion in Mozambique, testing the relevant theories and models and integrating the results into the current national and international academic and policy debates, with the purpose of fulfilling theoretical and evidence gaps related to the comparative merits of planned expansion and compactness.

Both concepts have been scrutinized in terms of their morphology and potential benefits for urban development in order to understand them better, and the vision of each concept has been considered in the context of current urbanization in Mozambique. The authors selected the city of Nampula for this case study so to understand the expansion process, the relations between the different actors, resources, and causes leading to the expansion in secondary cities, as well as, to assess its impacts. They applied both qualitative and quantitative methods for primary data collection, and developed multiple data collection methods, including structured and semi-structured interviews, household surveys, and geographic information systems (GIS¹) mapping.

Once the researchers conducted the research on the ground, however, it became clear that the relevance of planned expansion and compactness for urban patterns in Mozambique is minimal. Despite this, the researchers found that lessons could still be drawn from the theoretical approaches to explain spatial patterns and their implications for urban growth. In line with worldwide trends, they discovered that Nampula, while having experienced considerable population growth between 1999 and 2015, has undergone a proportionally even larger spatial expansion, so that population density reduced two and a half times since 1999. This declining density,

¹ GIS is a computer mapping and analysis tool.

the city's irregular, non-contiguous shape, together with the increase of mainly mono-functional, often informal residential settlements and the predominance of single dwellings are all characteristics of urban sprawl.

Through this study, the researchers identified that the main actors influencing the production and the morphology of the city are the following: the public sector at the local level; the private sector, in form of land market agents; and the self-organising society, represented by individuals and citizens. This research argues that actions taken by local governments are promoting the sprawled expansion because of the local government's general absence of a coherent spatial vision, their practices regarding planning, land allocation and regularization, tax collection and enforcement and the corrupt tendencies that generally favour the consumption of new land. It is observed that the conception of land has changed from being perceived as a social asset provided by the state, to an economic asset, offered on the market. The transformation of the land markets has reduced housing affordability, compromising the access to the city and contributing to sprawl. As cities in Mozambique are predominantly made through self-organized processes, residential preferences, residential mobility, and construction practices are leading to both horizontal expansion of the city, as well as, an intensification of the use of urban floor.

This research has drawn three main conclusions, which can be aligned with the distinction among actors, processes, and outcomes. The 'benefits of dysfunctionalities' (defined as the seizing of vested interests in malfunctioning contexts by participating actors) presents a common obstacle in developing countries. However, many people do not recognize its negative long-term impacts, and instead the concept is obscured from criticism in the dynamic, unplanned, and unregulated processes of land transactions. In addition, it is observed that the processes of urbanization do not follow a specific plan or paradigm and hence do not produce outcomes that could be related to a specific spatial concept. These spatial patterns are the outcomes of the current urbanization processes, as well as, the influence of benefits of dysfunctionalities, and will lead to unsustainable and problematic urban patterns in the near future urbanization.

1 Introduction

This research monograph presents the findings from research carried out within the framework of the Future Cities Africa (FCA) project, funded by the UK Department for International Development (DFID)². The Institute for Housing and Urban Development Studies (IHS) developed the research project called ‘The urban expansion and compactness debate in the context of Mozambique’. The research project seeks to fill theoretical and evidence gaps related to the comparative merits of planned expansion and compactness by collecting and analysing data on cities and urban land expansion in Mozambique.

The Research Monograph presents the findings from this research that was carried out during the months of February to June of 2016. The Research Monograph analyses urbanization in Mozambique by assessing actors, processes, and impacts of urban growth, with a focus on the secondary cities.

1.1 Research Focus

This research in this report goes further than simply debating two concepts of spatial urban development – compactness and planned expansion – by examining their applicability to Mozambique. This is reflected in the research question:

“In the resource-scarce context of Mozambique, what is the right balance between making room for new urban land expansion and promoting compactness? What hybrid model could lead to more sustainable yet at the same time, inclusive, well-serviced and affordable cities?”

Both concepts are scrutinized in terms of their morphology and potential benefits for urban development to understand their relevance. For this purpose, the vision of each concept needs to be discussed in the context of current urbanization in Mozambique. While the promotion of compactness mainly focuses on general

² Cities Alliance commissioned this research.

benefits that include environmental sustainability and economic efficiency (such as OECD Policy Brief 2012); the advocates of urban expansion base their arguments mainly on necessity, that is, the ‘realistic prognostics’ (Angel et al. 2011) for future urban development. Both concepts equally highlight social benefits and claim to have the potential to better organize a city’s development, from which all citizens should equally benefit.

The major difference between the two concepts, hence, lies in the organization of space itself, that is, how the urban floor is used, for what purposes and with what intensity. However, these are only two types of urban form.

At first sight, the two concepts of a compact city and planned expansion may seem to be opposites that are incompatible (an oxymoron), but closer examination, reveals that they can be urban forms applied in the same city at the same time. In a context of rapid urbanization (characterised by rapid population growth and land consumption), cities clearly have to expand to maintain ‘appropriate³’ densities, as promoted by the compact city. In line with the planned expansion urban form, this should happen in a controlled way⁴ in order to be sustainable.

As the explanation of urbanization in Mozambique departed from relating urban growth to urban form, urbanization processes were scrutinized and assessed against the two spatial concepts, and it was found that the applicability of planned expansion and compactness for urban patterns in Mozambique is quite minimal. However, the concepts still had relevance in their ability to explain spatial patterns and their implications for urban growth. Following the indications of the research assignment, a number of aspects were further investigated, as discussed below.

To better explain and explore the root causes of current processes and their impacts, the use of space was analysed, including the process of land (use) allocation and the access to land. Formal and informal ways of planning and practising urban expansion were assessed, taking the context of secondary cities and their limitations in terms of resources and capacities into account.

³ That is, not too low, or too high.

⁴ For further thoughts on this, see Box 1.

In addressing the topic of spatial transformations, a central question emerged in terms of direct and indirect benefits. Aspects of short and long-term benefits, as well as, the economic, spatial, environmental, and social features resulting from the current development processes, were investigated.

This led into research on the different actors and their specific stakes in the process of urbanization. The researchers investigated the potential trade-offs for the governments, the market, and individuals involved in implementing urban growth and identified the outcomes and impacts related to the actions of these different stakeholders.

1.2 Structure and content of the research monograph

This first chapter introduces the research conducted. It outlines the research focus and provides a short summary of the reasons for the research and a brief deliberation on the research questions. The original assignment was to discuss urbanization in the context of Mozambique with reference to spatial processes of urban growth, particularly in view of the concepts of planned expansion and the compact city. This focus has shifted to considering the potential lessons that could be drawn from the theoretical approaches in explaining spatial patterns and their implications for urban growth.

The second chapter discusses the theoretical discourses in the processes of urbanization and urban growth, particularly with the understanding that land is a limited asset. Within this context, it explores the existing debate between two concepts of spatial urban growth – compact city and planned expansion. An important part of this discussion is the issue of unplanned urban expansion, particularly in the form of sprawl. Separate sections further shed light on the determinants of spatial organization, and the applicability of spatial concepts in the context of the urban morphology of Mozambique.

The third chapter presents the methodology of the research, including the operational framework. It introduces the research question and sub-questions and the approach of the research. The research followed a deductive approach by

exploring theories that apply to urban growth to guide the formation of the research questions, instruments and findings. Nampula municipality was used as a case study. The research is based on both primary and secondary sources. The researchers collected information from primary sources through interviews, a household survey and GIS mapping. They carried out interviews with key officials from the municipality, as well as real estate agents, urban professionals and academics. For the household survey, they selected Namutequilua neighbourhood as the research area, within which they picked eight different areas based on different urban typologies defined by the research team. They did GIS mapping to analyse Nampula's spatial changes between 1999 (when Nampula became an autonomous municipality) and 2015.

The fourth chapter introduces the context of the development of cities in Mozambique: the historic background, the capacities of local government structures and the rapid urban growth experienced during the past few decades. It further explains the processes of urbanization, including the legal and legislative framework provided by national laws and decrees, and how these rules are applied by main actors at national level. Assessing the urban development additionally has included understanding urban constituencies, in terms of the following: the laws that established these urban constituencies; the legislation that has been developed to guide urban development; and the level of autonomy in matters of administration, finance, and asset management.

The fourth chapter provides further insight into land ownership. In Mozambique, the state owns all land, and the main tool used for formal urban land management lies in the provision of land-use rights, that is, the *Direito de Uso e Aproveitamento da Terra (DUAT)* - 'Right of use and utilization of the Land'. This chapter discusses the relevance of obtaining a DUAT and the issue of tenure security between different social classes, as well as, how formal and informal forms of land tenure contribute to urban development.

The fifth chapter presents an overview of the research findings, from the primary data collected in the study area. It briefly explains Nampula's strategic position, accelerated growth and the different phases of development that the city

underwent. It analyses the municipal council's administrative structure and observes how spatial planning has influenced the urban fabric. It further examines the changes in the urban morphology over the past 16 years. Lastly, it provides an introductory analysis of the findings of the household survey, and how the survey areas compare to one other.

The sixth chapter elaborates on the major findings of the research and their implications. The main outcomes have been divided into three sections, in which activities and their impacts are analysed along main stakeholders in the production of the city – that is, the public sector, the private sector in form of land market agents, and the self-organizing society, represented by individuals and citizens at the local level. All three types of actors influence the morphology in their own way: local governments' actions are promoting expansion; the private-sector-driven change from social to market-oriented land allocation is reducing housing affordability; while location preferences and individual attitudes are leading to both horizontal expansion of the city and an intensification of the use of urban floor slowly over time.

Chapter seven provides three main conclusions, which can be aligned with the distinction between actors, processes and outcomes. In terms of the processes accounted for by the different stakeholders, the researchers coined the term 'benefits of dysfunctionalities' to explain the nature of the role of actors and how differentiated benefits are seized.

The process of urbanization, discussed through the second conclusion, needs to be understood in its wider context; and thus, this section discusses the role of self-organization and market opportunities, in providing outside rules and allocation, in relation to their specific spatial outcomes. Additionally, this section explores the elements within this process that can be attributed to expansion followed by densification, which makes them part of a planned, coherent whole.

The third conclusion considers the impacts of unsustainable urban growth, mainly in terms of the organization of spatial development, which is strongly related to the aforementioned conclusions of urbanization. In this third conclusion, the

organization of space has been discussed as a process that needs to be oriented through models that serve urban sustainability.

The Monograph concludes with indicating relevant areas for future investigation, by outlining a future research agenda.

2 Literature

Two paradigms greatly influence current discussion on guiding urban development. The first is the paradigm of 'the Compact City', which seeks to optimize efficient use of infrastructure, and reduces the city's environmental footprint through a more compact form⁵. The second paradigm, 'making room for cities', acknowledges the inevitability of the trend towards urban expansion. It calls for a combined change towards a more generous designation of the city limits and a basic street grid. This chapter lays the ground for debating spatial concepts and their relevance for Mozambique, departing from the compact city and the planned expansion debate.

2.1 Conceptualizing compactness and planned expansion

The theoretical discourse compares agglomeration benefits and efficiency associated with densifying the built environment, with the opportunities deriving from planned city extensions. However, this discourse needs to be analysed in context with the current demand for habitable spaces and the limited resources and capacities in Mozambique.

⁵ Urban form is related to the concept of urban morphology, which studies the form of human settlements and the process of their formation and transformation. Urban morphology focuses on the spatial structure and character of a settlement by examining the patterns of its components and the process of its development.

Formerly Moudon (1997) suggested that the urban form is the common interpretation, measuring, and surveying basis through which the preferences, significances, and modes of socio-economic uses of society can be accessed. In this sense, Moudon follows the so-defined sociological morphology approach. Carlos (2007), based on Marxist and theories and from Lefebvre, approaches this theme through concepts related to the capitalistic production of space, focusing on the issue of land, that is, land as a commodity. Carlos (2007), in this way, considers urban morphology as the continuity or discontinuity of the production of space, finding that the urban form is the direct manifestation of social relationships and conflicts.

2.1.1 The compact as a sustainable city

Compactness is usually related to two main strategies: increasing the built area (densification of the built form) and the densification of residential zones (population density). The resulting benefits, mainly related to the concept of intensification, develop in three main areas: economic, socio-cultural and environmental benefits. However, there is no set definition of what the best degree of density is, both in terms of efficiency and acceptability. In fact, many define urban density as the opposite of and solution to sprawl; rather than being defined by its own set of measurable criteria.

The excerpt below explains the dialectic of compactness and sprawl, drawing on the concepts of intensification and efficiency:

“The compact city hypothesis is introduced as an alternative to urban sprawl which focuses on limiting the peripheral expansion of urban areas, and instead looks to direct development in the form of intensification, increasing the densities of existing urban areas and redeveloping underused or abandoned sites. The compact city is designed to make more efficient use of existing land resources and infrastructure, as well as reducing automobile usage as public transportation becomes more viable at higher urban densities.” (Arbury 2005, p. 10)

The compactness concept is rooted in the evolution of the debate about urban sustainability. Over the past few decades, the concept of sustainability and its application to the urban context has steadily progressed, with the urban form as a common denominator, or at least as an indicator, to assess how cities can become more sustainable (Jenks 2000). Simultaneously, the urban form debate has mainly been anchored around the aim of efficiency, and as a classic response to sprawl by promoting compact settlements of one form or another (Neuman 2005), with the promise that compact forms generate sustainability.

At the beginning of the 1990s, the most common reason brought forward in the debate promoting compactness patterns was to protect the environment, as cities were viewed as the main cause of environmental degradation (Girardet 1996). Similarly, resource consumption was assessed based on spatial impacts, as the

concept of the ecological footprint evolved (Wackernagel et al. 1997). During this time, a new debate on the true cause of unsustainable resource consumption in cities emerged as the result of certain city lifestyles. According to Garreau (1991), it was found that certain urban forms – such as low-density settlements, suburban areas, and certain contemporary urban features related to globalization, for instance large shopping malls in the city fringes – contributed to unsustainability in cities. It was suggested that these urban footprints indicate unsustainable lifestyles because they depend on motor-vehicular transport, causing much more waste and pollution than previously thought.

In 1996, the volume, 'The compact city: A Sustainable Urban Form?' (Jenks et al. 1996) tried to provide evidences securing the debate about the links between 'sustainable urban form' and compactness. The debate focused mostly on developed countries, comprising a variety of factors, including soil consumption (relating the issue to agricultural productivity), public transport and environmental degradation. The key assumption at the beginning of the compactness debate was that inhabitants living in peripheral, low-density settlements would be responsible for more pollution, resource consumption, and environment degradation than the inhabitants living in the city core (Mitlin and Satterthwaite, 1996). Additionally, Williams et al. (1999) supported the idea that higher-density cities would guarantee better liveability, addressing public services and transport as the main issues. A positive correlation between the compactness (the preservation of land) and transport was found, but the relationship between a compact form and the quality of the urban life was not proven. The book, *Achieving Sustainable Urban Form* (Williams, K., Burton, E. and Jenks, M. 2000), provided an analysis of how to achieve a sustainable urban form, concluding that sustainability is contextual, depending on the specific pathways taken in consideration and on the characteristic of each area.

Jenks (2000), despite trying to overcome the concept of the city as a problem for sustainability, followed the aforementioned points asserting that the manipulation of the urban form, if implemented in parallel with proper urban policies, could solve city constraints. At the end of 1990s and the beginning of the 2000s, most researchers accepted the idea that a compact city is more sustainable

(Echenique and Saint 2001, Jenks and Burgess 2000), with a consensus reached among academic, professional, political and international institutions (for example, Urban Land Institute 1998, American Planning Association 1999, and United Nations 1992).

A parallel compactness approach developed during the same period that integrated the debate of the compact city as a factor for the realization of socio-economic sustainability, with Haughton and Hunter's (1994) link between the level of compactness in a city and the social justice concept. Katz (1994) declared that a compact city would also foster certain social patterns as a community attitude and lifestyle. A more recent line of research about the benefits of compactness considered the relation between a city's compactness and the physical activity (thus, the health) of its inhabitants. Handy et al. (2002) analysed how different urban forms are correlated with different personal health situations by using transport modalities and highlighting how in a compact built environment, people are more interested in walking or using a bike. The compact city paradox (Wiersinga 1997) describes the inverse relation between the sustainable form of cities and their perceived liveability. The paradox is that higher densities (both population concentration and functions) are related with sustainability, while lower density areas are associated with higher levels of liveability.

At the beginning of the 2000s, other authors – particularly Neuman (2005) – showed the weakness of the compactness benefits, indicating the lack of an official definition of the term. While Hall (2001) declared that the results of the research were confusing, Neuman (2005) highlighted that the discourse was flawed because of its singular focus on density as a stand-alone indicator (Burton 2000; Hall 2001) or limiting physical details, such as plot size or urban grid form (Duany, A., Plater-Zyberk, E. and Speck, J. 2001).

In his article, 'The Compact City Fallacy,' Neuman (2005) highlighted the lack of conclusiveness of most of the studies related to compactness benefits, focusing on motor-vehicular transport and asserting that no link had been found correlating higher densities and reduced car use. In the same article, Neuman (2005, p. 14) accurately classified all the characteristics that a compact city should have (using

such influential authors as Jenks, Burton and Williams), finding that those characteristics “could describe nearly any city,” thus asserting once again the lack of a specific definition and the inconsistency of the debate. Neuman (2005) found that the compact city debate received so much attention because it posed itself as the antidote of urban sprawl – an urban form identified since the end of the 1960s to be responsible for city problems. A second reason for the success of the compact city form is an idealistic one: an embedded vision of a city for all, both in aesthetic terms and in sociological ones, that is, providing equity through proximity.

Although Western countries, especially from Europe, primarily advocate the concept of compact urban form, other countries, such as Singapore, China (especially Hong Kong), Jordan and India are starting to promote and embed some of the compact city’s attributes into their urban plans. Amman, Jordan, for example, has developed and is implementing since 2008 a compact urban growth plan, using existing services to promote and increase transit use, improve pedestrian accessibility and make transport more affordable for the residents of the Greater Amman Municipality region (Greater Amman Municipality 2008). Similarly, Ahmedabad, India, is implementing (since 2006) a plan to encourage local economic and urban growth in a more sustainable way, by promoting the compact city concept, which includes well-designed public, green, open space and mass transportation (Ahmedabad Municipal Cooperation et al. 2006).

A great, de facto part of the debate uses cities in developing countries to contrast the idea of the merits of densification of the urban fabric to the flaws of other kinds of conceptual urban forms. For example, Drakakis-Smith (1996b) objected to the city size and form have relevance in the sustainability performance of a city in a developing country. Using population growth as a key example, he highlighted how the porosity and absorptive capacity of those cities is a proof of a high level of sustainability, both in the short and long term.

The debate applied to cities in developing countries mostly focuses on the benefits of agglomeration – that is to say, on the ‘urban premium’ (Turok, 2015). Nevertheless, the main argument contrasting the fact that cities in developing countries could benefit from a more compact form, is the fact that the main

agglomeration benefits deriving from compactness in developed countries are context related and not universal (Jenks 2000). When comparing developed with developing countries, consumption patterns or mobility habits of inhabitants in peripheral, low-density zones are extremely different. The benefits of higher densities, in other words, strongly depends on lifestyles and opportunities.

Economic gains are often stated as one of the benefits of compact cities, because of their density and the resulting short distances (travel, cost and entrepreneurial spill-over). However, these benefits are simply part of the economic hypothesis of agglomeration, which have been suggested for a few decades, for example by Henderson (1974), and tested both in geographical terms – at the scale of whole urban areas or specific industries (Feser and Sweeney 2000; Liang et al. 2014).

Henderson (1996) places agglomeration benefits into the wider context of urban systems models, which assumes that these benefits arise from localized, external economies of scale. Benefits are obtained from the availability of non-traded and traded assets, as well as from economic and social processes – for example, search and matching in local labour markets, location choices, input sharing and information spill-overs. In other words, agglomeration benefits refer to the proximity of assets and resources that can be found in larger urban areas, especially metropolitans and urban regions.

The proximity of different mobile and immobile elements does play a role in the urban systems models, but not to the extent discussed in the compact city debate. As with new economic geography, the compact city concept assumes that economic benefits arise from savings on transport costs and from concentrating the location of producers and trade.

This means that eventually the arguments used by the urban systems model and by the compact city concept are not entirely similar. The first argues for the positive impacts of urban agglomerations on economic growth, while the second points to efficiency and intensification through urban density.

The economic conditions for agglomeration benefits were not part of this study, as the research undertaken was limited to the spatial configuration of urban

development. As the spatial layout of a city is connected to its economic potentials, the concluding chapter makes some observations on the implications of the urban form on the economies of scale.

Mobility habits are key to the debate of sustainable urban forms – for example, a reliance on cars has consequent costs for infrastructure and the environment. This implies that residents have the option to choose between more or less sustainable lifestyles. But the argument that 20 people can take the bus together, instead of taking 20 cars separately, only works with the condition that these people could actually take a car in the first place. According to theory, compactness helps to save resources where otherwise resources would be wasted, however, as the aforementioned example demonstrates, this depends on the choices available to citizens.

Low-consumption patterns contribute to sustainability. The self-organized, decentralized composting of organic waste in one's own garden at the urban periphery, for example, is always the cheaper, low-carbon option compared to setting up the public service of a full solid-waste management system. However, in the low-equipped peri-urban areas of African cities, sprawl has negative impacts, in that the forms and manner in which land is consumed is unsustainable. Since the large distances result in disadvantages regarding the access to education (and other services), and infrastructure cannot be provided to all because of the high costs implied when connecting disperse households, it can be concluded that there is at least one universal benefit in that higher densities are generally related to lower infrastructure costs. However, the corresponding plans, investments, and maintenance for urban infrastructure need to be done well to actually benefit from density. This largely depends on the human and financial capacities and structures at the local level, and ultimately on the governance that supports these structures. In conclusion, the urban form has a limited impact, if not adapted to the contexts, and combined with good governance, and the efficient management and provision of public services.

There is an increasing interest in the applicability of the concepts of the urban form, and the sustainability deriving from such concepts, as a more realistic

response to ongoing urbanization than planned expansion. This interest is not solely because of the theoretical gap within the compactness discourse, but also due to the rising theoretical trend of promoting learning from developing countries in terms of resilience, sustainability and self-made urbanism. However, despite the widespread application of in the compact city approach, such as in the neighbouring South Africa where the concept has been politically promoted but failed (Dewar 2000), this debate has not taken momentum in Mozambique.

It has been proven that the cost/benefits of infrastructure and environmental impacts depend on the urban form and can be positively influenced by better physical planning. However, form (understood as the intended outcome of a spatial layout) is one aspect among others that highly depends on the encountered contexts, including the geographic, social, economic, cultural and environmental setting of the specific city in question.

Related to the form, and often subordinate to it, the city's shape and size have been addressed as indicators of the city's performance or sustainability. Although the two aspects of shape and size have gradually lost importance in the debate, they have not been completely abandoned as tools to design cities in a more sustainable and liveable way, and they are still related to the issue of compactness.

The main assumption behind the conviction that compactness is indispensable to cities functioning better is that lifestyles depend on the ways inhabited spaces are used. These spatial uses also imply their interdependency on the distances between the spaces that people travel for work, business, leisure and services. Consequently, the peripheral, low-density areas that are far from the city core would affect the whole society in terms of consumption of resources and pollution. Compact settlements are assumed to increase the use of public transport and enhance the efficiency of such services as waste collection system – simultaneously they would contribute to a greater diversity of services derived from the high concentration of different urban functions.

Cicccone and Hall (1996) highlighted that the specific size of a city does not determine the pace of a city's growth, but its density – as a factor positively

influencing economies of agglomeration. The benefits derived from economies of agglomeration are because of social and economic interactions, such as job opportunities. Nevertheless, sub-Saharan African cities are mostly described as congested places, and this congestion particularly derives from improper planning or, more generally, a 'policy-crisis' (Pieterse 2014). The urban development in sub-Saharan Africa is described as uncontrolled and unstructured (Glaeser and Sims, 2015). In this sense, the density debate related to sub-Saharan African cities talks about 'negative externalities' more than benefits. Density, in this instance, is associated with the appearance of slums, and thus, to a precarious environment.

2.1.2 Forecasting growth and planning for expansion

Planned urban expansion has been developed as a spatial concept since the early 1980s, depending on the definition provided. It is currently understood as the early planning processes for new urban areas, including providing access to land and services.

This theory has since been promoted for developing countries with high urbanization rates, where there is pressure on existing urban areas to accommodate rapid population growth. Planned expansion is a necessity for many cities, especially those with a growth rate above 2.0 per cent per annum, as at such a rate, the population would grow by 50 per cent in less than 20 years.

One can hardly perceive planned city expansion as a holistic concept for city making, but rather a settlement planning approach, offering mainly a quantitative solution and an important organization tool for future urbanization patterns, such as planning street grids (see Box 4). As a top-down approach, planned city expansion works with a number of critical assumptions: land is available where people actually want to live; the provision of land can be combined with services in the near future, following the public-sector concept of 'site and services' (Hossain 2015); and the planning authority has the capacity to design large portions of the urban fringe. Consequently, this approach can offer new areas for the urban population; however, planners still must consider that these areas are likely already inhabited or

otherwise used. Eventually, this pragmatic approach of providing space for new settlements translates to a densification of land that is 'underutilised' (Turok 2015).

Besides potentially providing a sustainable solution to urban growth, planned expansion may also negatively affect the city. For example, the shifting of populations into new areas can affect social networks and local economies. Furthermore, when planned expansion is made a priority, most attention is given to the creation of new settlements – with a proper density pattern – rather than focusing on developing the existing city (Angel et al. 2011, UN-Habitat 2013). Planned expansion in this sense gives the illusion that the spatial growth of a city is somehow managed, while simply converting predominantly agricultural land into urban land.

2.1.3 The debate on urban sprawl

Although international forums have been taking the problem of compact city/sprawl city as fundamental, discussions on urban growth lack precision in the definitions of 'compact' and 'diffuse'. Hence, there is a need for clarifying the factors related to population mobility, which determine the sustainability, or lack thereof, in both urban forms.

Urban sprawl is associated with rapidly expanding city peripheries and is often characterized by low-income settlements, poor quality of life (underserved zones) and pollution. In sociological terms, it is also related with income disparities, social polarization and inequality derived from gated communities inhabited by wealthy elite (Jenks 2000).

The debate on urban sprawl predates the debate on the benefits of compactness. City problems related to urban sprawl have been addressed from the 1960s onwards (Mumford 1961; McHarg 1969, Jackson 1985, Burchell and Adelaja 1992).

Studies based in North America, in particular, have focused on the costs of sprawl (Burchell et al. 2002) in terms of functions, operations and capital. These studies analysed the main drivers as land affordability, changes in transportation,

mass production of housing in the peripheries, and lifestyle – the idealistic vision of the single-family home in a quiet, low-density neighbourhood.

Galster et al. (2001) classified and measured the different dimensions and indicators of sprawl as follows: density, continuity, concentration, clustering, centrality, 'nuclearity', mixed uses and proximity.

Dieleman and Wegener (2004), through a study based in the United States (Oregon) and Northern Europe, pointed out how in the absence of strong top-down interventions (regional planning), urbanization trends are likely to be polarized, sprawled, and decongested – unlike in mixed land use and compact settlements. Neuman (2005) related urban sprawl to the dysfunctionalities of the planning apparatus, highlighting how single-use zoning tools are fostering urban sprawl.

Burchell et al. (2000) in their detailed report regarding sprawl and its effects dedicated a chapter to the '13 benefits of sprawl', which are grouped into four categories: housing, transportation, land use planning, and quality-of-life and social benefits.

At the beginning of the 21st century, the debate on the benefits of sprawl and on the inconsistency of the compact model were integrated into the debate on the applicability of the two concepts in developing countries. Burgess (2000) in *The Compact City Debate: A Global Perspective* was influential in dismantling the applicability of compactness to developing countries by highlighting the main points of discrepancy in the debate, and filtering the ones applicable to developing countries. He used three main arguments: densification, land, and infrastructure/transport. In a different socio-economic scenario, he explained how the benefits deriving from compactness are completely different and still not clear, for example, the costs of infrastructure provision and maintenance. Carmona (2000) further unpacked the applicability issue by explaining that new large-scale real estate projects in the periphery have developed faster than the infrastructure provisions both by the state and by the private sector in many developing countries.

Clark and Te-I (2000) in their study on Asian cities found that the containment and higher city densities (the opposite of urban sprawl) do not lead to

benefits in terms of public services. On the contrary, the negative externalities related to poverty seem to increase in a dense built environment.

Cities in developed countries benefit from a compact form in terms of several aspects: more service provision, better public transport, and better public services. However, the same benefits are not always found in developing countries. For this reason, the compact city approaches in developing countries have focused on the 'development' side of the sustainability concept: the consumption of land and spatial inequalities.

In the South African context, for example, efforts have been made to assert the viability of compaction, but the resulting forms are significantly different: densities are increasing applied linearly, rather than in a circular form, as in the case of new development corridors or commercial corridors. Even far from the city core, those developments seem to provide the inhabitants with better opportunities, quality of life and equal access to services. In this way, the debate between compactness and sprawl can still be relevant to developing countries in the lessons it provides.

2.1.4 The debate of urban form in Mozambique

Mozambique is a good example of how land management in the context of rapid urbanization is a critical issue for the long-term sustainability of urban development. There is an ongoing debate whether making land and services available for forecasted urban expansion – which provides advantages in long-term planning – is the upfront policy option in contrast to a more visionary compact city solution that purports to offer a higher potential for environmental benefits and economies of scale. The urban land expansion initiatives in Mozambique have been applauded for making land available for urban housing and infrastructure needs but also criticized for promoting sprawl and lacking a comprehensive vision of the city.

The question of better spatial development for urban areas in Mozambique could help in furthering the debate on compactness versus planned expansion, or, in its processual version, on densification of urban areas versus allotment for new urbanization.

Both these spatial concepts face strong limitations in the context of Mozambican cities. On the one hand, densification cannot yet be promoted in Mozambican cities, where a considerable part of the city is composed of informal settlements. These areas are suffering from the constrictions of the built environment, rather than obtaining agglomeration benefits. Moreover, most poor urban dwellers live partially off subsistence agriculture and could not afford moving into urban housing.

On the other hand, even though city expansion plans indicating future allotment do exist, they are not a part of a city-wide, coherent strategic development. Moreover, expansion is nearly always planned over areas that are already populated, which implies difficulties in negotiation and transformation of users' rights.

Given the current socio-economic and political context of Mozambique, the relevance of the debate on urban form is close to nothing: there is neither a guiding policy from the public realm, nor an articulated interest from the demand side, or specific offers from the supply side that would support the creation of a more structured urban shape. There are some exceptions to this situation, for example, some private sector agents are increasingly building apartments, but since these developments are mostly found in peripheries, they do not promote the concept of a compact city. These developments rather take advantage of cheap real estate. In terms of planned expansions, municipalities allocate land through allotment in sparsely populated areas, but the distribution processes are complicated and lack proper monitoring of occupation in plots, resulting in low density and slow development.

In general, all forms of unplanned or unofficially planned settlements emerge in Mozambique through ad hoc individual decisions. The main cause in this sense is identified by Turok (2015, p. 238) as a 'highly imperfect market that is dysfunctional in various respects', to which Collier and Venables (2015) add that left to an unregulated market, building heights and density will be too low.

Within the debate of urban form in Mozambique, both informal settlements and newly planned expansion zones, for lower middle class inhabitants outside the

city's core, are seen as both a challenge and an opportunity for densification. The local planning authorities (DMPUA in Maputo, for example) have always adopted the outdated concept that the 'problem' of the cities in Mozambique is the 'uncontrolled' urban sprawl – that is, the 'uncontrolled' singular actions that guide inhabitants on their access to urban land. The current, stricter regulatory approach is seen as a possible control tool and the (few) urbanization plans proposed always include verticalization and densification strategies – especially in the fringes in-between the formal grid and the 'informal' settlements.

Densification in Mozambique is strongly related with the verticalization of the urban fabric. In Maputo, an increasing interest in possible low-cost-housing solutions for two storey constructions, especially for lower class inhabitants, can be witnessed. Some private architects in Polana Caniço are trying to develop a micro-financed and incremental programme to densify the neighbourhood and provide two storey houses to low-income inhabitants; however, of much greater significance is the recently elaborated Kaya Clinica project – an internationally funded joint programme involving different universities of Maputo and their economic, architecture and planning, engineering, and law departments.

The Kaya Clinica project aims to provide technical assistance to low-income inhabitants, who want or need to extend their single-story houses with another floor (for their own family or to accommodate other dwellers). To build this floor extension, the inhabitants will need some basic directives about how to modify or reconstruct the structure of the house. Through the assistance provided, the inhabitants will be able to auto construct the floor and the structure (through pre-fabricated materials), or they will resort to local developers paying a reduced price. During the construction process, the inhabitants could also benefit from legal assistance, in case they do not have their land-use right registered yet. Other minor initiatives try to evenly popularize the verticalization of informal settlements, to make space and prevent further congestion (for example, the *casa melhorada* project by the Architect Andersen). Nevertheless, apart from these initiatives or the *planos de urbanização* developed in the context of the ProMaputo programme, there is no overall approach towards the promotion of a more compact city.

On the contrary, recent private and social housing residential projects (such as Vila Intaka or Vila Olímpica) are developed very far from the city core, as in many other cities of sub-Saharan Africa. Though they represent a typological vision of a modern and compact settlement, they actually contribute to sprawl by occupying most of the space. The mono-use is residential and poorly serviced, making it necessary to travel for shopping, work, and entertainment on a daily basis. In this way, such developments encourage the use of the car, as it is the only way to participate in urban life in such sprawled urban forms.

Maputo emphasizes the exercise of parcelling and titling plots as instruments to promote a better compactness index in the city (interview with CEDH coordinator, November 2015). One constraint identified as fostering sprawl is the ad hoc appropriation of large plots in the city's fringe, by both low income and wealthier inhabitants. Nevertheless, there is not any specific programme redefining the maximum plot sizes, or parcelling the peripheries for further expansion. An attempt was made at the beginning of 2000 to regulate the Marracuene district, a key expansion area where inhabitants are progressively settling down in large plots. The plan was elaborated but never officially adopted and implemented.

The recent housing trends in sub-Saharan African cities actually reinforce the strategy of providing new settlements, instead of finding solutions for the built areas that equally need management and support to their development. The resulting urban shape is at the centre of the debate on sub-Saharan African urbanism. Although the commonly indicated evidence about the negative externalities of the high densities in a number of African cities, many authors are increasingly warning about the consequences of a spread-out city (Litman 2015), both in terms of cost, social exclusion (Watson 2014) and environmental degradation.

2.1.5 Sprawl in the context of Mozambique

Although they are not comparable because of their different nature, the strategic concept of planned urban expansion and the reality of self-organized urban sprawl share a number of features. Among these are the consumption of peripheral land

for settlements, resulting in an extension of the city, and a number of socio-cultural transformations happening in the newly emerging neighbourhoods. To close the contemplations on the implications of the urban form, it is relevant to also briefly indicate some of the benefits of the urban sprawl in Mozambique:

(i) Socio-cultural benefits, such as community lifestyle, valorized by social networks and cultural habits: a survey was conducted between 2015 and 2016 in Maputo (Mazzolini, unpublished PhD thesis) among 138 families (from the middle class and lower middle class) showed that almost 90 per cent of the respondents would not move to an enclosed residential development (or a *condomínio*) because such developments ‘lack of social life, privacy and cultural identity’, among other reasons, such as the lack of services.

(ii) The benefits related to the rural-urban connection: mobility, commerce, or other informal activities (small farming activities and product selling along main routes, and *mukeristas*⁶ groups, among others).

(iii) The benefits of achieving the desired location preference: analysing the families who constructed or purchased their house in the last 10 years, reinforce the previous point; more than 30 per cent of the interviewed declared that almost half of the family income derives from informal employment, or other activities based in rural areas. Many stated that they would not like to move to more central areas, because their dislocations are not solely related with the city centre, but also with the rural districts.

(iv) The economic benefits related with the land affordability (which is to some extent summarizing the previous three points): through a more accessible payment for land, the inhabitants are likely to improve the quality of their life in terms of housing and the purchasing of other goods. The same survey in Maputo, and interviews conducted in Nampula, showed that middle-class residents (professionals, technicians, including employed in international agencies) also often choose to move to neighbourhoods far from the central city (for example, from

⁶ The term *mukerista* defines a particular contraband job in the informal sector, through the buying and selling of products between Maputo and South Africa retails. The persons involved in this trade, mostly women, can earn comparably good salaries and they often live in large, middle-class style houses in the outside peripheries of the capital.

Bairro Central to Guava or Laulane) to spend less on the plot itself, and thus to have the possibility to construct their house. In this respect, the driver of sprawl is also responsible for the sprawling of European Cities, that is, the trend among those that can afford it to invest in real property in the city's surroundings for their own family housing. Other respondents indicated that they would even still consider moving to areas such as Marracuene or Manhiça, where 'land is still cheap' to own a decent dwelling (Interview with Guava inhabitant, 2016). Moving to cheaper areas in Maputo's peripheries is a widespread form of using the family budget more efficiently (Mazzolini 2016 forthcoming).

Considering the points above, there is not much contrast between the 'urban desirability' and the 'suburban liveability' (Neuman 2005) that peri-urban settlements in Mozambique can offer in terms of lifestyle. Since the two are fluid and strongly interlinked, sprawl seems to be a way to merge both and offer a considerably high standard of quality of life for low and middle income inhabitants (Fadda, Jiron and Allen 2000). Moreover, the savings on income provide investment opportunities for other activities, such as house construction, but also for small businesses. This consolidates the peri-urban areas in the long run, which can be understood as a self-organized city expansion.

2.2 Determinants of spatial organization

The discussed spatial concepts all imply interventions into the existing urban fabric, representing physical plans for future urbanization. These concepts can only be promoted through an authority that is either in possession or in charge of the urban territory in question. They require a purposeful and major spatial plan that needs to be implemented by the government and recognized at least by the main urban stakeholders – particularly the users of the land. Hence, the main problem faced when researching these concepts in Mozambique was not with the discussion regarding the 'right way' for planning urban areas, but rather that there is no serious attempt to plan and organize Mozambican cities. Therefore, the conceptual debate

does not root in the real situation that produces the current patterns of urbanization.

It is both trivial and equally important to realize that land is a limited asset, even when hinterland is accessible in abundance. The exploration of new areas leads to changes in land use, most visible through the resulting distances and the new connections and flows that emerge from urban expansion. The impossibility in reproducing land has severe implications on its nature as a social asset, as well as, on its economic condition. Scarcity, however, is relative in a country such as Mozambique, which does not face a shortage of land, because of the abundant farmland and natural areas, most of which will not be converted into urban parcels, not even in the distant future.

Scarcity of land is generally generated through four factors: limitations in accessibility; the political constituency and economy; location preferences; and costs of expansion. While access can be limited because of natural conditions, for example, a city located on a shoreline, it is much more common that the limitations are artificially created, for instance, through administrative boundaries of different constituencies. The access to land within a capital city, for example, competes with the offers in adjacent secondary cities or rural districts, and while land is de facto available, its conditions might differ widely.

Another factor in terms of political economies and governance that contributes to scarcity of land are the regulatory barriers for converting farmland into urban land, and how these barriers are softened when the pressure of urbanization rises.

However, the main factor that determines scarcity in a capitalist market society is the price that can be achieved for a specific plot of land. Land with location advantages realizes higher prices because the location preference of individuals and their respective purchasing power creates a hierarchy of market prices as some locations are preferred over another. This aspect will be further scrutinized in Chapter 6.3.

Besides its economic value, land ownership also implies other costs that derive from patterns of urbanization. Urban expansion has been researched for

decades with the aim to associate these different patterns to their specific costs, such as service substitution and mobility. Different typologies of urban expansion were thus defined (for example, by Camagni et al. 2002) and impact indexes were developed. To calculate the real cost of land bought cheap at the periphery, one needs to factor future costs into the price, for example, travel expenses and time spent for commuting, as well as the need to substitute public services – for example, drilling wells or carrying water from distances, and managing without electricity.

On the urban scale, there is a fourth cost factor generated by land acquisition: future expenses to organize, respond to, or mitigate the impacts of urbanization. Although these expenses are mainly related to environmental costs, in particular to environmental deterioration, a number of other expenses derive from badly managed urbanization: the need for future corrective measures to layout urban structural plans; the difficulty to provide infrastructure into progressively densified settlements; and the need to tackle man-made hazards, such as flooding of inhabited riverbanks.

3 Methodology

The methodology applied to this research is described in this chapter, specifically detailing the methods and strategies used for data collection and analysis.

3.1 Scope of research

The research approached the subject of spatial manifestation by looking into the general framework because of the complexity of secondary cities in Mozambique, with their different characteristics regarding urban configuration, level of urbanization, real estate market, and so on. The framework is responsible for the social and economic conditions of the creation of space, and into the specifics of selected cities to contextualize the conditions. The researchers selected Nampula as a representative case for the current urbanization trends occurring in the country because of a focus on the fast-growing corridor cities in the north of Mozambique

and limited time available for the research. They produced an in-depth analysis of primary data exclusively for this research, in order to discuss the driving forces, outcomes, and impacts of the current urbanization processes in Mozambique. The study of spatial organization occurred in a timeframe of 16 years: from 1999, when the municipalities were created, to 2015.

The researchers needed scrutinize the different laws, policies, and approaches to assess the conditions under which cities developed in Mozambique. They looked at urban planning, steering and land management, as well as the role of land markets, social policies, and the political environment for urban policies. These aspects are important parts of the research, and enriched the development of the research agenda. The research developed along four thematic areas: urban planning and strategies; spatial organization and urban form; urban land markets; and governance and policies. For each thematic cluster, a set of research questions was developed to provide the necessary information to answer the main research question, as presented above (Chapter 1).

3.2 Approach

The research followed a deductive approach by exploring urban expansion and compactness theories that apply to urban growth, which subsequently guided the formulation of research questions, research instruments, and findings. This approach applies the assumptions identified in the debate between the two opposing paradigms of ‘the compact city’ and ‘making room for cities’ to analyse the urbanization processes of Mozambican cities.

The researchers developed a set of research questions for the initial report to outline the debate on urban expansion and compactness, while increasing understanding into how the current urbanization process is unfolding. Six main questions guided this research:

1. What are the main factors that have influenced urban expansion in the selected cities since the creation of the current municipal structure?

2. How have Nampula and Nacala grown spatially since the creation of the current municipal structure?
3. How do planning practices influence the expansion and compactness of cities in Mozambique?
4. How do formal and informal land urbanization processes (allocation process, occupation, servicing, and infilling) influence the expansion and compactness of cities in Mozambique?
5. What are the impacts of the urbanization process, particularly regarding urban expansion?
6. In the context of Mozambican cities, how can the paradigms of 'making room' and 'the compact city' best complement each other?

The first two questions discern the nature of urbanization by identifying the main socio-economic factors that have influenced urban expansion in the selected cities and distinguishing how the cities are growing spatially. The subsequent two questions analyse how the local planning operates, in addition to unpacking how the process of allocation and occupation of land influences the expansion and densification of cities. Furthermore, the next question provides an understanding of the social, economic and environmental impacts of the urban expansion versus compactness process. The last question identifies and compares the pros and cons of the Mozambican context to the opposing paradigms: the compact city and making room for future expansion.

3.3 Research Design

To explore the nature of the current urban expansion processes, the researchers selected the city of Nampula as the case study. Multiple data collection methods were developed to investigate the research questions. The methods can be broadly grouped into three categories: structured and semi-structured interviews, household surveys, and GIS mapping. The methods and the interlocking benefits of these different approaches are further described in the following sections.

The researchers applied qualitative methods to understand the expansion process and the relations among the different actors, resources and causes leading to the expansion, as well as to assess the impacts of the expansion process. They applied quantitative methods to measure the metrics of expansion and compaction in the period between 1999 and 2015.

3.4 Data collection methods and sampling procedures

For the data collection, the research team conducted 10 field trips to Mozambique during the months of February to June. These field trips were mainly to Nampula, but also Nacala and Maputo. Besides the IHS experts, a local research team was established in Nampula, including professors and students from Unilúrio, with the purpose of conducting the household survey. In total, seven professors and 12 students participated in the field work, data entry and discussion of results.

3.4.1 Household survey

Because of the scarce availability of data regarding the formal and informal housing market in the selected cities, the researchers selected a household survey as a means to gather information on the impacts of urbanization in the land markets. The household survey aimed to identify the socio-economic causes of the urban expansion and the related impacts. It intended to find the motivation behind people moving to the city and to their specific area, in addition to the relationship between their home and the location to their source of livelihoods.

3.4.2 Secondary data

Data from secondary sources (such as the 2007 census, reports, municipal data, municipal plans, and maps) supplements data from the survey. This specifically concerns data about population growth and distribution, housing conditions, environmental quality, and data about the availability of basic services and other existing infrastructure.

3.4.3 Expert interviews

To gain further insight into the subject matter, the researchers conducted a number of interviews. Expert interviews were crucial in identifying the gaps in the literature, and providing important insights into values and behaviours. The key stakeholders interviewed were representatives from government offices (both municipal and province), research and academic staff from local knowledge institutions, real estate agents, community leaders, NGOs and donor agencies.

The researchers used both structured and semi-structured interviews, based on questionnaires. They applied a snowball strategy to select the interviewees using contacts initially identified who recommended other relevant experts. In this process experts with different backgrounds were identified and they gave various perspectives on the matter of urban expansion.

In total, the researchers conducted nine semi-structured interviews and eight structured, and a number of single-focus interviews by introducing the topic and developing ideas of thought (see list of interviewees in Annex 5). The information used to prepare the interview questionnaires were derived from the literature. Annex 2 covers the semi-structured and structured interviews, and Annex 3 provides the list of questions and questionnaire used.

3.4.4 GIS Maps

Based on the existing maps from *Planos Parciais de Urbanização*, satellite images from 1999, 2010, and 2015, as well as secondary data from official documents; nine maps were produced using GIS. The researchers used these maps to calculate several indicators and key spatial metrics in an effort to measure the process of expansion and compactness in Nampula and identify the spatial structure, trends, and respective impacts.

The spatial metrics and indicators are as follows: urban land cover or urban extent; density; continuity or expansion; compactness; the existence of public transportation system; the existence of policies and law promoting mixed land use; green area per square meter per inhabitant; potential flood areas; and the presence of green infrastructure approaches. These metrics followed the method developed

by Angel et al. (2011) – area, extent, and expansion metrics, and Abrantes' compactness index (2013).

The researchers obtained GIS data using Google satellite photos, available from Google Earth and downloaded via SAS Planet, with a spatial resolution of 1.20 meters and a regular hexagonal form of 50 meter sides, for the elaboration of the built and non-built maps within the administrative area of the city. The maps produced are the following: (i) Urban Growth (1999 - 2015); (ii) Green Areas (1999 - 2015); (iii) Public Transport (2015); (iv) Population Density (1999-2015); (v) Housing Density (2015); (vi) Proximity Index (1999-2015); (vii) Compactness Index (1999-2015); (viii) Informal Settlements (1999-2015); and (ix) Urban, Suburban and Rural Areas (1999-2015). The methods to calculate the urban, sub-urban, and rural built area were those proposed by Angel et al. (2011). The method to calculate the compactness index was proposed by Abrantes (2013) and refers to the perimeter of each urban area divided by the minimum possible perimeter. The unit of analysis is the administrative area of Nampula.

3.5 Selected areas of the household survey

3.5.1 Criteria for selection of areas and sample size

The household survey was designed to cover the different urban typologies existing in Nampula. The purpose of selecting different areas is to understand how the housing market works in the different locations – what are the main characteristics of the population in each area and the motivation for moving there – and to understand the impacts of rapid urbanization in term of accessibility to housing and land. Additionally, selecting diverse areas served as a bias control for data analysis, especially for the housing land price.

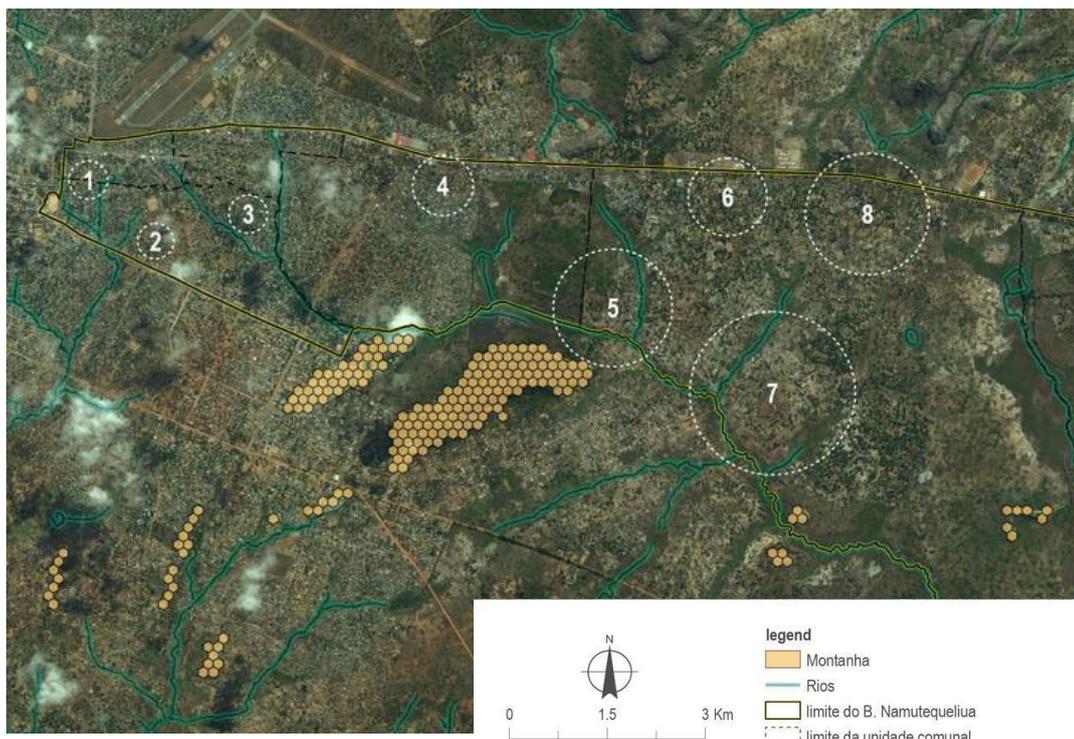
The selection of the areas first considered the urban typologies and spatial growth processes that were identified using existing maps and were complemented with observations on the ground. Then from the urban growth map produced based on satellite images from 1999, 2010, and 2015, it was possible to identify the city's growth towards the south, having the *posto administrativo* Muhala with the highest

rate of sprawl. As part of the *Muhala posto administrativo*, Namutequilua neighbourhood was selected for having many urban typologies.

The researchers defined five determinants to select the survey areas: (i) establishment period of the settlement: until 1999, from 2000 to 2010, and after 2010; (ii) planned or unplanned area; (iii) housing density (determinants ii and iii were utilized in the *Planos Parciais de Urbanização*: Planned Residential Zone with Low Density; Unplanned Residential Zone with Low Density; Unplanned Residential Zone with Medium Density; Unplanned Residential Zone with High Density and Unplanned Residential Zone with Rural Density); (iv) distance from the city centre; and (v) proximity to the main roads.

Later, the researchers selected eight areas to survey by scrutinizing selected cross-sections of Namutequilua neighbourhood to understand the gradients of the investigated attributes from the city centre to the peripheries, while identifying old and new urban areas. The areas are identified in Figure 1. Each area is represented with a different circle size, which shows the differences in housing density. Each circle comprehends the same number of households, serving as a guidance for the research team.

Figure 1: Map of all selected areas for the household survey



In the table below, all areas are defined with regard to the five determinants.

	When established	Planned or unplanned	Housing density	Distance from the city centre	Proximity to main roads
Area 1	Before 1999	Planned	High	Close	Close
Area 2	Before 1999	Unplanned	High	Close	Close
Area 3	Before 1999	Unplanned	Medium	Close	Medium
Area 4	Consolidated after 2000	Unplanned	High	Medium	Close
Area 5	Consolidated after 2010	Unplanned	Low	Medium	Far
Area 6	Consolidated after 2010	Unplanned	Rural	Far	Close
Area 7	Consolidated after 2000	Unplanned	Low	Far	Far
Area 8	Consolidated after 2010	Partially planned	Low	Far	Close

A non-probability sampling approach was adopted in the research. This choice is motivated by the difficulty of knowing or estimating the research population of the study and because of the limited time to develop the research. The aim was to reach 75 households per area, or 600 in total. The survey questioned household heads or their spouses regarding various topics: general information; household composition; spending priorities; location; access to land; financing; housing; access to basic services; interaction with local government; and mobility. For the household survey questionnaire see Annex 1.

The researchers developed the household survey based on the knowledge gained from the literature and interviews, and in accordance with the research questions. The survey consists of both qualitative, quantitative, open ended, and closed questions. The household survey was carried out by students and professors, in cooperation with the local partner university, Unilurio. A training session was

conducted in the university about techniques of data collection and how to run the household survey. The questionnaire was first refined and pre-tested to uncover the best suited questions and answers. After the development of the first draft, the questionnaire was improved following discussion with professors and students from Unilurio, and some of the questions were reformulated and the questionnaire was finalized for the final data collection. After this, the IHS team tested some questionnaires before the research group went to the field.

3.5.2 Data analysis

Data from the household questionnaires were coded and analysed using a database prepared in SPSS. The outputs generated included quantitative and qualitative information separated according to each of the research areas. Several variables were prepared to identify frequencies and percentage, including gender disaggregated data. The analysis of the household survey data is relevant to providing primary data findings rather than comprehensive analysis and statistics tests.

3.6 Contributions to the research

A requirement of IHS' engagement was to develop and promote a new local research agenda, focussing on building capacity of local institutions and partners. For this reason, the research team worked closely with professors and students from Universidade Lúrio in Nampula. During the final four months of data collection and analysis, IHS sought to involve many students and professionals working and studying in the urban field. With a memorandum of understanding signed between IHS and Unilurio that established academic cooperation between the two partners, IHS provided lectures on planning strategies, training in survey techniques, and a workshop to present the preliminary results of the research. All the lectures were open to all students and professors from the *Faculdade de Planeamento Físico*.

Besides this cooperation, the first Mozambique Urban Research Forum or *Fórum Urbano Nacional de Pesquisa* (FUN-P) was envisioned and implemented by IHS with the support of the Universidade Eduardo Mondlane (UEM). The realization

of the FUN-P was a great achievement for the project in terms of dissemination of the research findings and engagement with the local and international communities. The research team took a participatory approach by promoting this international research forum that contributed to the discussion about the research, while mobilizing researchers and professionals working in the urban field.

This international event brought together researchers and professionals from different countries studying urbanization processes in African countries, but especially in Mozambique. The event aimed to foster research contributions towards the development of better management and progress of urbanization in Mozambique. The main purposes were to establish a critical discussion on urbanization in Mozambique, mobilize academia that are involved in research and that can support the discussion on urban policies, and facilitate the dialogue among academia, public, and private sectors, in order to improve informed decision-making of stakeholders that influence urbanization patterns. In total, 18 researchers from 11 countries presented their papers and participated in the four panels of discussion (access to land, governance and planning, expansion and compactness of cities: factors and patterns of the urban form, and socio-economic and environmental impacts of urbanization), along with other professionals and urban experts. Presenters came from Mozambique, Brazil, Ireland, Italy, Nigeria, Portugal, Spain, United Kingdom, Uganda, Zimbabwe, and Zambia. More than 50 participants attended the two-day conference.

A small selection of the papers is summarized in the boxes in Chapter 8, at the end of the research monograph, showing the discussion of relevant issues regarding urbanization in Mozambique.

3.7 Limitations

The lack of reliable information limited this research. Primary data related to land issues in Mozambique are not widely available. Crucial information is either not recorded, the databases are not accessible, or data are lost. It was, hence, a difficult task for the researchers to get necessary information on the issues assessed.

Moreover, the various stakeholders had separate, but still limited, data sets. Information varied and was rarely stored in a maintained database. For that reason, the research team decided to collect primary data in a household survey, so as to create at least one set of data that can be used for cross-referencing. It was also seen as an additional advantage to work with the University of Unilurio in the co-production of knowledge from the ground.

However, the household survey contained some limitations. Because the sample size of the survey was based on non-probabilistic sampling, it was relatively small, which limits the possibility of generalizing the results. This means that the results obtained are more likely to represent the situation of the exact cities at the precise moment the data was collected. Also, the limited capacity of the local partners to conduct the household survey caused delays in the process and influenced the quality of data collected.

Lack of time also limited this project. Some steps of the process had to be sped up and the data analysis was compromised. For instance, a generally applied step in surveys – to conduct focus group discussions to validate and respectively triangulate the results and opinions recorded from expert interviews and surveys – could not be conducted because of time constraints.

4 Context: Cities in Mozambique

The urban population in Mozambique is expected to increase from 8.5 million in 2014, to 29.4 million in 2050 (United Nations, Department of Economic and Social Affairs, 2014). Data suggest that secondary and tertiary urban areas are likely to grow proportionally faster than the established urban areas (Andersen, J. E., Jenkins P., and Nielsen, M. 2015a, p. 336), which would indicate a significant impact on the surroundings of these urban areas. Mozambican cities generally are characterized by poor quality infrastructure that delivers only the most basic services, a high number of people living in risk-prone areas, and limited capacity for development, implementation, and enforcement of spatial plans and regulations.

The assessment of this research in terms of the spatial forms of urbanization, therefore, does not focus on the quantitative consumption of land alone, but on the factors that guide this consumption in the context of secondary cities in Mozambique.

Cities in Mozambique can be studied to examine the evolution of urban forms that are not fully classifiable in Western-based urban terms, such as suburbs. As an example, Andersen et al. (2015a) has highlighted the increasing emergence of 'neither urban nor rural' areas outside the urban boundaries. These areas could also be defined as 'proto-urban' areas (Jenkins 2013). Nevertheless, despite the emergence of many different urban land management and self-made urban forms, many authors keep describing cities in Mozambique in dualistic terms (Tvedten et al. 2013; Pestana Barros et al., 2014) or even in three-fold terms, such as '*cidade de cimento*', '*cidade informal*', and '*cidade de caniço*' (Andreatta and Magalhães, 2011). These spatial classifications are often implicitly translated into social categories, or attributed to specific urban shapes or densities. Although an assessment of land occupation patterns cannot be carried out without its inherent legal aspects, it would be too early to conclude here that specific legal, or informal, forms would always translate into similar morphologies.

4.1 Historical context

Mozambique emerged from a protracted civil war, which ended in 1992, as one of the poorest countries in the world. Since then, it has seen a remarkable growth in GDP, on average between 6 and 10 per cent annually. However, it remains at the bottom of the Human Development Index list, ranking 178th out of 187 countries in 2013. The urban population in 2015 was estimated to comprise of around 32.2 per cent of the total population – estimated at more than 25 million (CIA 2016) – country-wide on average growing at an annual rate of 3.27 per cent (CIA 2016 – 2010 – 2015 estimate). Mozambican cities have experienced rapid urban growth over the last few decades, both in terms of area occupied, as well as, in terms of population. A major increase occurred during the civil war, as the primarily rural

population fled to existing urban or rural centres. Cities and villages have continued to grow ever since, both through natural growth as well as rural-urban migration. Mozambique's current urbanization is linked to an increased exploration of its natural resources. Large-scale infrastructure works for extraction and transport are currently being implemented.

In 1998, the first municipalities were created as *autarquias* in Mozambique. Previously, delegated officials from the central government administrated urban areas, a situation which continues in the districts even today. Thirty-three cities and former villages were given autonomous power in decision-making, albeit limited. Another 10 municipalities were created in 2008, followed by another 10 in 2013. Although this demonstrates the central government's recognition for the need for bottom-up urban development, it also shows that it follows a rather statutory top-down arrangement. Starting virtually from scratch, with weak organizational structures, poorly maintained infrastructure, and a narrow tax base, there has nevertheless been remarkable progress in some municipalities.

However, because of backlogs and a rapidly increasing urban population, service delivery in most cases is still below standard and not all municipal tasks are clearly assigned by the existing legal framework. The responsibility for the management of urban space and urban land, for example, needs to be further clarified among the different public institutions. Consequently, spatial planning, operational planning and budgeting are disputed among different stakeholders.

Melo (2012), in her article 'Urbanisation processes in the expansion areas of Luanda, Maputo and Johannesburg: Urban planning and everyday practices', demonstrates that owing to "a greater know-how accumulated over the last three decades, subject to local reflections on urban issues, resulting in more suitable intervention strategies to semi-urbanized areas and in planning and management practices that tend to a greater social equity" (p. 9), democracy and state institutions in Mozambique, although fragile, are less extreme in comparison to Angola.

4.2 Secondary cities

According to United Nations projections, more than 40 per cent of worldwide urban growth will occur in small and intermediate towns, or rather those that have a population below 500,000 inhabitants (United Nations, 2014). In the Mozambican context, the 2007 National Census data confirm this demographic trend. With the public administration reform, local-level authorities are assuming an important role in promoting sustainable economic growth. In medium-sized towns, such as Pemba and Tete, the administrative functions contribute to their growth. Besides that, these cities are also important economic centres:

“Tete, besides dominating the central western part of the country, is also the largest town located along the Zambezi River and the terminal of the railway axis that starts from Beira [...]. Pemba is perhaps the most important tourist centre of Mozambique being, as well as the destination of an international flow attracted by seaside, a base for excursions throughout the Northern part of the country” (Diamantini and Nicchia 2009, p. 2029).

As observed by Andersen, Jenkins and Nielsen (2015), the population of smaller secondary and tertiary urban areas is growing proportionally faster than in the larger urban areas. This can be observed when comparing average annual population growth rates between 1997 and 2007. Fourteen out of the then 34 municipalities, mainly smaller ones, had growth rates of more than 5 per cent, with seven more than 10 per cent. The larger cities, such as Maputo and Beira, had much smaller growth rates, 1.01 per cent and 0.32 per cent, respectively. However, the absolute numbers of new population in these two cities are still quite significant. As Andersen et al. (2015, p. 338) mentions:

“For the capital, Maputo, apart from the rapid rise in population in neighbouring Matola, the low official population growth rate needs closer examination due to the emerging phenomenon of ‘not urban’/‘not rural’ areas occurring outside the urban administrative boundary but which are clearly linked to the city: here called ‘proto-urban’ areas.”

Although this fast growth seems to be slowing down, the average annual population growth for Nampula between 1997 and 2007 was still at 2.93 per cent (World Bank

2009, p. 27), whereas based on INE projections (INE website 2016), it is 2.42 per cent for 2016 – in absolute numbers this is still an increase of about 15,500 people in 2016.

4.3 Corridor development

Mozambique is responsible for 70 per cent of the Southern African Development Community (SADC) goods transit, with logistic corridors (see Figure 2) linking the mining districts and deep water coastal ports with the neighbouring landlocked countries (AfDB, OECD, UNDP and UNECA 2012). These corridors, developed over strategic transport routes, stimulate industrial and commercial investments in related urban centres. They intend to strengthen partnerships, increase the attractiveness of the region for the business sector, and create new economic opportunities, resulting in an increase in international competitiveness.

The Maputo Development Corridor, launched in 1996, is among the best developed corridors in sub-Saharan Africa and it has been referred to as highly successful in generating local economic development (Hope and Cox 2015). Mozambique has two growth poles and five main development corridors. The Maputo Development corridor improves infrastructure along 500 kilometres of road and rail, linking South Africa's Gauteng region to Mozambique's deep-water port in Maputo. It also simplifies regulatory requirements for border crossings and modal switches (African Development Bank, Organisation for Economic Co-operation and Development, United Nations Development Programme, 2015). According to the report 'African Economic Outlook 2015', the Maputo Development Corridor involved various public-private partnerships for the development of its road-rail, port, and gas transportation structures, and has received more than \$2.8⁷ billion in investments (Macauhub 2015). However, it has raised concerns since it opens South African industry to foreign competition without adequately preparing the affected regions (African Development Bank, Organisation for Economic Co-operation and Development, United Nations Development Programme, 2015).

⁷ All dollars are in U.S. dollars, unless noted otherwise.

In the north of the country, the Tete corridor is the main trade route between Malawi, Zimbabwe, and South Africa, and the shortest route from Zambia to the sea. Although Mozambique aims to become a thriving, regional trade, and investment gateway by 2025, growth to date has been highly concentrated on large, capital-intensive mega-projects that have brought relatively few jobs and little poverty reduction (DFID, 2014). The Beira corridor, located in the centre, first linked Zimbabwe to the port of Beira through a road and a railroad that later was extended to Tete, connecting it to Malawi, Zambia and the Republic of Congo.

The Nacala Corridor has been considered the most advanced of its kind because of the rapid investments, connecting Zambia and Malawi, as well as, the coal mines along it to the port of Nacala. The corridor has strongly influenced the socio-economic geography of cities, increasing demographic pressure on the cities, but has also been an opportunity to generate more revenue and enhance the urban setting. “However, talking specifically about the case of Nampula city, which is directly affected by the Nacala Corridor, the investments are yet to make a direct impact in terms of urban gains” (UCLG 2013).

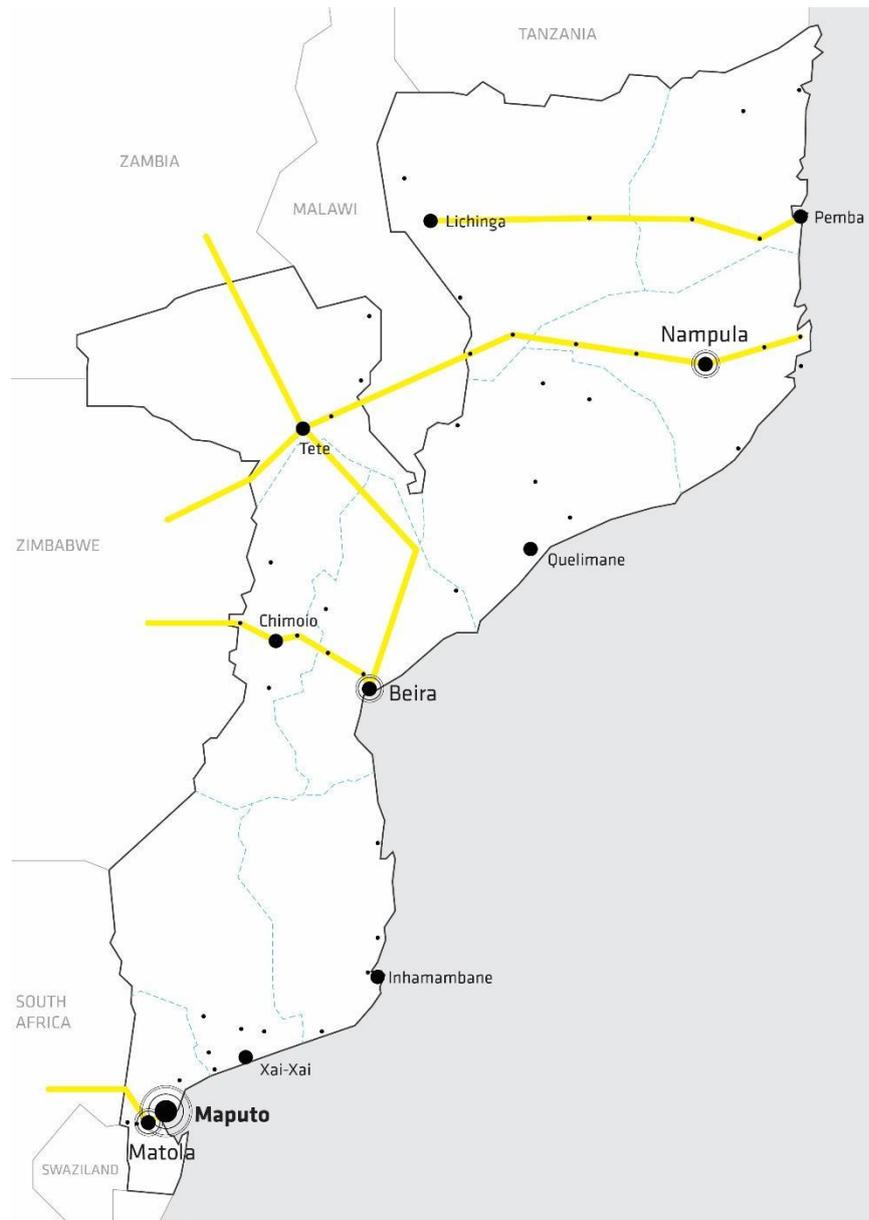


Figure 2: Main development corridors in Mozambique

4.4 Evolution of a legislative framework for urban entities

Starting from the late 1990s, Mozambique has been undergoing a process of reforming local government authorities in governance. Since the creation of the first 33 municipalities in 1997, specific legislation has been developed to guide urban development. The creation of the municipalities was established through law 2/1997

- *Lei das Autarquias*, in which the powers of the municipal organs, such as the municipal assembly and the municipal council and their respective *presidente* that is the mayor and chair of the municipal assembly, are defined. Law 10/1997 - *Criação dos Municípios* defines the selection of cities and villages to become '*autarquias*', of which currently 53 exist. These cities and villages have autonomy over administrative, financial, and asset management matters and are funded by their own revenue, as well as, from transfers from the national government. However, the creation of local authorities does not diminish the overall responsibility of the state and the functioning of various other constitutionally existing institutions. Therefore, the national authority maintains some control over local authorities. In this perspective, the current system can be considered as a mixed or semi-decentralized system (CEDH-UEM, 2005).

Municipal governments were made responsible for providing services within their entire territories: granting DUATs in areas covered by urban development plans; providing green areas, markets and drainage systems; managing waste; protecting the cultural and urban heritage; and promoting environmental conservation – conserving trees and establishing environmental reserves. In addition to their administrative and planning responsibilities, they should support vulnerable groups in society and promote socio-economic development, health, education, culture, leisure and sport.

Further decentralization was intended through decree no. 33/2006 - '*Transferência de funções e competências para as autarquias locais*', which approves the legal framework regarding the transfer of functions and competences from state bodies to local authorities. At the request of the municipal government, responsibilities, such as primary education and basic health care, can be transferred. However, this turned out to be an extremely slow process, mainly because the different levels of governments could not find an agreement regarding financial transfers and compensation for the services offered locally.

4.5 Responsibilities of the national level for urban development

Municipalities have considerable independent decision-making power, but a noticeable level of control from the national and provincial government has also been institutionalized through decree 56/2008 - '*Tutela administrativa dos Governos/Governadores Provincias nas Autarquias Locais*'. According to this decree, the provincial level and the national level are attributed the responsibility of inspection, and the right of participation in the municipal council and assembly's sessions. It also includes the appointment of an administrator by the government, a position that is of political importance, particularly in the municipalities governed by the opposition party the *Movimento Democrático de Moçambique* (MDM).

In a recent interview (April 2016), an urban planner and professor from CEDH pointed out that there is not one institution responsible for municipal development, but various. To complicate matters further, ministries have been reorganized or merged since the national elections of 2014, so that the division of responsibilities is further complicated. The most important ministries for urban development currently are the following:

- The Ministry of State Administration and Public Function, MAEFP for *Ministério de Administração Estatal e Função Pública*: The ministry is responsible for all things related to public administration. The ministry also coordinates the decentralization process in Mozambique.
- The Ministry of Land, Environment and Rural Development, MITADER for *Ministério de Terra, Ambiente e Desenvolvimento Rural*: formerly a separate Ministry of Environmental Coordination called the *Ministério de Coordenação de Acção Ambiental* - MICOA, the current ministry has gained further responsibilities regarding land management, conservation and rural development. The then MICOA and now MITADER have been instrumental in the development of spatial plans of both districts and municipalities. However, as pointed out by the CEDH professor, it is a peculiar situation as the ministry assisting in developing the plans is the same as the ministry responsible for approving them.

- The Ministry of Public Works, Housing and Water, MOPHRH for *Ministério das Obras Públicas, Habitação e Recursos Hídricos*: This ministry is responsible for urban infrastructure and water provision. It also coordinates social housing initiatives, such as the *Fundo de Fomento de Habitação*.
- The Ministry of Economy and Finance or the *Ministério da Economia e Finanças* - MEF: The MEF is responsible for the financial transfers from the state to the municipalities.

4.6 Capacities of municipal governments

Municipalities in Mozambique have two main organs: the municipal assembly, which has deliberative powers, and the municipal council, which has executive powers. The latter is headed by an elected mayor for a duration of five years. Depending on the size of the municipality, each municipality has various hierarchical levels and differences in structure. The council has between four and 10 councillors or *vereadores* (Law 2/97). These councillors, appointed by the mayor, do not necessarily have a background in the subject to which they are appointed. At the municipal level, the council is divided into different departments. Therefore, each municipality does not have the same departments, but each department has its own councillor.

In bigger municipalities, such as Nampula, these departments are headed by the councillor and a director. The director is a staff member appointed by the mayor. It is a very hierarchical structure, where lower level staff are not likely to take initiative, or even act without the approval of their superiors. At the same time, the higher-level staff, especially the councillors, if not employed full-time, are likely to be involved in various other activities, limiting their commitment at the municipality. As many appointees realize that their time in a higher-up position is limited, and depends on the political entity that appoints them (in many cases the mayor), they might try to get the most out of the position, including engaging in illicit activities.

This can result in the absence of political will to implement improvements, in an attempt to hide such illegal practices.

Staff turnover is typically very high, both because of change in jobs either outside the municipality or transfers in other municipalities, and because of change in responsibilities either by being promoted or demoted. Therefore, there is a constant need to train new staff, yet very few municipalities have human resource development plans. Furthermore, the capacity of urban planning staff to execute the plans is hindered by the lack of material or defective material.

At the institutional level, there is a lack of capacity to organize the work in a comprehensive manner. It is understandable that urgent tasks are handled before other tasks that are also important, but often technical staff are employed full time for land allocation, leaving no time to develop or update plans as the plans are being implemented. Additionally, coordination is extremely limited between departments with other levels – both higher (national and provincial) and lower levels (local leaders) – and with other stakeholders (such as the private sector, civil society and donors).

4.7 Policies for spatial organization

After the independence of Mozambique in 1975, planning instruments and urban management practices inherited from the colonial period were discarded. The early years of governance were centred in the nation's reconstruction and the civil war (which lasted from 1977 to 1992). The limitations of these years conditioned the development of alternative methods that consider the cities and their problems as a whole (Melo, 2015). The first planning practice began in 1979 in the city of Maputo, with the development of the Urban Structural Plan called *Plano de Estrutura Urbana*. In the 1990s, many urban instruments emerged that helped structure new urban planning and management strategies.

The basis for all land in Mozambique is law 19/1997 - '*Lei de Terras*', or the Land Law. However, even though the law is applicable for the entire territory, its related ordinance, decree 66/1998 - '*Regulamento da Lei de Terras*', explicitly does

not cover municipal land. It took until 2006 before a specific ordinance for urban land was adopted with decree 60/2006 - '*Regulamento do Solo Urbano*'. The decree defines the different levels of spatial development plans that should be developed by the municipal government and provides guidance on its development, which includes a strong component of participation by the community. The second part of the decree is about land rights and how to organize access to land, with a format of a land right title (from now on addressed as DUAT [*Direito de Uso e Aproveitamento de Terra*]). Related to this latter part is decree 2/2004 - '*Regime de Licenciamento de Obras Particulares*', which defines the different phases of the process of construction permits, which eventually lead to the issuing of the definitive DUAT.

It was not until 2007 when the Resolution No. 18/2007, the Spatial Planning Policy (or the '*Política de Ordenamento do Território*') was approved as the main instrument guiding regional and spatial planning processes. It is based on a set of fundamental principles: equality of rights; precaution, with regards to impacts; recognition of the current state; participation; consultation; decentralization; access to information; binding nature of the development instruments; accountability; and continuity. It also puts forward specific objectives of the policy for urban areas as follows:

- Guaranteeing the sustainability of urban areas
- Cooperation between governments, with the private sector and civil society
- Urban planning that 'rectifies current distortions in urban growth'
- Creating conditions to provide basic and social services
- Urban planning to avoid negative situations
- Urban-rural integration and complementarity
- Protection of the environmental and cultural heritage
- Regularization of informal settlements
- Regulation of the land register.

The policy is followed by a law on spatial planning, law 19/2007 - '*Lei de Ordenamento do Território*' and a decree with the law's ordinance, decree 23/2008 - '*Regulamento da Lei de Ordenamento do Território*'. There are certain overlaps between the urban land decree: 60/2006, and the spatial planning law and ordinance, as all three mention the different urban planning instruments and the process of their creation: the Urban Structure Plan or *Plano de Estrutura Urbana* (PEU), the General Urbanization Plan or *Plano Geral de Urbanização* (PGU), the Partial Urbanization Plan or *Plano Parcial de Urbanização* (PPU), and the Detailed Plan - *Plano de Pormenor* (PP). This leads to some inconsistencies, while at the same time gaps and uncertainties in other areas of the legislation remain. For example, although expropriation, whether by private or public interest or need, is allowed, it must be "justly compensated" (art. 20 of law 19/2007 and art. 70 of decree 23/2008). However, it was not until the ministerial directive no. 181/2010 - '*Directiva sobre o Processo de Expropriação para efeitos de Ordenamento Territorial*', about the process of expropriation for urban planning, that more guidance was provided of what a "just compensation" actually entails.

The strengths of the Mozambican legislative planning system are that local authorities are obliged to respect and take into consideration participation processes and public consultation, which in the current climate of transition to a market-led system can provide and protect the voice of citizens. The law also supports explicit rights for more vulnerable groups in society. Examples are the automatic right to land use after 10 years of 'occupation in good faith' known as *ocupação de boa fé*, or equal land rights for women, or land rights to more than one person, such as a couple, a family or a community.

4.8 Access to land

During the 17 years of civil war that followed Mozambique's independence from Portugal, large portions of the population ended up displaced, causing growing pressures on cities resulting from returning exiles and displaced communities. To prevent conflicts, a legal order needed to be created, taking into account this

development (Raimundo and Raimundo, 2012). In 1996, the new Constitution was enacted, which vested all land in the state, “with rights to the benefit of all to be granted to individual and corporate persons, taking into account its social and economic purpose” (Constitution of Mozambique, art. 110). The 1997 Land Law sought to ensure a balance between promoting national and foreign investment, while simultaneously protecting the parties who had access to land through customary law or had occupied land for more than 10 years (UN-Habitat, 2010). Various objectives were to be met; for instance, indigenous displaced persons and households in unplanned settlements were to be granted security of tenure. In addition, private investments were to be encouraged by granting long-term leasing rights by way of concession. Moreover, men and women were to have equal rights over land, land access, and land use; following principles of sustainable use and granting of land access was required to promote principles of equity (Urban LandMark and Progressus Consultancy, 2013).

The state is responsible for land allocation on usufruct title basis administered through provincial governments, except in municipal areas, where land is meant to be a source of income through property registration. Access to land – by buying and selling, exchange, and donation – is mostly managed through culturally embedded proceedings involving local authorities, such as neighbourhood secretary, head of the unity, and traditional chief, and the interested families. Formal regulation overlaps with customary law and most the transactions, both traditional and municipally managed, are monetary.

Since achieving independence in 1975, there has not been a clear separation between urban and rural areas in terms of legal instruments. In fact, it took almost 10 years after the Land Law to approve the Regulation of Urban Land in 2006. The main tool used for urban land management is the land use right, *Direito de Uso e Aproveitamento da Terra* addressed as DUAT - the ‘Right of use and utilisation of the Land’, established by the Land Law.

Such a land title can be acquired through different ways: (i) community occupation right; (ii) ‘*boa fé*’ occupation, that is to say the presence of a family in a specific plot for a minimum of 10 years, provided this presence can be testified

through statements of neighbours, local authorities or others; or (iii) through a formal requirement.

Although the poorest inhabitants can legislatively and culturally occupy and use land in Mozambique, this situation often results in overlapping of different allocation systems of lots, which affects transactions, mostly, in older areas that were originally rural. In recent years "given the increase of land and real estate pressure on some semi-urban self-production areas, this relative security of occupation and use tends to become more unstable" (Lage and Mazembe 2016, p. 19).

Unlike other countries, the authorities in Mozambique do not explicitly differentiate between formal versus informal uses of land or acquisition processes. Although the government offers licenses and recognition (example for land using rights through bureaucratic procedures), non-formalised land-use are not prosecuted and even businesses can operate without being registered.

While the visual distinction between '*cimento*' versus '*caniço*' can be applied to all cities in Mozambique, the universal concept of the formal versus the informal production of space is highly diverse. The differentiation is not fully applicable to the urban context of the country. For example, those poor landowners that received their *Direito de Uso e Aproveitamento de Terra* (DUAT) and consequently requested a construction permit would not be visually distinguishable from their 'informal' neighbours. The fact of their houses being formal within an area stigmatized as informal settlement takes the dichotomy *ad absurdum* and indicates that its status has little impact on the density of an existing settlement.

For these and other reasons, the prospect to obtain a DUAT is of little attraction, especially for the poor inhabitants that do not have enough knowledge about the procedures but want to stay in the city. Usually, low-income people consult the neighbourhood authority, such as the secretary or head of the unity, to carry out procedures of regularization and to obtain plots (Jenkins, 2004). Moreover, transactions of land and titles through the formal system are exposed to bribery (Centro de Integridade Pública de Moçambique 2009).

Most people in the city feel secure in terms of tenure, no matter which social class they belong. Nevertheless, there is a distinction between the perception of poor inhabitants on tenure security and that of middle-class or upper-class residents living in informal areas.

In general, poor householders have almost always felt safe – not only because of the permissive, open and protective general urban approach of the authorities, which can partially be credited to the lack of proper planning instruments and a very slow bureaucracy – but also because of a peculiar, organized way in urban peripheries, which in spatial terms is essentially highly imitative of the state formal procedure (Nielsen 2013). As for the wealthier classes, the security perception about land use is in many cases related to land speculation activities or bribery carried out by those who are politically well connected. Furthermore, this sense of security is, in both cases, culturally well-maintained, despite the cumbersome bureaucracy and complexity of the personal land's use right - DUAT, issuance process (Mazzolini, 2016).

From a spatial perspective, it is noteworthy how some informal settlements imitate formal plans and foster similar urban patterns, such as the ones of the planned expansion. Despite the plenitude of studies trying to classify the territory based on the legal system (officially planned areas, unofficially planned areas, unplanned areas, and illegal settlements in risk areas), in reality the result is “a complex mix of small and large scale ‘official’ subdivision plans, ‘unofficially planned’ and demarcated areas, and continued ‘informal’ occupation, with plots becoming commercialised in all areas” (Nielsen, 2009; 2011).

For example, Andersen, Jenkins and Nielsen (2015) pointed out how in Maputo, the residential area is composed by 51 per cent of unplanned settlements, 36 per cent officially planned by the local authority, although mostly seen as ‘unofficial’ in relation to the new legislation, and 13 per cent is unofficially planned and seen as ‘informal’. Nevertheless, it is quite impossible to distinguish these specific spatial classifications on satellite images, that is, to distinguish what is officially and what is unofficially planned. Moreover, the unofficially planned part of the city is more than one-third of what the Municipality has been able to plan

(generally, through the support of international assistance for the planning process, such as plot demarcation and regularization plans). “Especially in the newer residential expansion areas, even without full formal specification of urbanisation plans, a majority of households have settled [...] in blocks broadly compatible with standard dimensions for spacing of plot boundaries and access roads,” indicates the last report from the ProMaputo Programme.

Despite this evidence and many new spatial forms in between the formal and the informal (highly imitative of the formal “order”, or legally hybrid) being on the rise, the local authorities still emphasize and put their efforts into classifying and regularizing the unplanned.

The unplanned (or unofficially planned) zones are generally seen as a problem related to urban sprawl. In this sense, the recent massive regularization effort is also an attempt to somehow reduce sprawl. As for the more central zones, this attempt is introduced in specific urbanization plans (or *planos de regularização*) including verticalization options (see projects elaborated for the contests launched by the ProMaputo programme).

Nevertheless, some authors have begun to analyse which kind of changes the informal perception of security is undergoing in the new urban expansion context: in particular, how the embedded set of proto-formal proceedings to achieve land are increasingly threatened by a new liberal context regarding urban management (Melo, 2015; Melo and Viegas, 2012) and because of the lack of proper housing provision in terms of affordability, in the recent context of urban population growth (Pestana *Barros et al.* 2013).

5 Findings from primary data: Nampula case study

5.1 The Municipality of Nampula

The city of Nampula is in the centre of Nampula Province, in the heart of highly productive agricultural areas and in the Nacala Development Corridor that connects Malawi and Zambia to the coastal Port of Nacala, passing through the mining area of Tete. One of the largest urban centres of Mozambique, it has a population of roughly 620,000 (projections by INE, n.d.), spreading over a total land area of 404 km². It is one of the most economically dynamic cities in the country because of its location (UCLG, 2013). As one of the bigger municipalities, Nampula is subdivided by six Local Authority Administrative Posts or *Postos Administrativos*, within which there are 18 neighbourhoods, called *bairro*, in total. Each neighbourhood is further subdivided into local units – *unidades locais* or *quarteirões*. A local unit would generally have around 50 houses, but currently it can also contain up to 400 houses – a sign of the densification happening in the city. These administrative divisions are overseen by the *chefe do posto administrativo*, *secretário do bairro*, *chefe da unidade local*, and *chefe do quarteirão* respectively. The first two are official posts paid by the municipality, while the latter two are voluntary positions. Often, these posts are linked to political parties. Because of its agricultural potential, climate and strategic position, Nampula has been developing significantly since the 1950s (DNTP and MCA, 2011).

The city of Nampula has undergone an accelerated urban growth process, and continues to do so, which is shaping its urbanization progress, especially regarding its urban spatial structure. This research aims to investigate how the process of urban expansion is taking place to understand the main factors behind it and identify if this process is happening with sprawl characteristics, also described as manifestations. This research also seeks to recognize if elements of compactness are presented in the city. From the literature review, it is possible to define the urban spatial expansion as a normal outcome of urban growth and urbanization processes. Some cities can expand without the presence of sprawl, and others even manage to concentrate expansion, and thus increase density and compactness.

5.2 The Municipal Council’s administrative structure

In Nampula, there are 10 departments, as shown in the organogram below (Figure 3):

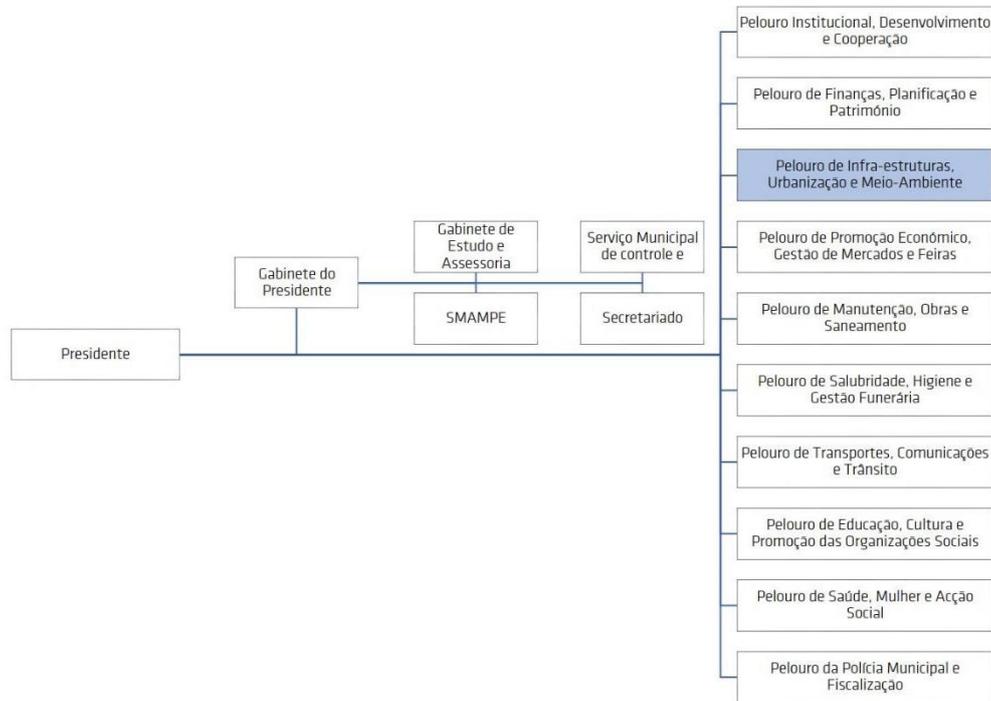


Figure 3: Organogram of the Municipal Council of the city of Nampula, Mozambique

The Infrastructure, Urban Planning and Environment Section at the Municipal Council of Nampula is subdivided into the Department of Urban Planning and Land Management, and the Department of Environment, Water and Energy. The former is further subdivided into Urban Planning Services, which consists of the Unit for Urban Planning and Land Register, and the Unit for Addressing and Toponymy, and Concession and Control of Land Use, which has one unit each for Land Use Control, Analysis of Construction Projects and Licensing (Nampula Municipal Council, 2014), as shown in the sector’s organogram (Figure 4):

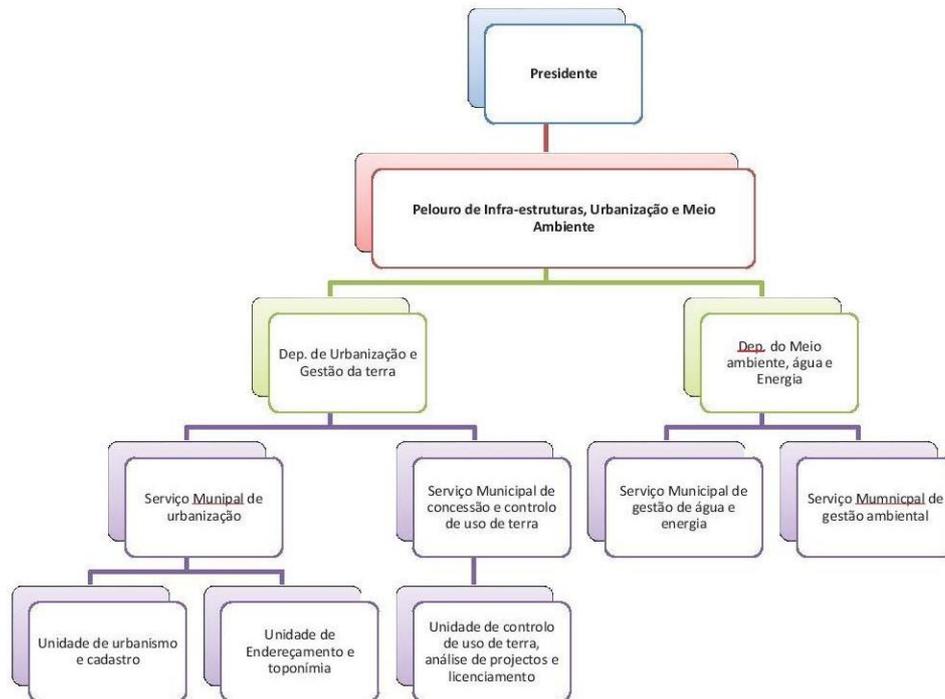


Figure 4: Organogram of the Infrastructure, Urban Planning and Environment Section of the Municipality of Nampula, Mozambique (Pelouro de Infraestruturas, Urbanização e Meio Ambiente Artigos 48-56)

Thirty-two employees work under the director of Urban Planning in Nampula, with 14 in the Department of Urban Planning and Land Management, while the entire Municipal Council consists of 494 employees, during the time of this research in 2015. The architect employed by the department was transferred to the Department of Environment, Water and Energy where he is currently engaged in the Participatory Slum Upgrading Project (PSUP). This absence of an architect is by no means a unique case in Mozambique, as architects are still scarce and usually employed in the private sector. Few municipalities can afford to pay an architect's salary, and even if they manage, there is no guarantee that they will stay.

5.3 Spatial planning

The development of Nampula has been heavily influenced by its strategic position, at the crossroad of two main axes – the railroad from Nacala to Malawi and the

commercial corridor linking Zambezia province with Cabo Delgado, and its agricultural potential. In the first phase of the city's development, the economy of the province was completely led by foreign capital in agricultural and industrial projects, through the export of products.

The city underwent a very slow urban expansion until 1960, when expansion intensified as the city became the administrative and logistic centre for the whole northern region. The first urbanization plan of 1962 was developed to accommodate about 150,000 inhabitants. The expansion zone for residential use – excluding the indigenous population – was established in the southeast direction, while the industrial zone was settled in the northern area. As in many other cities in the country, the main planning efforts during the 1980s were concentrated on how to prevent uncontrolled expansion and fluxes towards the cities. From those years on, several kinds of plans, mostly reordering and expansion plans, were developed but without any real impact. The Structural Plan of 1999 introduced land use zoning, measures of environmental protection, upgrading strategies, and new expansion zones towards the east, west and north of the city. Nevertheless, because of objections from the municipality towards the consultancy team in charge of the plan, and the limited technical and fiscal local resources, the plan was unrealistic and remained generally unimplemented.

The so-called 'unplanned' zones, or the suburban area localized in valleys and close to waterways have densities that are increasing and are difficult to access. Apart from these areas, there are also more organized suburban zones, such as Carrupeia and Muhala, planned as expansion zones and defined as 'semi-urbanised' areas in the Master Plan (Nampula Municipal Council, 1999). In 2011, a consultancy group providing land use mapping and expansion analysis for the Municipality of Nampula, classified the urban land into four density typologies: (i) unplanned, low density areas, (ii) unplanned, medium density areas, (iii) unplanned, high density areas, and (iv) planned (residential), high density areas.

In the same year, the municipal council together with Eduardo Mondlane University (UEM-CEDH) developed general urbanization plans for the municipality. Twelve plans covering the 12 neighbourhoods that are not part of the concrete city

– *a cidade de cimento*, which was the colonial part, were prepared. Based on these plans, detailed plans were also developed, mainly for the expansion zones. Most of these plans are complete, including a descriptive part, regulations, and maps (2016, in interview, 20 May). However, some of these plans only consist of maps.

Moreover, in an interview on 20 May 2016, one of the municipality's surveyors remarked that since there is no longer an architect in the urban planning department, the quality of the plans has decreased, with some rules as established in the law or municipal bye-laws not always being observed.

In 2015, the Municipality of Nampula, in the Report '*Projecto de Requalificação para a cidade de Nampula*', identified the constraints for sustainable urban expansion. The following main factors emerged: (i) recently accelerated growth of informal settlements, (ii) lack of coordination among all infrastructure projects, that is to say the inexistence of a general infrastructure plan with an overall vision for developing roads, water provision and energy, (iii) centralization of all services, which prevents the population from moving farther in the expansion zones and keeps congesting the city centre, and (iv) the congestion caused by the national road and the railroad crossing the city centre.

The same report from 2015 shows the municipality's concerns about the ongoing city expansion. It provides some guiding principles to manage such expansion, as follows:

- The creation of residential zones of low and medium density with some basic services and facilities.
- The development of anchor projects to better define land use.
- Population reallocation from the Muhala informal settlement.
- Land title regularization programmes.
- The promotion of a multifunctional use of urban space.

5.4 Nampula's urban morphology

From spatial data gathered from the different segments of the city, areas 1 to 3 were consolidated already in 2007, and from municipal maps it can be derived that

they have been existing before 1999. However, many changes took place between 2007 and 2015, most visibly a dwelling densification of areas 2 and 3. Mozambique has a long history of flexible, culturally established, and 'informally' settled self-production and subdivision of space in peripheral areas. Several authors (Pestana Barros *et al.* 2013, Andersen *et al.* 2015, Melo 2015) point out that the city expansion and the densification process are the result of mixed, semi-formal, and semi-legitimate proceedings of land allocation and subdivision of plots, which include several different actors, among them, formal and traditional authorities.

In the semi-structured interviews, seven out of eight interviewees emphasized a preferential growth of the city along the main linear axis of transportation. Substantial part of the expansion of the city was, and still is, occurring along the roads Maputo-Nacala, which divide the city practically in two parts followed by the road Corona-Lichinga and City centre to Mapine where the dam for a drinking water reservoir is located. The shape of the expansion along the transportation axis and their influence can be seen in many of the maps prepared for this research, such as urban evolution map, transportation map, formal and informal areas map, and so on.

The longitudinal spatial structure of Nampula can be explained in part by the construction and pavement of the export corridor linking Maputo and Nacala (see Figure 5). This road divides the city practically into two parts. The map shows very clear influence of key roads linking some main districts in the urban spatial structure of the city. According to the respondents, most of the growth of Nampula has occurred in the periphery of the city. The typology of this growth consists of informal single dwellings along or near the main axis roads linking the districts, as well as around important infrastructure such as Unilúrio, the beer factory and the dam built to supply the city with drinking water. Some interviewees pointed out that dispersed cluster of houses called *manchas urbanas* have appeared within the administrative area of the city. The reasons motivating people to form these dispersed areas require further investigation.

The maps and indexes that were analysed using the metrics of this research confirm the fast expansion process of the city in the study period of this research:

- The occupied or built area in 2015 was 5.3 times bigger than that in 1999. In 2015, it represented 30.52 per cent of built area in relation to the administrative area, while in 1999 it was only 5.7 per cent .
- The population density in 2015 was three times less than in 1999 [50.38 p/ha and 125.82 p/ha, respectively]. This decline of density, according to the literature, is an important characteristic of the presence of urban expansion with sprawl.
- The ratio of occupied to vacant urban floor (that is, built versus non-constructed areas) within the administrative boundaries of Nampula in 2015 has increased more than 43 times in relation to the same ration in 1999 (43 and 0.6 respectively).

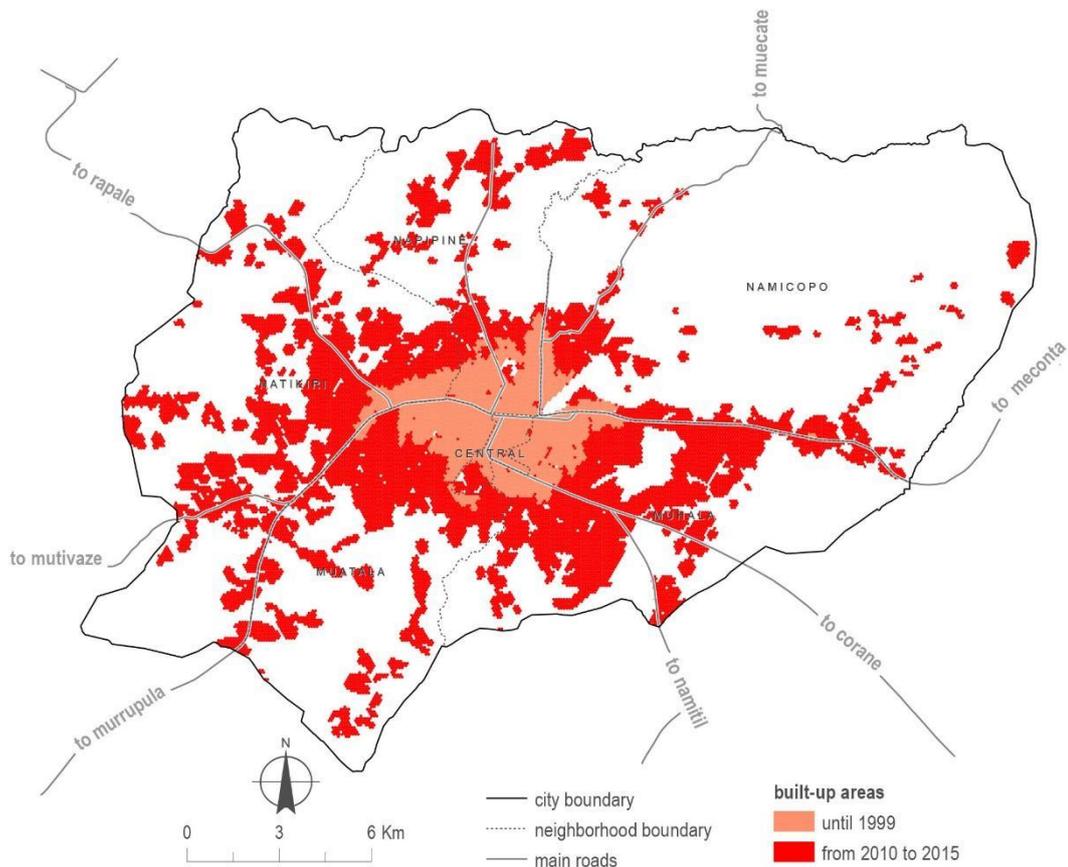
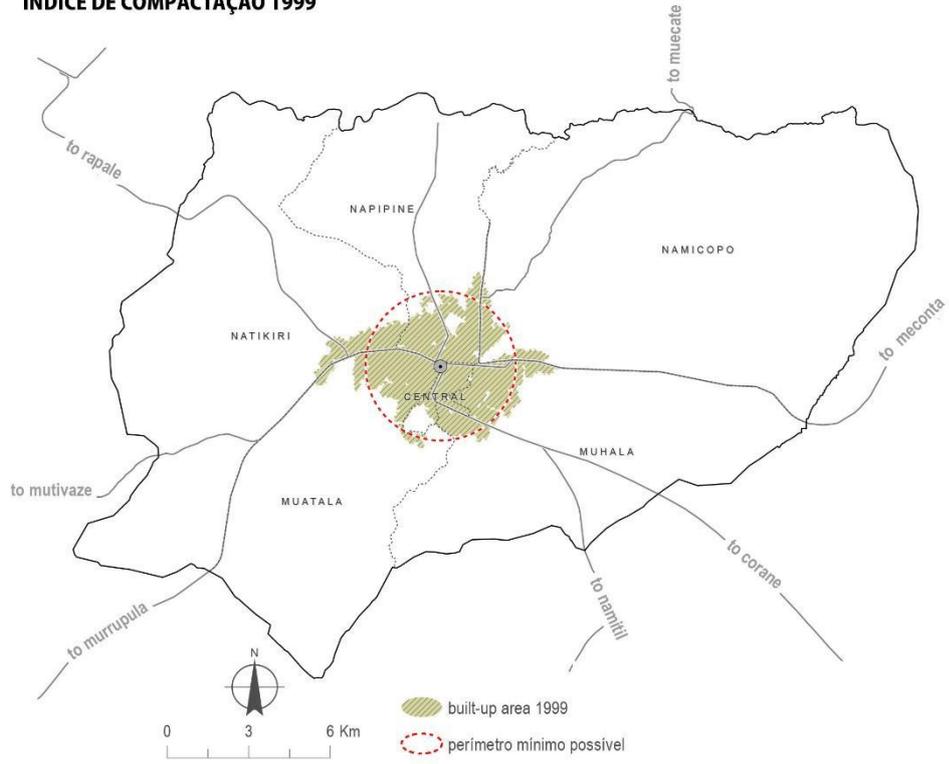


Figure 5: Contingency map of Nampula: urban occupied land until 1999 and 2015

- The percentage of urban area in relation to the administrative area was reduced from 90.01 per cent in 1999 to 76.65 per cent in 2015. Meanwhile the ratio of the semi-urban area to urban area has increased almost three times.
- The spatial urban structure is much more irregular in 2015 than it was in 1999. This result was measured by the calculation of the increase in compact index from 4.09 in 1999 to 14.68 in 2015. From this index, it can also be argued that the city is becoming less compact once its urban form became less circular. In the definition of this index a form with a circular radius accuracy (compactness index = 1.0) contains the maximum possible compactness. When irregularity increases in the form of a city measured by the index increase, it also may become less compact. This reasoning is supported by the results obtained with the density, which was reduced from 125 to 50 p/ha (see Figure 6).

ÍNDICE DE COMPACTAÇÃO 1999



ÍNDICE DE COMPACTAÇÃO 2015

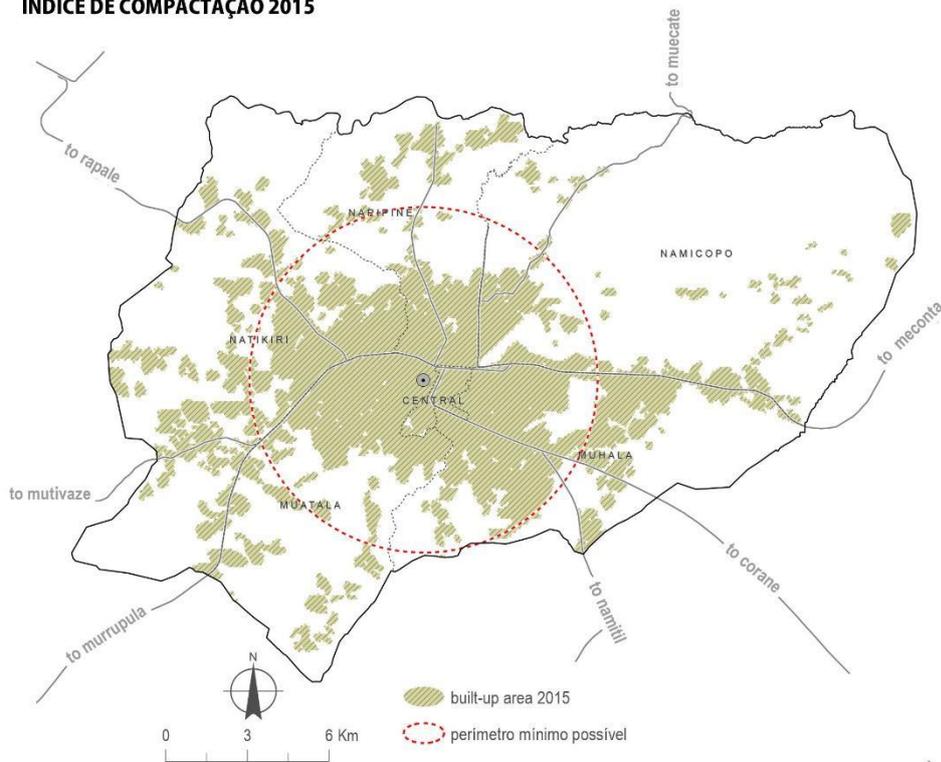


Figure 6: Maps showing the compactness of Nampula in 1999 and 2015

Calculating the Contiguity Index resulted in some interesting findings. This index measures whether the expansion is occurring preferentially contiguous to the city centre or whether it is dispersed and scattered. The results show that most of the expansion of the city that occurred between 1999 and 2015 was contiguous to the city centre (63.4 per cent), while 35.54 per cent occurred in dispersed areas, that is, not contiguously. There are several reasons for a preferential contiguous growth. It is noteworthy that Nampula has no significant sub-centres and remains monocentric in structure. This is further enhanced by the city core being at the crossroad of the two main routes: the railway and the national highway. These regionally and even nationally important connections in a city that mainly serve trade-related businesses and third-sector activities remain the principal drivers of growth. Moreover, principal roads are closer to the centre and inter-urban connectivity decreases in quality proportional to the closeness to the centre.

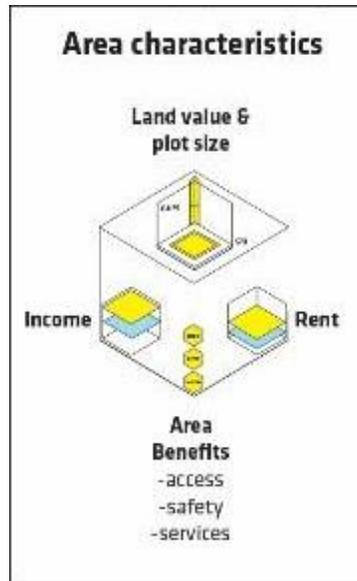
Access to basic services is also linked to the central areas (Conselho Municipal da Cidade de Nampula 2015b), as there are no facilities in the periphery. Lastly, the fringes of the city are lower and hence more vulnerable in terms of hydrogeological risks or erosion. In contrast to the other findings regarding density rates and unplanned sprawl, there is at least a potential tendency for a more centric and thus more compact development.

It can be concluded that fast expansion is occurring with the presence of key characteristics of sprawl and few elements of a compact city. The identified sprawl manifestations are declining density, irregular shape of the urban spatial structure in relation to a circular form, and huge informal settlements with the predominance of single dwellings.

5.5 Household survey findings

Some of the household findings will be presented as an overview of the data collected for each of the researched areas. Note that this information is only a sample of the most relevant questions included in the household questionnaire, and only the answers with the highest percentage will be presented.

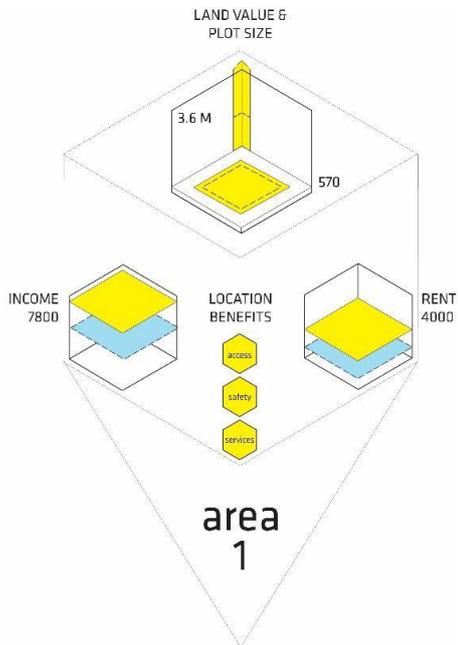
The diagram on the right indicates how to interpret the diagrams of each area. The blue squares (rent and income) and dashed lines (land value and plot size) are the average value of all the eight researched areas. For the area benefits, three main aspects were considered for this diagram: access, safety and service. If these aspects were pointed as main benefits they will be coloured in yellow.



5.5.1 Area 1



Figure 7: Area 1 - Nampula, 2016



Background Information	
Household head	Male (58%)
Respondent marital status	Single (46%)
Household head's provenance	Another city within the province (35%)
Main source of income of household	Fixed monthly income (55%)
Average monthly income of household	3,000 to 12,000 meticaís (60%)
Respondent education level	Finished high school (43%)

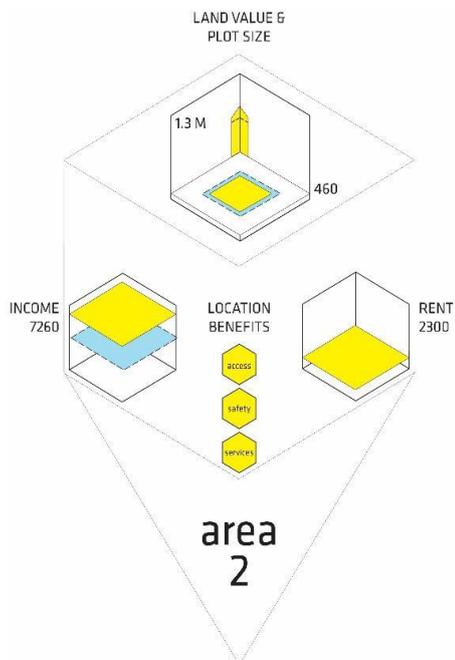
Location	
Have you lived in another location?	Outside Nampula (43%)
Reason to move to this location	Inheritance (28%)
Number years living in this location	More than 20 years (44%)
Do you prefer to live in another location?	Yes (58%)
Time spent commuting for daily activities	Between 15 min and 30 min (38%)
Access to public transport	Yes (88%)

Land and Housing	
Plot size	501 to 750 m ² (57%)
Land use	Residential (97%)
Number buildings/plot	2 (51%)
Owner or tenant	Owner (83%)
Land tenure	DUAT (67%)
Bought with or without house?	With house (48%)
Material walls of the house	Cement blocks (88%)
Water source	Individual supply/piped water (43%)
Taxes or fees paid	Waste and radio (81%)

5.5.2 Area 2



Figure 8: Area 2 - Nampula, 2016



Background Information	
Household head	Male (69%)
Respondent marital status	Married living with family (56%)
Household head's provenance	Another city within the province (50%)
Main source of income of household	Irregular income (52%)
Average monthly income of household	Less than 3,000 meticais (32%)
Respondent education level	Finished high school (40%)

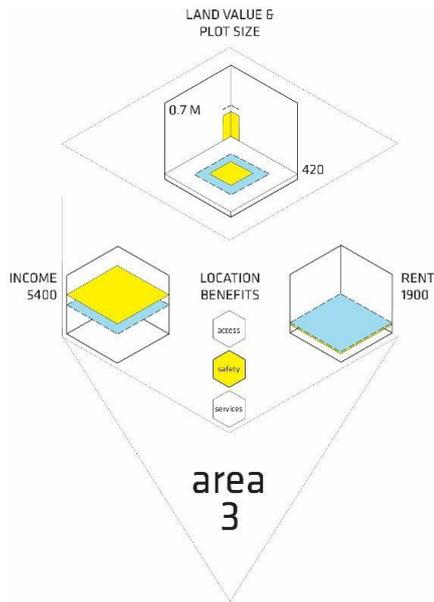
Location	
Have you lived in another location?	Outside Nampula (35%)
Reason to move to this location	Closer to job (34%)
Number years living in this location	Less than 1 year (21%) From 5-10 years (21%) More than 20 years (21%)
Do you prefer to live in another location?	No (67%)
Time spent commuting for daily activities	Between 15 min and 30 min (38%)
Access to public transport	Yes (96%)

Land and Housing	
Plot size	251 to 500 m ² (37%)
Land use	Residential (100%)
Number buildings/plot	2 (50%)
Owner or tenant	Owner (75%)
Land tenure	DUAT (54%)
Bought with or without house?	With house (59%)
Material walls of the house	Cement blocks (54%)
Water source	Through neighbours (38%)
Taxes or fees paid	Waste and radio (90%)

5.5.3 Area 3



Figure 9: Area 3 - Nampula, 2016

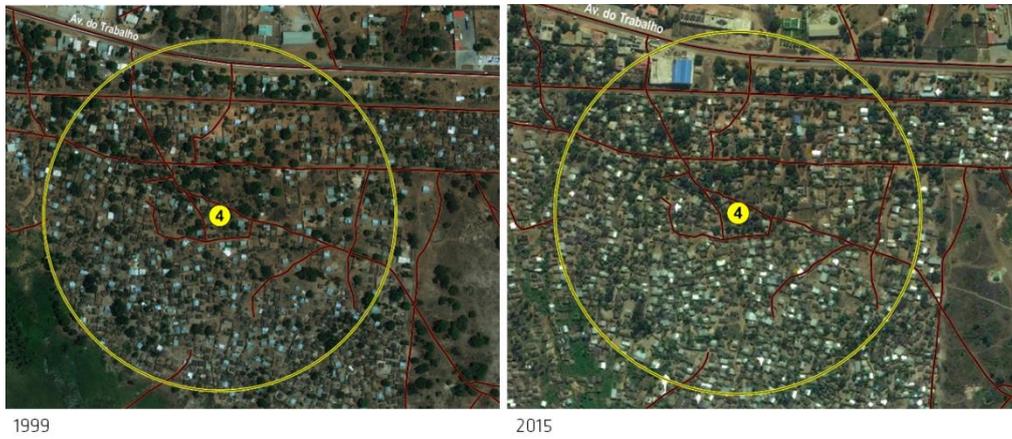


Background Information	
Household head	Male (67%)
Respondent marital status	Married living with family (56%)
Household head's provenance	Born in Nampula (52%)
Main source of income of household	Fixed monthly income (47%)
Average monthly income of household	Less than 3,000 meticais (54%)
Respondent education level	Finished secondary school (30%)

Location	
Have you lived in another location?	In a different area in Nampula (33%)
Reason to move to this location	Rent free (25%)
Number years living in this location	From 5-10 years (27%)
Do you prefer to live in another location?	No (52%)
Time spent commuting for daily activities	Between 15 min and 30 min (39%)
Access to public transport	No (73%)

Land and Housing	
Plot size	251 to 500 m ² (33%)
Land use	Residential (100%)
Number buildings/plot	1 (59%)
Owner or tenant	Owner (73%)
Land tenure	DUAT (39%)
Bought with or without house?	With house (31%) Without (31%)
Material walls of the house	Cement blocks (48%)
Water source	Collective supply/piped water (outside house) (27%)
Taxes or fees paid	Waste and radio (78%)

5.5.4 Area 4

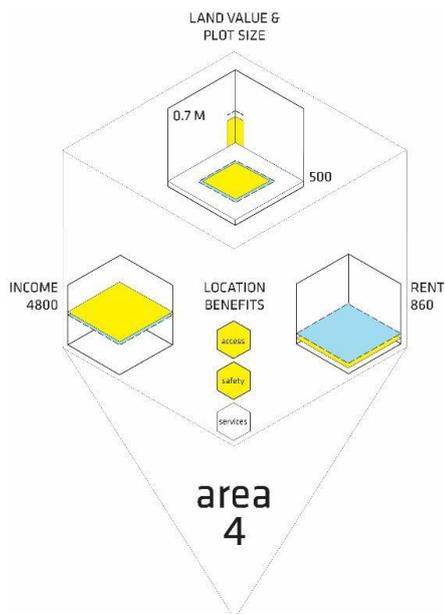


1999

2015



Figure 10: Area 4 -Nampula, 2016



Background Information	
Household head	Male (73%)
Respondent marital status	Married living with family (68%)
Household head's provenance	Another city within the province (54%)
Main source of income of household	Fixed monthly income (51%)
Average monthly income of household	3,000 to 6,000 meticaís (48%)
Respondent education level	Finished primary school (35%)

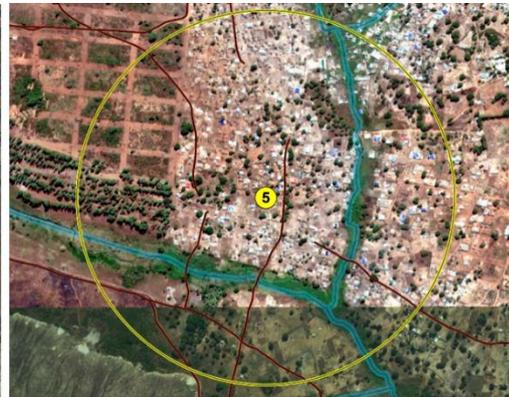
Location	
Have you lived in another location?	In a different area in Nampula (38%)
Reason to move to this location	Closer to job (12%)
Number years living in this location	From 5-10 years (29%)
Do you prefer to live in another location?	No (66%)
Time spent commuting for daily activities	Less than 15 min (36%) Between 15 min and 30 min (36%)
Access to public transport	Yes (72%)

Land and Housing	
Plot size	501 to 750 m ² (30%)
Land use	Residential (100%)
Number buildings/plot	1 (47%)
Owner or tenant	Owner (70%)
Land tenure	Declaration from Secretário do Bairro (38%)
Bought with or without house?	With house (42%)
Material walls of the house	Mud blocks (53%)
Water source	Access through neighbours (42%)
Taxes or fees paid	Waste and radio (74%)

5.5.5 Area 5



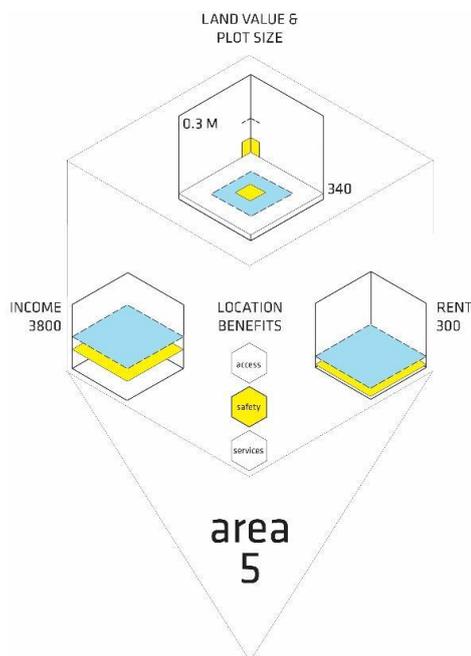
1999



2015



Figure 11: Area 5 - Nampula, 2016



Background Information	
Household head	Male (78%)
Respondent marital status	Married living with family (69%)
Household head's provenance	Another city within the province (52%)
Main source of income of household	Irregular income (small commerce; service provision) (68%)
Average monthly income of household	Less than 3,000 meticais (75%)
Respondent education level	Finished primary school (42%)

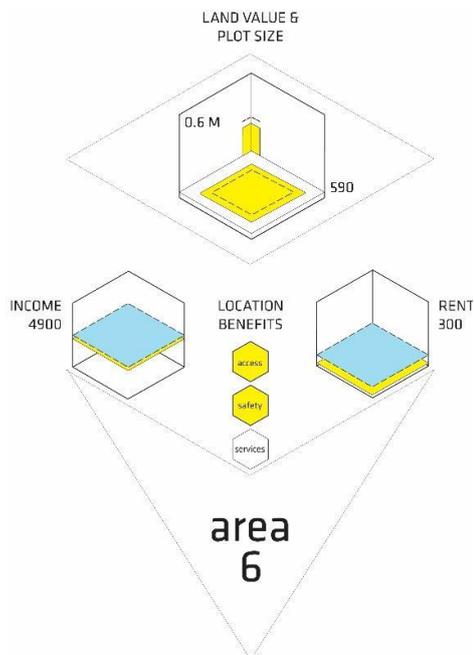
Location	
Have you lived in another location?	In a different area in Nampula (64%)
Reason to move to this location	Low price of housing (22%)
Number years living in this location	Less than 1 year (33%)
Do you prefer to live in another location?	Yes (66%)
Time spent commuting for daily activities	Between 31 min and 1 hour (31%)
Access to public transport	No (88%)

Land and Housing	
Plot size	Less than 250 m ² (49%)
Land use	Residential (98%)
Number buildings/plot	1 (90%)
Owner or tenant	Owner (80%)
Land tenure	Declaration from Secretário do Bairro (81%)
Bought with or without house?	Without house (81%)
Material walls of the house	Mud blocks (67%)
Water source	Access through neighbours (49%)
Taxes or fees paid	I don't pay any (57%)

5.5.6 Area 6



Figure 12: Area 6 - Nampula, 2016



Background Information	
Household head	Male (82%)
Respondent marital status	Married living with family (61%)
Household head's provenance	Another city within the province (48%)
Main source of income of household	Irregular income (small commerce; service provision) (52%)
Average monthly income of household	Less than 3,000 meticais (49%)
Respondent education level	Finished primary school (30%)

Location	
Have you lived in another location?	In a different area in Nampula (55%)
Reason to move to this location	Plot size (18%)
Number years living in this location	From 5 to 10 years (27%)
Do you prefer to live in another location?	Yes (91%)
Time spent commuting for daily activities	Less than 15 min (41%)
Access to public transport	No (88%)

Land and Housing	
Plot size	251 to 500 m2 (36%)
Land use	Residential (98%)
N. buildings/plot	1 (65%)
Owner or tenant	Owner (77%)
Land tenure	Declaration from Secretário do Bairro (76%)
Bought with or without house?	Without house (67%)
Material walls of the house	Mud blocks (67%)
Water source	Individual well (38%)
Taxes or fees paid	Waste and radio (52%)

5.5.7 Area 7

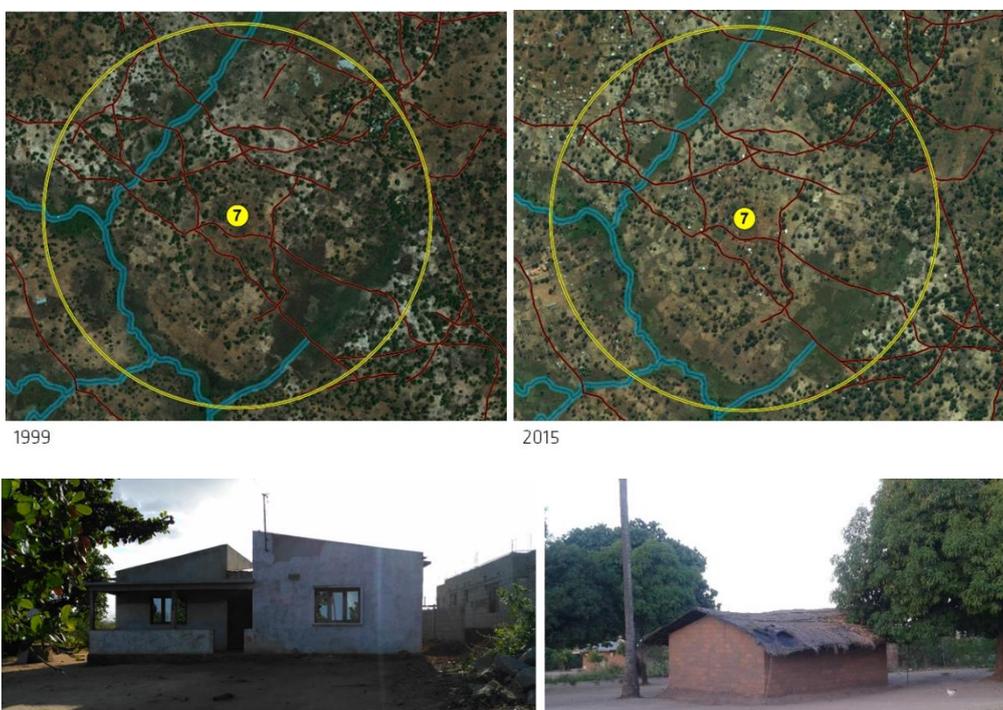
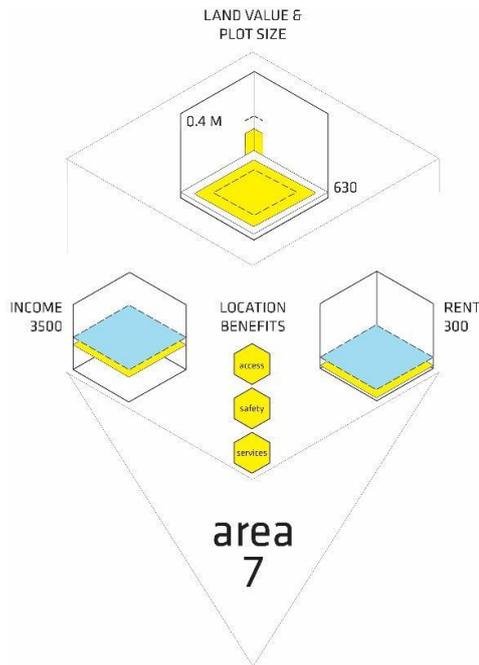


Figure 13: Area 7 -Nampula, 2016



Background Information	
Household head	Male (74%)
Respondent marital Status	Married living with family (66%)
Household head's provenance	Another city within the province (56%)
Main source of income of household	Irregular income (small commerce; service provision) (64%)
Average monthly income of household	Less than 3,000 meticaís (55%)
Respondent education level	Finished secondary school (29%) Finished high school (29%)

Location	
Have you lived in another location?	In a different area in Nampula (57%)
Reason to move to this location	Rent free (20%)
Number years living in this location	Less than 1 year (30%)
Do you prefer to live in another location?	Yes (60%)
Time spent commuting for daily activities	From 15 to 30 min (40%) From 30 min to 1 hour (40%)
Access to public transport	No (82%)

Land and Housing	
Plot size	251 to 500 m ² (22%)
Land use	Residential (98%)
Number buildings /plot	1 (78%)
Owner or tenant	Owner (70%)
Land tenure	Declaration from Secretário do Bairro (69%)
Bought with or without house?	Without house (79%)
Material walls of the house	Mud blocks (51%)
Water source	Access through neighbours (42%)
Taxes or fees paid	Waste and radio (55%)

5.5.8 Area 8

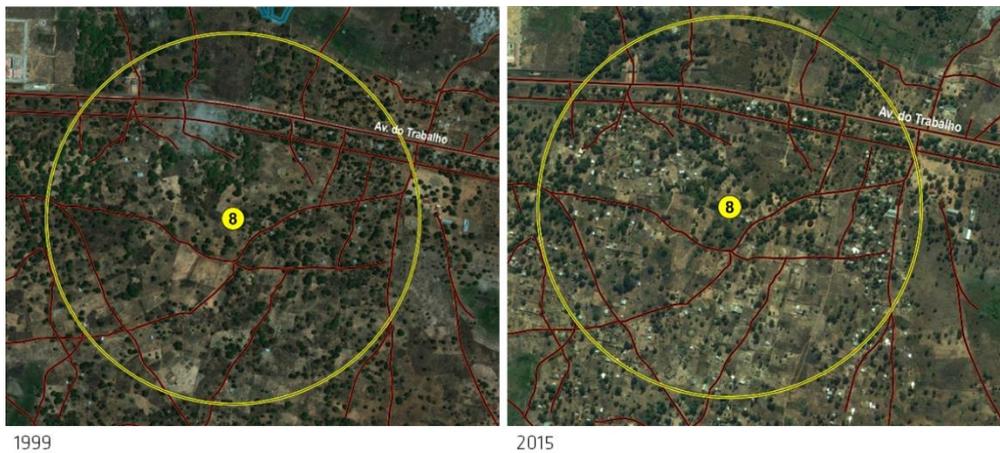
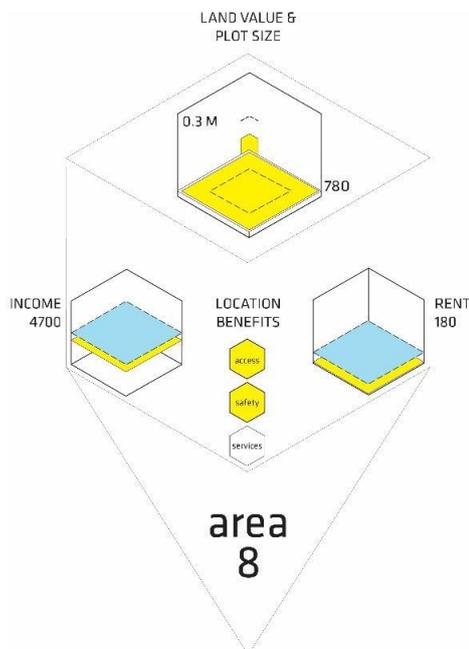


Figure 14: Area 8 - Nampula, 2016



Background Information	
Household head	Male (74%)
Respondent marital status	Married living with family (76%)
Household head's provenance	Another city within the province (61%)
Main source of income of household	Irregular income (small commerce; service provision) (52%)
Average monthly income of household	Less than 3,000 meticaís (50%)
Respondent education level	Finished primary school (40%)

Location		Land and Housing	
Have you lived in another location?	In a different area in Nampula (44%)	Plot size	501 to 750 m2 (39%)
Reason to move to this location	Plot size (19%)	Land use	Residential (100%)
Number years living in this location	From 3 to 4 years (33%)	Number buildings/plot	1 (58%)
Do you prefer to live in another location?	Yes (64%)	Owner or tenant	Owner (81%)
Time spent commuting for daily activities	Less than 15 min (42%)	Land tenure	Declaration from Secretário do Bairro (41%)
Access to public transport	Yes (85%)	Bought with or without house?	Without house (75%)
		Material walls of the house	Mud blocks (53%)
		Water source	Access through neighbours (36%)
		Taxes or fees paid	Waste and radio (55%)

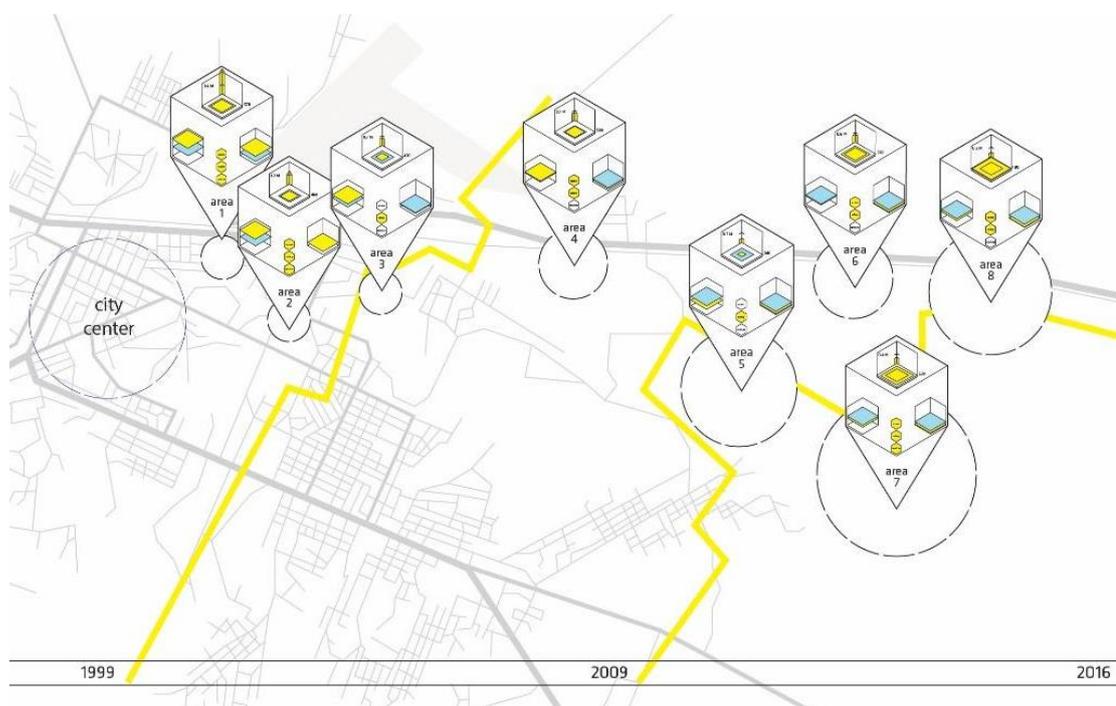


Figure 15: Map of all selected areas for the household survey

6 Main findings: How actors influence the urban structure

The main findings of this research have been divided into three sections, in which actions and their impacts are analysed alongside main stakeholders in the production of the city: the public sector or state and the private sector. The latter is subdivided into the supply side or the market and the demand side or the individuals. The report argues that all three actors influence the morphology in their own way: local governments' actions are promoting expansion; the change from social to market-oriented land allocation is reducing housing affordability, bringing about gentrification and sprawl and negatively impacting women's vulnerability; while location preferences and individual attitudes are leading to both horizontal expansion of the city and an intensification of the use of urban floor (see Figure 16). These three main theses will be elaborated further.

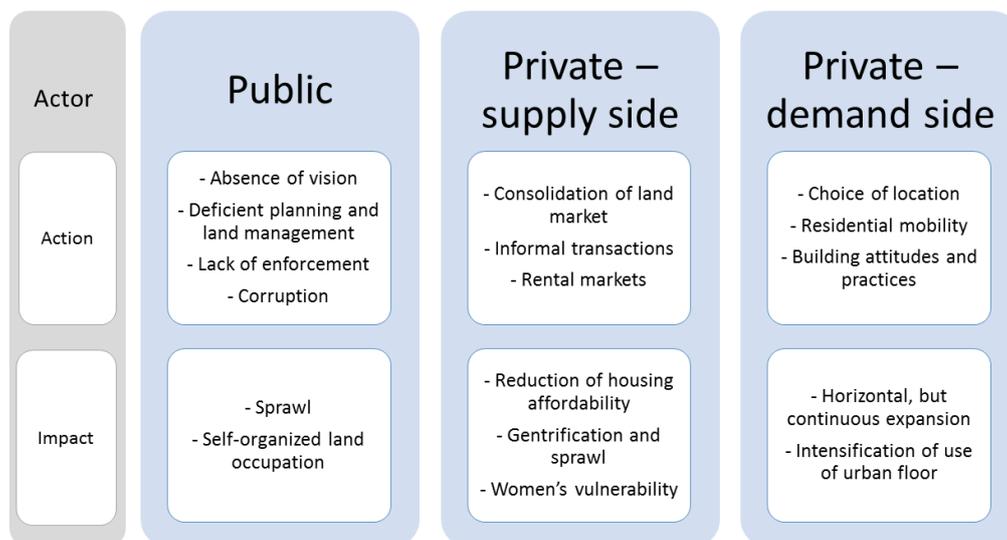


Figure 16: Schematic overview of main findings

6.1 The actions of local government are promoting expansion

Municipal governments play a central role in land management in urban areas – therefore their vision, practices and behaviours towards the production of the city

can greatly influence the city's shape. As observed during the research, the local government's general absence of a coherent spatial vision, practices regarding planning, land allocation and regularization, tax collection and enforcement (along with corrupt tendencies) generally favour the consumption of new land, resulting in a sprawling city. One can argue that the city's government is failing to deliver in each of the steps of the planning and management cycle, as shown in Figure 17. These arguments are further elaborated below.

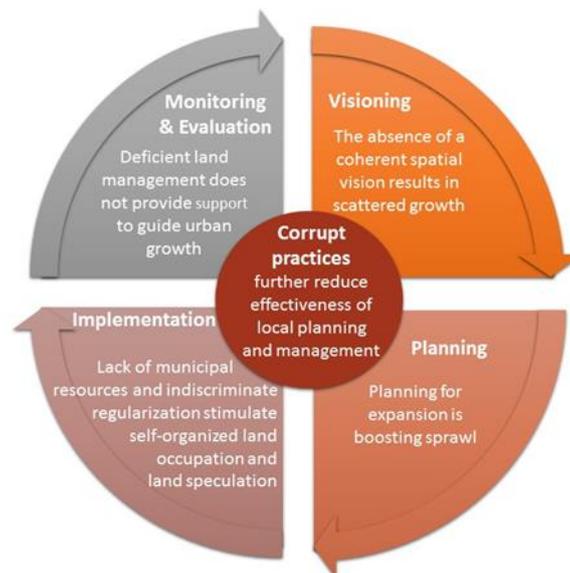


Figure 17: Schematic overview of how Nampula's local government practices within each step of the planning cycle contribute to expansion

6.1.1 The absence of a coherent spatial vision results in scattered growth

The municipality does not link together its spatial and socio-economic plans, which it prepares on a yearly basis. Certain spatial plans are stipulated in the spatial planning law: the urban structure plan (PEU), general urbanization plan (PGU), partial urbanization plan (PPU) and detailed plan (PP). Municipal governments are under a lot of pressure to develop their PEUs, but the municipalities that have complied with this requirement have often done so just to tick the box. There are instances where the municipality bore the high costs to prepare elaborate plans by consultants or by the ministry of environmental coordination. Such plans follow all the required steps,

yet they have ended up on a shelf and their contents sometimes not known even to the director of urban planning. Furthermore, even when such plans are prepared, their implementation costs are very high and they often remain unexecuted. This can partially be attributed to the lengthy process of developing spatial plans, which is often outpaced by reality. As one professor from UEM pointed out, people are not going to wait for a plan to build their houses (in interview, 1 April 2016). Once approved, these plans become administrative regulations; however, there is generally no strict observation of the implementation of the plans by the municipality, nor are there many organizations that hold the local governments accountable on this.

On the other hand, the five-year plan – *Plano Quinquenal* – is considered the basis for municipal planning. This plan is typically a detailed version of the Manifest (or *Manifesto*) of the winning candidate for mayor from the municipal elections. The five-year plan is converted into yearly ‘Socio-Economic Plans’ – *Plano Econômico-Social* (PES), which are divided into sectors along the departments that exist within the municipality and include activities, quantities, budget estimates and time frames. They are developed by different departments and usually coordinated by the department of planning and finance. The Municipal Assembly holds the municipality accountable for these plans and therefore the plans are closely monitored. Because of lacking resources, local governments often set priorities that focus on tangible developments, such as the construction of schools, medical centres, roads, and bridges –rather than, for instance, the development of requalification or expansion plans. Even though these investments are included in the socio-economic plans, they do not include any spatial component, nor are they linked to the spatial plans. Infrastructure planning is done rather as it happens, at locations where there is a perceived or an advocated need, rather than an assessed need.

Areas subject to change of use require a specific development plan whose approval depends on the municipal executive. Partial or general plans of urbanization generally focus on urban expansion areas or areas of informal occupation and do not address the change of land use. The most common change,

particularly in areas of expansion, is converting agricultural land into use for housing development, services and leisure – thus effectively turning rural land into urban land. The public-sector present in the municipalities mostly initiates requests for changes in the use of urban land and it does this without much vision or overall considerations, focusing instead on affordability or availability of large patches of land. Initiatives by private sector or community associations are most likely not reflected in these plans. As these conversions are done ‘on demand’ rather than following a certain vision, they are more likely to develop in places not contiguous to the existing spatial fabric.

Municipal boundaries were demarcated at the same time the municipalities were created. In a spirit, similar to Angel et al.’s (2011) ‘Making room for expansion’, municipal areas are generally extensive. Municipalities in Mozambique range between approximately 50 km² (for example, Gorongosa) to more than 630 km² (Beira), with most covering areas between 200 and 400 km² (derived from Ventura et al., 2013). All land within these boundaries is technically ‘urban’ and can be allocated by the municipal government if an approved urbanization plan exists for the area. According to some experts, the condition of an existing urbanization plan violates the Land Law, since DUATs should be automatically recognized for those occupying a plot for 10 years or more, regardless whether there is a plan for the area or not. Furthermore, in several municipalities, this condition is considered inapplicable since many large urban areas are not covered in the land-use plans, and the municipalities will approve regularization requests even in the absence of a plan. This, in combination with the absence of a vision, results in allocation of land in an uncoordinated, random way with occupying vacant land in the periphery, rather than (re)developing land in the centre. Overall, this leads to disjointed developments.

6.1.2 Lack of municipal resources stimulates self-organized land occupation

Implementation of any plan requires funds, whether the plan is for expansion, regularization, infrastructure or others. The financial sources for municipalities are defined in Law 1/2008 - *Regime financeiro, orçamental e patrimonial das autarquias*

locais e o Sistema Tributário Autárquico, such funds are partially transfers from the national government to the municipalities. They consist of the following:

- The Municipal Compensation Fund or *Fundo de Compensação Autárquico* - FCA, is complementary to the municipalities' sources of income. The amount per municipality is revised yearly, based on the number of inhabitants and the administrative area of the municipality (art. 43 and 44 of law 1/2008).
- Specific national budget allocations for investment projects - *Fundo Investimento de Iniciativa Autárquico* - FIIL, are additional funds available on an annual basis for investment projects for economic and social development (art. 47 and 48 of law 1/2008). However, in the current economic/political climate of large debts, following the recently surfaced information regarding the government's clandestine borrowing, unavailability of donor funding, and the rapid depreciation of the metical, the national government is struggling to pay its expenses. So far in 2016, no funds for investment projects have been distributed.
- National budget allocations for 'other investments' (art. 49 of law 1/2008) include the Street Fund - *Fundo de Estradas* and the Urban Poverty Reduction Programme - *Programa para a Redução da Pobreza Urbana* - PERPU. The latter is conceived as a revolving fund, managed by the municipalities, given as loans to citizens, payable in a specified timeframe. However, in practice, very few loans are ever repaid, since the general public views these funds as donations, rather than loans.

Furthermore, municipalities have their own sources of income, as follows (art. 17 of law 1/2008):

- Revenue from taxes and municipal fees that the municipality has the authority to collect
- A percentage of taxes collected at national level, as determined by the law
- Revenue from collection of special contributions
- Revenue from collection of fees for licenses provided by the municipality

- Revenue from collection of fees or charges resulting from the provision of services
- Revenue from fines collected by the municipality
- Income from legacies, donations and other monetary assistance
- Any other income established by law in favour of the municipalities.

In the accounting sheets, a separation is made between tax and non-tax revenues. Relevant for this research are the annual taxes of housing (*Imposto Predial Autárquica* – IPRA) and property transfer (*Imposto Autárquica de SISA*). Regarding non-tax revenues, a range of fees and licences related to different processes of land and property management exists: for property acquisition, regularization, division or joining of property, and transfer.

There is a large untapped potential of taxes to be collected: a 2012 discussion paper by Bernhard Weimer titled ‘Municipal Tax Base in Mozambique: High Potential – Low Degree of Utilisation’, shows results of a study conducted in six municipalities in Mozambique. According to this study, in 2010, as much as 99 per cent of potential regarding the housing tax was unrealized; this figure was at 95 per cent for property transfer tax; and 78 per cent for collecting the DUAT licence (Weimer 2012, p. 28). Although efforts are being undertaken in Nampula to update the land register to collect more IPRA, the municipal council acknowledges that current revenues from this tax are very limited.

The absence of a tax on vacant land, in combination with a lack of control on the maximum amount of time for developing acquired land, contributes to the slow development of infrastructure on individual plots, sometimes leaving the land vacant for extended periods. As there is no control on whether the land is used, there is no incentive to urgently develop it either. This leads to many people starting the process to request land without the intent, ability or the resources to develop it. The people hold on to the land until they are successful in finding financial means to start their building, or, in the absence thereof, sell it to prospective buyers. Some people use land for speculation by requesting access for the sole purpose of selling it at a higher price later. The presence of vacant plots and others with very slow pace

of construction results in those parties who are interested in accessing land having to acquire it at increasingly greater distances, leading to further expansion of the city.

With virtually no attempt for containment, since all land within the municipality is urban, the municipality with its tight budget faces difficulties in providing services to its total inhabited area. Situations may vary, but most of the time, only the most basic infrastructure is provided during the implementation of expansion plans. This might be as little as four corners of the city blocks indicated by cement blocks, or could include the opening of roads - the main access, depending on the financial capacity of the municipality. Almost invariably, basic infrastructure (such as water pipes, drainage and electricity) follow later, regularly with contributions from the residents. In this regard, there is no difference in access to basic services between the 'formal' areas of the municipal expansion zones and the 'informal' areas with no development plans. There is no incentive to request land through the formal process, apart from the DUAT title – which can be obtained only after a long, costly and tedious process, possibly involving corruption. Instead, people revert to occupying land informally at a location of their choice – not necessarily in a contiguous or high density manner.

6.1.3 Planning for expansion is boosting sprawl

Many municipal governments do not bother to develop the time-consuming overall or even partial plans, such as the PEU, PGU or PPU. They develop detailed plans, especially for the expansion areas. However, these detailed plans are generally very basic. They mostly consist of maps outlining the different plots and indicate state reserves for schools, clinics, markets or other services. Commonly, they are not georeferenced, with little regard for the geography-making adjustments during demarcation. They do not always have plot numbers or include building regulations or any other description. In many municipalities, the plans are still drawn and copied by hand, which leads to increased chances of mistakes. Examples of such maps are shown in the Figure 18.

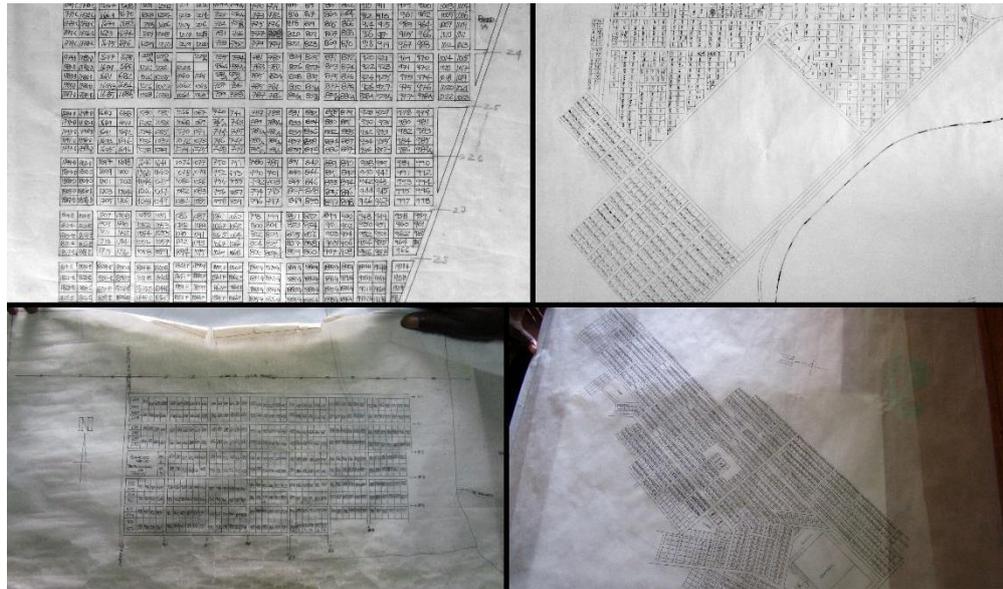


Figure 18: Typical expansion zone maps from the Municipality of Chimoio

As the example shows, the plots are usually designed in a rectangular grid, allocating the same size to all plots. Plot sizes tend to be large – much larger than what people usually occupy in the unplanned areas. Common sizes for the plots are 20 m by 30 m, 30 m by 30 m, or 20 m by 40 m. The municipal council surveyor of Nampula mentioned that plot sizes of 25 m by 25 m in expansion zones are in high demand (in interview 20 May 2016).

Chilundo (2009) identified sizes of between 280 m² and 900 m² in Maputo and explains the rationale behind this as follows: “These dimensions were established considering that most of the areas were not yet provided with basic infrastructure like water, public sanitation, electricity etc. and with the assumption that future residents had to build by their own wells and pit latrines. And, to allow that those two elements have enough separation to avoid water contamination, it was considered that the plots with that dimension were suitable.” (p. 48)

This is in contrast with average plot sizes in unplanned areas and even areas where regularization has taken place. Various such programmes have been carried out with the objective of upgrading informal settlement and improving land tenure security, mostly with donor funding. For example, in 2014, a massive regularization

process of DUATs started in Maputo and the process was combined with the conception of urbanization plans in different peri-urban neighbourhoods. UN-Habitat funded a 36-month, \$1.5 million pilot programme to improve land rights' registration in informal areas of Maputo, Manica and Nacala. Furthermore, UN-Habitat is implementing a programme called Participatory Slum Upgrading Programme in eight countries in Africa, also covering the municipality of Nampula. It is currently in its third phase and includes a component about land tenure security. Approaches vary, as does the degree of urban upgrading, but in general, the main precondition for granting land title usually is access. Often a minimum plot size is also required, but it is smaller in size than formal land development plots in the expansion zones. Therefore, even after regularization, these areas usually have higher building density than the expansion zones.

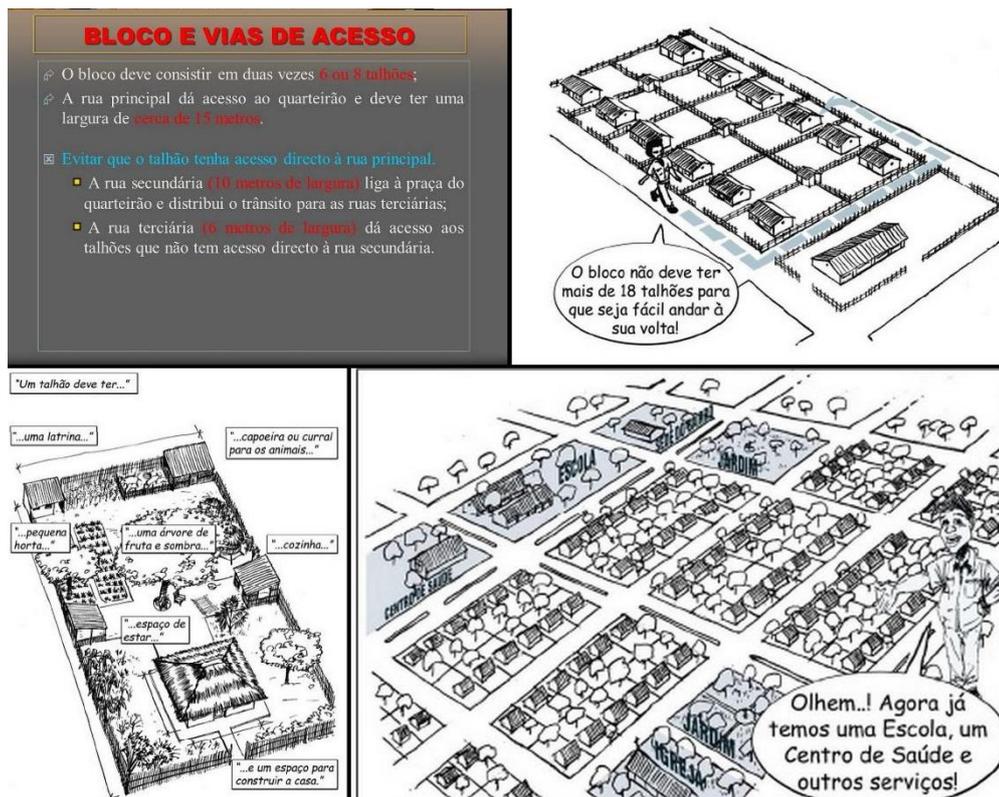


Figure 19: Examples of MICOA guidelines

Expansion zones are designed in this manner since that is how the former Ministry of Environmental Coordination [MICOA - now MITADER] is promoting it. Quite rigid guidelines are communicated regarding plot sizes, building regulations, number of plots per city block and so on. Figure 19 shows some examples. These guidelines also include detailed instructions on the amount of space for public services and the incorporation of state reserve areas to be developed into schools, hospitals, sports grounds and so on, but it is generally not reflected in the plans – which can be observed in the expansion plan example above. Moreover, since the municipal government’s default condition is one of resource scarcity, years can pass without any development of state reserves. A local leader admitted that in time, he might allow people to settle on the land allocated for public services in the meantime, as they lose faith that these areas will be developed as intended (in interview 24 March 2016). This approach results in monofunctional neighbourhoods void of any other formal land use – although with many small-scale economic activities taking place informally.

The formal steps for the development of the urban spatial plans as required in the law are numerous. The last steps officially required are frequently left out, such as ratification of the plan at ministry level and publication in the Official Bulletin '*Boletim da República*'. According to Lage (2015), less than 1 per cent of the spatial planning instruments have been ratified and published in the Official Bulletin. The process includes consultation with the community at various stages, with strict periods to be observed for responding to questions or complaints. While consultation and participation are highly valued, it turns development of the plans into a tedious process. Consultations are required with the local population: people who have already settled on the land, but also with the native population who claim the land through inheritance, even if they have not made any investments on the land yet. The municipal council then enters into negotiations with these people, regardless of whether they have any legal document or not, usually proposing two options: (i) they can stay and will receive a certain amount of plots; or (ii) they are compensated for their investments and agree to move. In the second option, two elements are interesting: compensation is not the same as indenization, as the latter

should follow on expropriation as determined in ministerial directive no. 181/2010. Probably being beyond the municipalities' financial means, the administration offers a compensation instead, which can be negotiated. On the other hand, as they recognize the right to land of the native population, they compensate them even for what can be interpreted as future investment plans. Therefore, the local population is allowed compensation even if they have not made any investments yet (in interview 20 May 2016). Although these practices make sense from a social perspective, they are not conducive to a compact city – in fact, they boost urban sprawl.

The more people are already settled in the area, the harder it becomes to develop the plan, and more negotiations are needed, therefore requiring even more time. To avoid this as much as possible, the government might look for areas that have fewer people already settled – thus further away, in the periphery. This can be observed in Nampula, with one of the expansion areas so far out that it is bordering the limits of the town (see Figure 21).

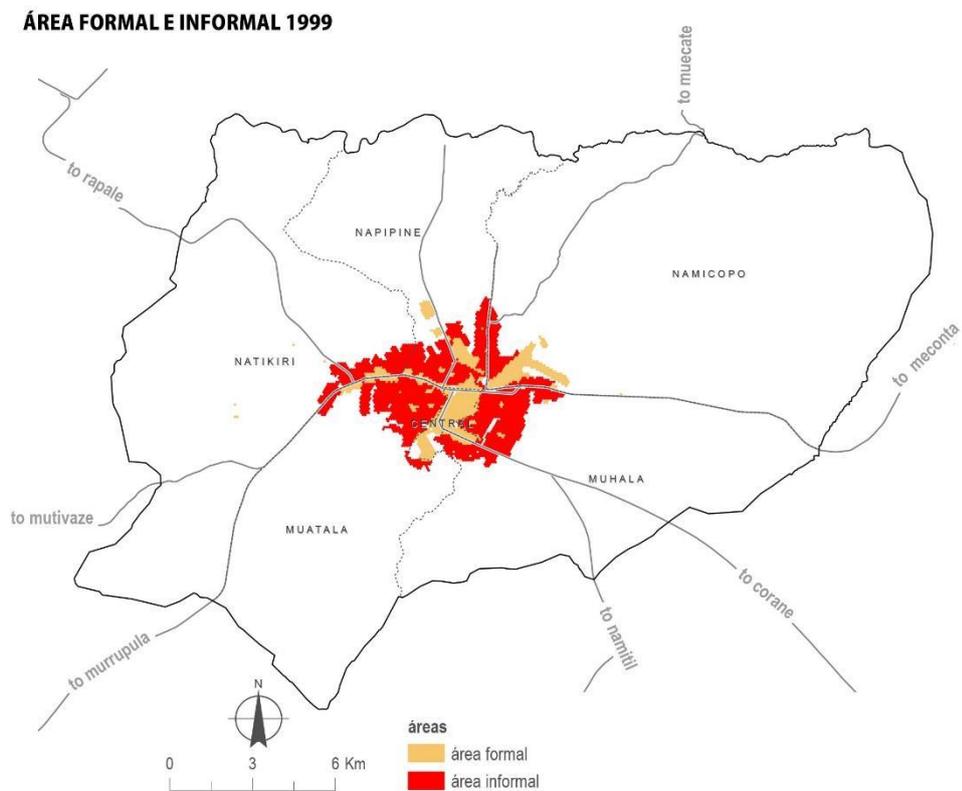


Figure 20: Map of formal and unformal areas in Nampula in 1999

ÁREA FORMAL E INFORMAL 2015

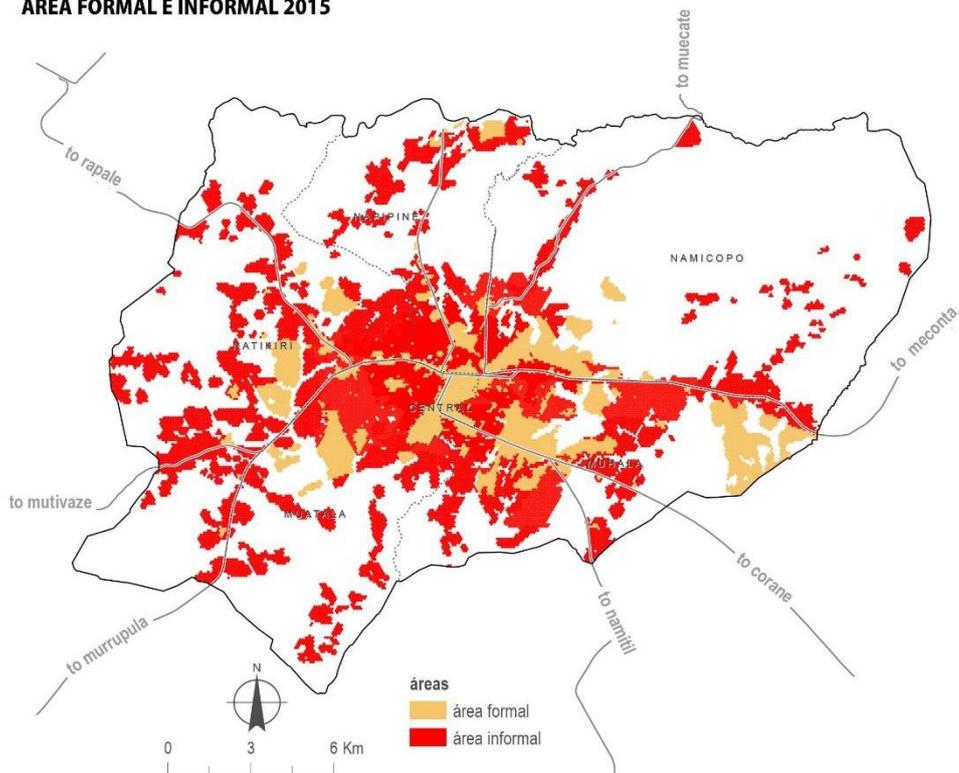


Figure 21: Map of formal and informal areas in Nampula in 2015

6.1.4 The deficient land administration system does not provide support to guide urban growth

The authority in terms of land management lies at central level within the DNT - *Direcção Nacional de Terras*, and at the decentralized local level through SPGC – *Serviços Provinciais de Geografia e Cadastro e Cadastros Municipais* and the municipal councils. At local level, there is a general lack of capacity to manage land registry and cadastre, whereas at central level there is no clarity to define overall strategies and norms, and to create and manage data. There is a lack of clarity regarding the specific competences of all the entities involved, especially when particular demands or claims come from the communities.

Knowledge management is often problematic as well. Knowledge and data are scattered over different entities and not updated. Plans made for land parcelling, for purposes of demarcating land and registering to whom it is attributed to, are

rarely updated to the actual situation after demarcation, even though significant differences might exist. This results in lack of transparency as the plans cannot be relied on for conflict resolution. Furthermore, especially when changing mandates, there is often an active strategy to make data disappear. A reason given to explain this phenomenon is resentment or fear that the next government will do better because of the previous government's work. To avoid this, the old government will take away or hide information. Another possible explanation is that there are inconsistencies, irregularities, discrepancies or errors that were made intentionally or unintentionally during the government's term that are preferred to be kept hidden.

For example, in 2007, Millennium Challenge Corporation (MCC) started a five-year programme estimated to cost \$506.9 million "to increase the country's economic growth and reduce poverty by investing in four project areas: agriculture; land tenure; roads and bridges; and water supply, sanitation and drainage" (MCC 2016). It included a \$39,068,307 fund for a Land Tenure Services Project that was active in both urban and rural areas, including the municipality of Nampula. All in all, the project, which terminated in 2013, claims to have mapped 188,423 urban parcels and delivered 144,522 parcels to urban beneficiaries. However, in Nampula, less than three years after the closing of the project, the software used for registering cadastral data is no longer in use. The lack of proper maintenance and updating could lead to losing these data.

There are currently eight expansion zones in Nampula, however, this is not nearly enough to cover the demand for access to land. Various interviewees confirm that there is an extensive backlog of applications that have been approved by the municipal council but have not yet been allocated a plot. Although the number of people awaiting allocation or the time between approval and allocation could not be confirmed, one indication of this wait is that currently plots are being granted to citizens that requested land during the previous legislative period, that is 2009-2014. The result of this long wait is that people will look for alternative ways of accessing land.

Furthermore, the processes of requesting access to land are very bureaucratic, requiring many steps between the handing in of the request and the final approval by the mayor. Municipal staff from eight municipalities in South and Central Mozambique supported by the German Development Cooperation (GIZ) mapped the way these processes should be running, identifying each time the request changed hands as a step in the process. Property acquisition – the longest process of all – involved four sub-processes: access to land, construction permit, inspection, and final DUAT title. Each sub-process has between 12 to 21 steps. Fees charged and licences covered within these processes can be set at municipal level. They are part of the municipal byelaws and are often fairly in-transparent to citizens. Again, the length of the process and costs involved can drive people to find other ways of occupying land.

6.1.5 Indiscriminate regularization practices and lack of enforcement are encouraging unplanned expansion

It is not surprising that many people do not await the lengthy formal process of getting a DUAT and instead occupy land informally. A Lage (2016) explains in the formal process the general steps are characterized as follows: (i) get a property right title; (ii) install basic infrastructure; (iii) construct a house; and (iv) move into the new property. The informal process often follows the steps in the exact opposite way: (i) occupy the land; (ii) construct the house; (iii) link to basic infrastructure; and (iv) with time request regularization of the plot.

In some of the so-called ‘uncontrolled’ zones of expansion, residents are making fragile, but steady, efforts to imitate formal order, achieve land rights and urban inclusion and they are increasingly doing this through inverse planning processes (Mazzolini 2016). Such imitating and superseding actions are increasing because of the rapid expansion of a wealthier class, with increased spending power used to achieve a place within the city or the main urban fringes – especially, those which have recently benefitted from important infrastructure projects (Mazzolini, 2014; 2016).

‘Inverse planning’ practices are defined here as embryonic, generally collective planning forms, proposed, undertaken and financed by the residents

themselves. They are carried out through the establishment of a direct agreement between the communities and architectural/planning firms for the topographical definition of the plots and the urban design for roads and public spaces. These actions are the result of a community need or a specific small group of householders to obtain the DUAT, since acquisition of a DUAT is strictly related to the inclusion of the required plots in a proper urbanization plan – *'plano de parcelamento'*, *'plano de reordenamento'* or *'plano de pormenor'*. Nielsen (2011) details three first actions of inverse planning and defines them as 'inverse governmentality'. These actions were carried out through a pursuance of personal perception of land, partly to face the risk of dislocation (Mazzolini, 2014).

Informally occupying land is facilitated by the municipal councils' practice of approving applications for plot regularization of all plots that have minimum accessibility, notwithstanding that the law only provides for regularization of plots in areas covered by an urban development plan. Few requests are turned down, so that requesting for regularization, instead of requesting a plot of land, has now become common practice. This is reflected in the number of applications received by the Municipal Council of Nampula during the month of January 2016: there were four applications for access to land, compared to 212 applications for regularization. According to the Municipal Council Surveyor (in interview 20 May 2016), men still form the majority of applicants, but the number of female applicants is increasing. This is reinforced by data published in the urban planning department's display outside the building: out of 310 applications that were approved, 97 (or one third) were granted to women (Nampula Municipal Council display, March 2016).

People will not wait for a plan to settle, but will informally organize access to land. "The land [in Nampula] already belongs to someone," a local leader explained (in interview, 24 April 2016). Whether with a formal title, a declaration from the local leader or through inheritance, individuals claim pieces of land for themselves. These are then sold informally to people who want to settle. These practices are likely to continue as the municipal council recognizes both the rights to land of the native population and the settlers, and approves requests for regularization, rather than expropriating people.

In Mozambique, expropriations are not considered, neither are they used as a fundamental tool within the planning process. Municipalities have shown willingness not to remove families from their original places of residence, especially during slum upgrading programmes. Reallocation actions are more common because of high flood risks faced by the country, leading to the resettlement of hundreds of families. Expropriation by the municipal council appears to be minimal, even though there is proof that expropriations are increasing in the country, as documented in local and international press, and in many cases compensation is not guaranteed to the affected population. For this reason, there is a high sense of security of tenure, even without a DUAT, as people feel they will not be expelled from their land once they have occupied it, and there is a high chance they will be granted a DUAT after requesting for regularization. The practice by the government to almost indiscriminately approve all regularization requests encourages the proliferation of informal land occupation.

The sense of tenure security is further increased because of an overall lack of enforcement regarding land occupation and use. If nobody checks whether one has a land title, why would anyone bother going through the process of getting it? There is more control on building permits, but even in this respect, there is insufficient capacity, both in numbers and in skills. The Director of Enforcement of Nampula Municipality (in interview 23 May 2016) mentioned that for each administrative post, which covers on average 105,000 people or about 21,000 houses, they have a team of only four inspectors, complemented by municipal police. These inspectors do not have a background in urban planning or architecture and will only control whether buildings under construction hold a permit, not where people are settling. This explains why space reserved for public facilities in expansion plans tends to get occupied over time.

Typically, only houses built with improved materials (for example, fired bricks or cement blocks for the walls) are subjected to a construction permit. Put another way, no construction permit is needed for the construction of the traditional mud houses, which according to the household survey data accounts for

about 50 per cent of the houses. In these cases, no control is exercised by the government over the property or its location at all.

When inspectors find a construction site where a building is being erected using improved materials but where the owner does not have a construction permit, they will go through various stages of sensitization and options for voluntary adjustments before an actual fine must be paid. Even so, few notices are given out. On a weekly basis, about five to ten notices are given out for the entire municipality of Nampula, which is a likely indicator of the diminutive enforcement that is being carried out.

6.1.6 Corrupt practices further reduce effectiveness of the official land management system

The local leadership plays an important role in land attribution. According to the *chefes de quarteirão* (the chief of the administrative post of Muhala), the chief maintains an updated list of all houses within their unit, but without a spatial representation (Ayuba, in interview, 24 March 2016). When someone is requesting access to land, all local levels provide a declaration that they know the person. This declaration is free at the lower levels, however costs 30 MT at the administrative post level – money that is handed to the municipal council. This declaration is often perceived as sufficient for land tenure security – 47 per cent of the household survey respondents mentioned the declaration as the document they had stating their legal tenure of land. Local leaders are consulted during the process of developing expansion plans and are often the main information source for the inspection teams that check the existence of a construction license.

Because of their key role in land attribution, malevolent leaders can abuse the system under different circumstances, and allegations of corruption have been made by various parties. Leaders can apparently be easily convinced to give out a declaration, even if they do not know the person. Furthermore, as they often organize the access to land in areas including, but not limited to the, informal settlements, they can organize a ‘good’ space against payment, even on the state reserve land; an example of this is mentioned in the section ‘Planning for expansion is boosting sprawl’.

Even though actual information is difficult to find, indications of widespread corruption are omnipresent, and not only in connection to the local leaders. The municipal inspectors checking construction licences, for example, are rotated to minimize corruption (in interview, 23 May 2016). Regular rotation of other staff, such as cadastral and finance officers, is also common in some municipalities, for example, Chimoio. As per the “2011 Daily Lives survey (Transparency International, 2011), 35.3 per cent of Mozambicans perceive public officials or civil servants to be extremely corrupt” (Martini 2012, p. 4).

6.2 Changing land: from social to market-oriented land allocation

6.2.1 Transformations of the urban land market

In sub-Saharan Africa, land is mainly held and controlled by various stakeholders that include government, developers, private owners, and a significant amount in the urban fringe is still held communally. Governments often view land as a public resource for them to plan, administer and allocate. In Mozambique, land management is based on the nationalization of all land, that is, buying and selling land is legally not possible, and only facilities on the plot and their improvements can be traded.

Despite the sale of land being prohibited, the most common form to access land is through the informal land markets, outside of the allocation of land, which is the formalized process of land provision within municipalities. Hence, the commercialization of customary land has created a complex land market system where different “levels of legality range from full illegality through complex matrices of levels of legality” (Jenkins, 2004, p. 221). Because the informal mechanisms are tolerated, socially legitimized, and formalized mostly by the local authorities, they cannot be considered illegal. Most of the residents obtain land via informal processes and later have a formalization in the document stating the right to use.

In the context of rapid urbanization, the increased demand for housing has stimulated the real estate market where land is becoming scarce and unaffordable not only in central areas, but also in the surrounding areas. Growth in demand

leading to monetary valuation has diminished the effectiveness of the customary systems to access the land (Jenkins, 2004). Even if the 'use value' still preponderates over the 'exchange value', the commoditization of land, housing, and the forms to access it has led to social segregation (Jenkins, 2004).

In the past two decades, researchers have studied the emergence of urban land markets and demonstrated that this is a thriving process, especially in Maputo. Lately, its intensification was reported in many cities in Mozambique, and its various facets investigated showing how the urban land markets operate and how the actors contribute to its maintenance.

This section intends to demonstrate how the informal land markets have become more active and complex in secondary cities, such as Nampula. The transformations of the informal land markets impact housing affordability and influence expansion and compactness of the city. Based on data from the household survey, this section presents some indicators of the informal housing market transformation. These indicators are identified as the following: increase in number of land transactions without infrastructure; significant internal housing mobility; valuation of land prices based on market factors; increase of the land prices; and emergence of new actors involved in the land transactions.

6.2.2 Access to land through the market

In accordance to the Land Law no. 19/97, there are four methods to access land in Mozambique: allocation of land by Estate via request and following a specific plan; allocation through customary systems; simple occupation after 10 years of 'good faith'; and the transference of infrastructure and buildings located on a plot, including the transmission of the land use rights.

Negrão (2011) identified that from the different land access modalities, the most common form is not through customary route or through good faith occupation. His research showed in the urban areas studied in Manica and Nacala that 62 per cent of the land was accessed via market, 13 per cent allocated by the state and the rest by customary systems and simple occupation. The same occurs in the city of Nampula where 55 per cent of people interviewed had access to land by

purchasing the property or land from another owner. From this number, 57 per cent said they had bought the plot without the house (see Figure 22). These numbers show an active informal land market in the city, functioning by acquiring the land itself and not the infrastructure and buildings located on a plot, as legally stated by the law.

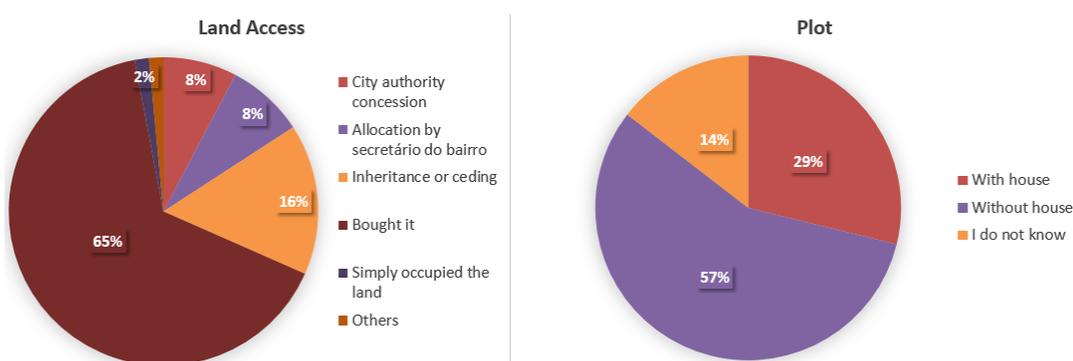


Figure 22: How survey respondents got access to the land and whether they bought the plot with or without the house

The land markets are very active in the peri-urban areas in Mozambican cities because of the high demand for available plots coming from immigrants from rural areas (Negrão 2011). In 2010, a detailed study was conducted of two settlements, with different characteristics, Luis Cabral and Hulene B., located in Maputo. The research of the demographics and living conditions demonstrated that most of the dwellers previously lived in other wards. Movement to these wards was strongly motivated by the civil war and the escalation thereof (from 1991 – 2010), great floods and deterioration of living conditions in rural areas. (Raimundo and Raimundo, 2012).

Nonetheless, internal mobility might also be stimulating the land market in Mozambique. It was identified that 44 per cent of the household survey respondents have lived in different locations inside Nampula, and from this percentage, 56 per cent identified the reason for moving to the current place as location choices, such as proximity to work, price of housing and plot dimensions, rather than inheritance or family. From all the studied areas, ranging from more consolidated, to the ones

with recent occupation, 54 per cent of the dwellers have answered that they have been living in the same location for less than four years.

Another important aspect is the distinction between two types of land markets. According to Negrão (2011), the market for the rich occurs in urbanized areas through more formal rules, and for the poor, it happens in the peri-urban areas in a more informal way. The most significant characteristics of these two markets (besides the process of accessing the land and property) are the products offered and the prices established. If the way land can be accessed determines the location of people and economic and commercial activities (Bostic, R., 2009), the urban poor will have access to land in less suitable locations. Consequently, these peri-urban areas tend to grow radially often occupying land that is neither demarcated nor does it possess any infrastructure.

Although they stimulate sub-allotments and in-situ densification, the informal land markets mainly contribute to urban sprawl by enabling access to peripheral areas, but this will not provide a long-lasting solution. Even though there is a lot of vacant land in Nampula, the amount of available land is increasingly limited. As mentioned by the chief of *Muhala Posto Administrativo* in Nampula (2016, in interview): “The land already has owners.”

Malauene et al. (2005) presented the following characteristics of the land market in the peri-urban areas of Maputo and Matola, which could also represent the current market in other cities in Mozambique, such as Nampula and Nacala. The main aspects of the land market in the peri-urban areas are the following: (i) sale and purchase of land by non-official means other than through the municipality; (ii) transfer of the land use rights through sub-division of land and renting; (iii) increase in use of land for speculative purposes; (iv) lack of regulation in the market; and (v) high market dynamics in areas served with infrastructure. The monetary urban land market practices identified as buying and selling infrastructure and buying and selling land and the rental market will be discussed in the following sections.

6.2.3 Transacting patterns and intermediaries

6.2.3.1 Buying and selling in the land market

The systems of various land markets are highly interlinked and do not float free from power relations, where social structures play a significant role in the process of establishing transactions. The land markets function technically outside the regulatory and legal frameworks but are organized as local land management and regulatory systems. The social legitimacy and credibility is created by the involvement of a large variety of players, including families, neighbours, members of local authorities and state officials (Kihato and Royston 2013).

Generally, transactions in informal markets are transactions regarding mainly new land through subdivision. New land is generally supplied by owners holding the land through simple occupation, or through purchase, and the later made available to newcomers. Where holder or occupiers possess larger plots that are obtained through inheritance or with the assistance of neighbourhood leaders and municipal employees, these owners will subdivide or rent parts of their plots of peri-urban land where there is no formal plot demarcation (Negrão, 2011). As a result, consolidated areas are being densified and new settlements with low density established in the peripheral areas.

The informal subdivision of land and demarcation will result in a new spatial order with the involvement of traditional local authorities. In the process of property acquisition, local authorities use their contacts to sell plots. Their involvement in allocation of demarcated land – whether developed by the municipality, or through allocation of ‘available’ land in unplanned areas – usually involves a kind of payment for recognizing property transactions. Many times, the land sale of these plots leads to multiple allocations, resulting in land conflicts.

These traditional local authorities operate in non-official planning processes, which contribute to a commodification of land management (Andersen et al. 2015b). Recent research developed by Urban LandMark (2013) in the city of Tete identified that the local authorities have a higher participation in the land selling transactions that took place in the researched urban settlements than in all other

land or property transactions, such as transfers as a result of inheritance and rent negotiations.

The formalization of the informal land subdivisions is done mainly via a certificate issued by the *secretário de bairro*. Given the significant obstacles of the formal DUAT registration, this form of transaction has developed whereby the formal system is bypassed. Many households work with the certificate, as identified in the household survey conducted in Nampula, in which 47 per cent of the respondents possess this certificate as the legal tenure of the land, while 27 per cent the DUAT.

The issuance of the certificate takes place in coordination with the local authorities, consisting of the *chefe de quarteirão*, *chefe de bloco* and the *chefe de dez casas*. The information is collected in each of their registers and consolidated in the register of the *secretario de bairro* (Raimundo and Raimundo, 2012). Apart from the *declaração*, which is predominantly used, other forms of evidencing a property transaction are also used, such as a witnessed transaction registered with the local authority, names of new holders listed in register with local authority, and even oral testimony regarding transactions (Napier, Berrisford, et al., 2013). In all tenure types, the local neighbourhood leaders play a significant role in the allocation and management of land.

Recently, partnerships among the communities of central or peri-urban neighbourhoods in Maputo and private firms are reshaping the traditional way of land access (see the 'inverse planning' cases in Maputo). In Maputo, local leaders seem to constantly remain as key actors, even in brand new planning or parcelling contexts. In most of the cases, the local leaders keep regulating, as they have always done, the DUAT/property transactions among private actors. Nevertheless, within the new land title regularization framework, their participation mostly occurs after the DUAT emission. In this sense, their role is progressively shifting from the planning actions or parcelling to market actions or transactions after the parcelling.

In Mozambique, even elites and foreign investors do not necessarily follow all formal steps to acquire land rights during property transactions. Tax evasion is a common practice for DUATs acquisition, which can be easily done by reporting a

different – significantly lower – price to the tax authorities. The difference is paid in mutual consensus and real estate agents or *comissionistas* facilitate the transaction.

The commercialization of customary lands in the existing market triggered the arrival of real estate agents (Jenkins, 2004). The so called *comissionistas* act as brokers who facilitate land transactions among landholders, buyers or investors, and local authorities. These middlemen have a good knowledge of the available plots for sale and have a network of contacts with foreign and local investors. They intermediate the sale transactions with the support of the local authorities. According to a local agent in Nampula, the *comissionista* get a commission for each transaction based on an extra margin of the sale price, which can vary from 7 to 10 per cent. In Nampula, they work mainly in the urbanized areas of the city.

The complex setting of semi-formal markets and semi-functional allocation systems make negotiations among the different stakeholders necessary. These markets and systems are based on processes and developments that are similar to the settlements they produce – a mixture of formal and informal. Hence, they are classified as semi-formal, as they are neither strictly informal but also not formal.

It is important to observe that these acquisition processes in secondary cities do not significantly increase the vulnerability of poor communities but also do not diminish it. This scenario might change quickly, as the scarcity of land will encourage more speculation or vested interests will become more articulated.

The informal and semi-formal markets, as well as the formal allotments done by the local authorities, create a complex scenario that provides gains and opportunities for speculation and corruption, but at the same time manages to provide land to most people at the level they can afford it. There is evidence that eventually the dysfunctionalities within the housing and land sector, as described in this report, ensure important benefits for a number of stakeholders, including those with the power to change them. The benefits of these dysfunctionalities will be discussed in the last chapter.

6.2.3.2 Rental markets

In 1991, it was found that the political and economic development was not compatible with the maintenance of the state's monopoly in the urban rental sector. Accordingly, the tenancy law (*Lei do Inquilinato*) approved that, in addition to state institutions and state enterprises, individual and collective people may build properties for sale, lease or perform other activities related to property rights, if properly authorized.

According to Allen and Johnsen (2008), most urban households still own their house (78.6 per cent), while 12.7 per cent live in a rented home, including many higher income renters. Andersen et al. (2015b) point out that renting out properties has become a common practice in all planned and unplanned areas in Maputo. There, the percentage of households that rent is much higher than in other urban areas, covering 23 per cent of the population, while 68 per cent are home owners. As moving in and out of cities has become an inherent part of life for many, most people will need flexible accommodation in the city, which frequently is provided in the form of rental housing.

Currently, even households of the emerging middle class compete with the urban poor for spaces in informal settlements. An increasing trend in Maputo, among middle class and lower-middle class individuals, is to move away from the *Bairro Central*, rent a house in peri-central or peri-urban neighbourhoods in order to save money paying a lower rent and, at the same time, construct a new home farther from the centre. In this sense, the rent is used as a temporary solution to successively obtain the homeownership (Interview with UN-Habitat officer, October 2015; interview with Polana Caniço dweller, June 2016).

Restrictions in accessing mortgage finances to buy houses also contribute to the increase in the rental market. Banks will normally lend only to salaried individuals whose salary is paid through a bank account and repayments can be deducted monthly. People without salaries or a regular income normally cannot get any loan through commercial banks (Allen and Johnsen 2008). When assessing an application for a loan, most banks apply a ceiling of a 30 per cent household debt-service ratio, which greatly limits the potential to take bigger loans. Credits secured

by mortgage are not a common feature, which is linked to the problem that only the building can be mortgaged, but the land-use rights cannot. The absence of financial services affects the whole spectrum of housing investments. Housing estates that are currently constructed in Maputo are built with external investments in which the investor bears the whole risk. In general, credit markets are underdeveloped.

Outside of Maputo, the rental market is relatively small mainly because of the availability of free land in peripheral areas and the ease of land access procedures. The extent of rented properties is unknown; however, it is estimated that 10 per cent of housing units in urban areas are used for this purpose (UN-HABITAT, 2005). A similar proportion was also identified in the household survey conducted in Nampula, where 13 per cent of the respondents said to live in rented properties.

Landholders profit from the unregulated rental market because of the lack of legislation that regulates this category, no clear or established policy about rent, land, and housing, and no clear understanding about the actors allowed to rent land. This situation is particularly visible in Maputo but also in secondary cities, such as Beira, where some rental prices have risen by about 300 per cent in just five years (2008-2013). The rental market in secondary cities have increased in demand for real estate products and investments in the last years mainly because of high population growth and increasing purchasing power of the middle class and expatriates coming for the implementation of structural projects.

6.2.4 Implications of the land market

6.2.4.1 Reduction of housing affordability

According to Malauene et al. (2005), the price of the land and properties in the market on urban areas varies greatly depending on several aspects: plot size; demand; improvements on the land and buildings; accessibility, public facilities and basic infrastructure of the area; proximity to the city centre; and title or other document stating rights of transmission. This can be seen in Figure 23, in which plots located in central areas, next to public facilities, and where there is higher

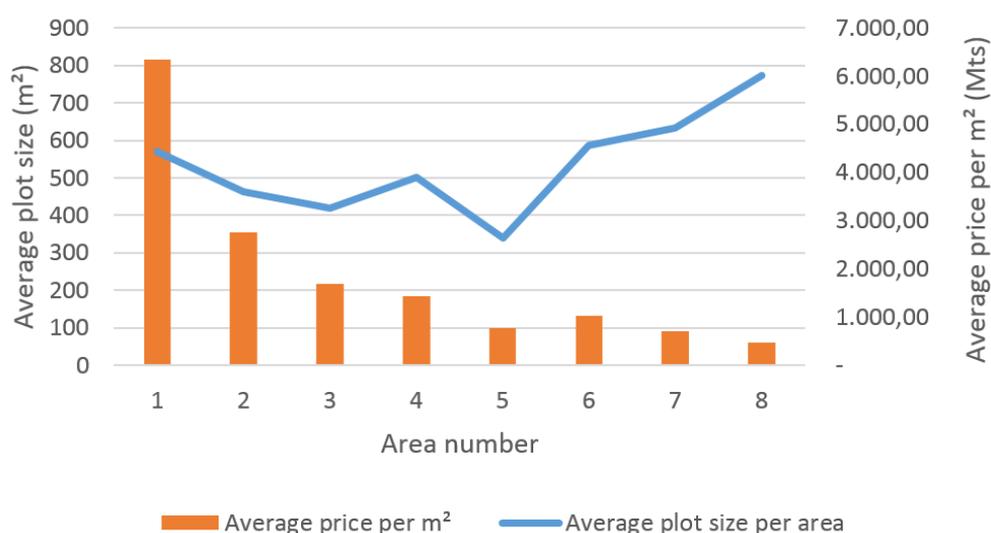


Figure 23: Comparison between average price per m² and average plot size per area

percentage of DUAT have the price per m², almost six times more than the ones located in the outskirts or the city (area 7 and 8), or in areas considered as informal settlement (area 5).

Additionally, land and property prices are influenced by a number of non-market factors. This is because the transactions are not established on a transparent basis because of lack of information, corruption in land sales and influence of social reciprocity networks in the establishment of prices (Negrão, 2011). The way that land is accessed also influences its valorization. Negrão (2011) identified that those who had the land allocated through inheritance or simple occupation attributed less value to the land than the ones who had the land allocated through the market.

Land and property costs tend to be lower in cities with disperse urban growth, where there is less pressure on the housing markets; however, this doesn't mean that prices are not rising. In the survey conducted in Nampula, when questioned about the price paid by the property and the estimated value nowadays, the households identified a significant valorization of the land. However, the value presented might not be the real paid, as there are extra payments involved for bribing or tax evasion.

From all the received answers, 61 per cent have paid up to 20,000 MT for the property. When asked about the estimated value of the property nowadays, 35 per cent of people stated that the minimum value was from 100,000 up to 5,000,000. This can be partially explained by the investments in the land, where 36 per cent answered to have spent from 10,000 up to 150,000 MT in improvements. However, 51 per cent declared there was an increase in land value because of the growth of demand in the market, while 35 per cent answered because of investments in the house or plot.

Another aspect that also interferes with the land valuation is the increase in land speculation. From the dwellers interviewed, 26 per cent answered that they own a second property, where 28 per cent keep the plot empty, 23 per cent rent out and 12 per cent use it for food production (*machamba*).

Since prices are not regulated and controlled with a top limit, the land value is very high. Also, different plots in the same location and with similar area have very different values. In an interview with a *comissionista* in Nampula, a small plot of 600m² in the city outskirts can cost from 35,000 up to 50,000 MT. In an expansion area, where the basic infrastructure exists, such as Muhala Expansão, a plot can cost 1 million MT.

In Nampula, properties are being rented out primarily in the central locations. The large demand for higher standard housing promoted a hyper appreciation of the real estate prices. There, it is possible to find high-level government officials renting out their official residences, which provides them with an income much higher than their salary. According to local real estate agents, the

average rent of a two-bedroom apartment or house in a well-located area of Nampula can cost 60,000 MT.

It is noteworthy that rent prices are steeply rising, even in informal settlements, because of the lack of more accessible offers, such as through a regulated rental market. The operating rental market in the peri-urban areas occurs after the land has been occupied for longer periods and results in the subdivision of plots. With the increases in the demand, the plot is shared with a family member or a friend, who might later buy the land (Negrão, 2011). Outside the city centre of Nampula, in all the research areas, 13 per cent of the respondents stated that they rent and spend around from 200 to 7,000 MT a month.

Land is still made available, despite several shortcomings. However, the unregulated form in which it is being traded has resulted in land becoming increasingly expensive. This continual increase of transaction through the market will exclude the poor, where the customary system decreases, resulting in a less just system (Negrão, 2011). Where the very poor are selling off their plots, possibly as a result of downgrading by the middle class and wealthy households, the so-called 'floating population' will increase and the poor will be pushed to the peripheries where they need to resort to the rental market or squatting (Centre for Affordable Housing Finance in Africa, 2015).

6.2.4.2 Gentrification and sprawl – social and spatial segregation

During the economic boom in recent years, some cities in Mozambique have been attracting international interest and investments. The new economic prospects also resulted in a growing urban middle class and an elevated housing demand, both in central and peripheral sites, giving rise to new housing typologies. A considerable part of these typologies are the so-called *condomínios horizontais*. These are built essentially with private investments, where the developer also installs and operates basic infrastructure and services. The quick spreading of these residential developments made necessary the creation of a specific regulation (*Decreto regime jurídico dos condomínios*) in 2013. While in other neighbouring countries, such as South Africa, this typology differentiates in quality, standards and affordability

options. In Mozambique, this typology is an option available solely for a very tiny elite⁸, even if the government promotes this kind of settlements as the best option for the rising middle class. Usually the private companies or small developers include in the residential project basic infrastructures, such as drainage, roads and water provision, because of the lack of public investment (Negrão, 2011).

Gated residential developments, principally investing in the cities of Maputo and Matola, are also the spatial output of two distinct factors: (i) the local government's will to promote international standards or visions on how the 'new housing' in the city should be, and (ii) the lack of technical, financial and, most of all, strategic will to develop other kinds of development.

There were around 30 complexes of 5–10 hectares in Maputo in 2012 (Heer 2015). The majority were in the Costa do Sol neighbourhood, and they were built through what the local authorities define as "an inevitable gentrification process" (Mazzolini, 2016) on land previously occupied by "precarious" dwellings or *caniço*. Gated residential developments are also appearing in Beira periphery, Nampula, with at least four developments, and in Nacala.

Gentrification in Mozambique is mostly carried out in the form of *condominios horizontais*, gated residential developments, or multi-story apartment buildings. Gentrification in Maputo's peripheries is studied through the processes of changes currently undergoing in some fringes between the 'formal' grid of the city and poor neighbourhoods in Maputo, with Costa do Sol and Polana Caniço as the main cases.

In Polana Caniço, poor residents have always been selling their plots to a wealthier class. From the 1980s to the beginning of the year 2000, this kind of process was carried out by a very small economically and politically elite group, but recently the gentrification process has developed in many different forms. Heer (2015, p. 4) notes:

"[in] officially illegal, but socially accepted land transactions, residents of Polana Caniço are currently selling their land to private real

⁸ In 2006 in Maputo, the monthly rents in gated communities ranged between \$1,800 and \$4,000.

estate investors. These real estate investors as well as municipal officials would like to transform Polana Caniço into a modern neighbourhood of international standards.”

Usually, the municipality feels obliged to foster these kind of private investments, which lead to gentrification of the neighbourhood, because of planning, technical and financial resources to promote a different kind of development. Nevertheless, some argue that these kinds of processes hugely benefit the planning officials in charge of the new plans.

In some cases, such as in Polana Caniço, a part of the poor population could benefit from a new apartment in exchange for the plot of land. Once achieved the DUAT, these dwellers remain in the same plot, claiming their right to ‘live in the city’ and to benefit from transport or urban amenities, (Mazzolini 2016).

A study demonstrated that in peri-urban areas of Boane practices of transforming the land use from subsistence agriculture to high-value residential plots has also led to gentrification. The peasantry is replaced by urban elites through allocation of large plots to construct luxury condominiums. The unregulated informal market, with the support of local authorities, has taken the land as the source of income, therefore making the local communities seek new forms of survival (presentation by Eleusio Viegas Filipe in the Urban Research Forum, Maputo 2016).

6.2.4.3 Individual land use titles – promoting the land market and impacts on women’s vulnerability

The regularization of land-use titles and housing property has been recently emphasized as the ‘unique’ solution to cope with urban expansion, but its impact cannot be the expected panacea, if proper urban plans are not tethered to them. On the contrary, the new ‘stricter’ planning approach could foster some patterns of ‘social polarization’, creating residential niches and excluding the urban poor, for many reasons, but essentially the following: the poor have almost always felt secure about their plot, with or without a title. Surveys carried out during the last 20 years document that residents have a strong sense of security of tenure based on mainly

three conditions: long-term occupation, belonging to the same condition as the majority of urban dwellers, and possessing a document from a local authority stating their land rights (Andersen et. al 2015).

Nevertheless, as land enters the commodification logic, the low-income urban groups in informal areas in Maputo “are faced with quite an aggressive land market, which is beyond the scope of the traditions and livelihoods with which these landholders are aligned” (Andersen et. al 2015). Some cases monitored in Maputo (Mazzolini 2016) show how after receiving the DUAT the urban poor tend to sell it and move on, supposedly in another non-registered plot. In this sense, the monetary transaction allowed by the regularization has a very short-term positive impact on the urban poor.

In addition, the formalization of property rights can affect women’s security of land tenure, as many rely on customary land rights, especially in the north of the country. Usually, women gain access to land through the husband or men, both in case of customary rights and DUAT title. Not only do the men in the community generally control land rights (also in the case of collective rights), the control is exercised by a committee, which rarely includes a significant number of women. Expropriation of women after the loss of their husbands is still an embedded dynamic, both in rural and urban areas and no programmes or policies exist to face this kind of expropriation.

Such lack of empowerment of women in land rights has certainly to do with their literacy level, personal documentation and the access to proper information. A report of Care Economic Development Unit highlighted how urban women are also exposed to similar situation. Malauene et al. (2005) studied the phenomenon in Nampula and made an income-distinction about urban women. They highlighted how middle- and high-income women in urban areas, where the land market is consolidated and strong, are prone to register the land rights in their name. Regarding low income urban women, the same study found that many women had access to a title through many different ways, the main ways being the following: (i) the subdivision and allocation by the state after the floods of 2000; (ii) the

inheritance from parents or in-laws who had abandoned agriculture; (iii) through marriage; and (iv) through purchase.

Securing the land through the title, especially in a context of growing land pressure, might not be the solution for women inclusion. One concern is that the process has a cost and women may not have disposable money. Another concern is that even in urban areas, the transactions and the disputes are managed by local authority leaders who continue acting through the traditional basis.

Moreover, tribunals and community courts do not follow any logic that could protect women's property rights⁹. Food and Agriculture Organization of the United Nations (FAO) is involved in protecting women in case of land disputes and natural resources disputes, training women on how to defend themselves in a tribunal or in front of a court. In Nampula, the Association of Women Legal Professionals is giving assistance in solving cases and training people in the communities about how to claim their legal rights. Of the 450 cases managed by the association in 2006, a great part had to do with expropriation of women by the husband's family. Expropriation does not only mean that the land right passes to the husband's family, but also that the goods, home and movables are taken. This occurs both in case of formal and informal marriage, and formal or informal agreements between the spouses with cases where the families of the husband reject even written wills. AIDS widows are particularly susceptible of this kind of expropriation, often being accused of witchcraft (Care Economic Development Unit 2011).

Many women do not feel that they are the owner of the plot, even in the case of prolonged occupation or if they become widows. Tradition has always led them to make reference to a male person as the owner of the plot. In many cases, de facto, male children are considered to be the real owner of the plot – *criança chefe da família* (Care Economic Development Unit 2011). The current increase of land values in peri-urban and rural areas are increasingly intensifying the pressure and competition on land and this is eroding even more the situations that could somehow protect women's rights, for example, the Community DUAT. From a

⁹ Nevertheless, Care's research points out how women are likely to achieve better results in Tribunals, when they have the possibility to recur to them.

deeper gender perspective, it is worth overhauling the land title regularization approach as the panacea for urban inclusion.

6.3 Location preferences and individual attitudes

Population growth through natural increase and migration is one of the main triggers for urban growth. Beyond actions of the government and market forces, the choices that individuals make regarding where they prefer to settle are a determinant of the spatial shape, direction and extent of urban growth. In the absence of a master-plan based, intentional approach for the making of cities, the debate on the compact city versus a planned expansion (or in its processual version of densification and allotment for new urbanization) is essentially a question of location choices. People choose where to live based on an intricate balancing of their options, priorities and constraints. In itself, this will always be a trade-off: will a family decide to live closer to their family or to the children's school? Will they pick a larger plot in the suburbs, where distances to work will be longer and costlier, or stay in a cramped place in the city centre where rents are high? In the words of Eliasson (2010, p. 138):

“A household's decisions of residential location, workplace, activities and travel pattern are an inextricably entangled weave of mutual interdependencies and constraints. Each of these choices is connected to all the others, and each one consists of not one single choice but a range of options, all depending on each other and with varying degrees of similarity and substitutability. Moreover, the choices are subject to a multitude of constraints, such as budget constraints on long and short term, time constraints and various scheduling constraints.”

This quote shows that location choices are not static but, as Lawton et al. (2012) argue, depend on family's position in the life-cycle – their needs for space and residential preferences changing according to the household situation at certain moments in time. Moreover, residential preferences are influenced by culture, values and behaviour that differ across regions.

These choices and their impacts are related to the processes of which they are part. In general terms, the choice for location can be steered directly by (i) policies, planning and other regulatory frameworks that permit, promote or forbid certain uses or densities, and (ii) the opportunities to access land that are mainly determined by the offers from real estate markets that act within or outside these frameworks. These have been discussed in the section 'The Actions of Local Government are promoting expansion'. Affordability and how it is influenced by the commodification of the land market has been discussed in the section 'Changing land: from social to market-oriented land allocation'.

Other actions by individuals can influence urban growth. Residential mobility – or whether people choose to live in one place for a longer or shorter time – and the housing stock are mutually dependent (Clark 2012). Clark argues that mobility is “the core process which keeps the housing market working” (p. 66). He continues, “Mobility has always reflected new housing construction as it is the creation of vacancies which fuels change in urban areas and it is this change which is at the heart of understanding how mobility interacts with the wider processes of urban structural change” (p.66). It is, therefore, important to assess how inclined people are to move location. Do they move readily and often? Or do they prefer to stay at one location? Do they like their location, feel safe, feel at home where they are or would they rather live elsewhere?

Lastly, since self-help housing is the main mode of access to housing in Mozambique, individuals' attitudes and practices towards housing construction and priorities in spending influence the pace of consumption of space not only at individual but also at city level. Choice of location, residential mobility and building practices will be studied in further detail below.

6.3.1 Choice of location

It is important to realize that urban growth in Mozambique is mainly happening through a growing urban population that has very limited economic means, which forces them to strictly follow opportunities, instead of intentionally influencing the scenarios they create. Significant in both numbers and consequent impact, the main

builders of urban areas in Mozambique are the poor. Invariably, their first criterion will be affordability. This is exacerbated because most people have no access to loans, which is not only because of their low incomes, but also the lack of financial products available. This relates to the reduced readiness of banks to assume risks, grounded in an ill-fated economic development that did not bring productive benefits to the local level. The economic growth, which was stated at 6 to 7 per cent over the past years (World Bank 2016) was concentrated in few geographic areas and sectors and strongly export oriented. Although the corridor cities benefit from the recent investments to explore natural resources, there is little diversity and growth in the local economic sector, which vice-versa negatively affects the circulation of capital on the ground and reduces the potentials of the financial sector to provide better services.

The conditions for economic development remain generally unsatisfactory, also in terms of the provision of infrastructure and services, especially electricity and water. Consequently, there is very little value creation, and no productive development; for example, in a country that produces fruits in seasonal abundance, there is not a single canning plant. While labour markets only slowly diversify and the income average remains low, the private sector struggles with a lack of trained workforce. Moreover, linked to the severe limits to productivity within the country, construction materials are expensive, and engineers and architects are often brought in from abroad. This all contributes to a vicious circle where the local economy does not attract investment, which is also not generated by local economic growth, and where salaries and access to finance remain low and hence households cannot invest in their real property. Most households have only limited options to fulfil their specific requests or desires and compromise on location.

Still, within these limitations, there are usually options regarding the location to settle. These priorities that individuals consider when making a location choice influence whether a city grows in a more compact or spatially extended way. It is observed that the decision on where to settle is still overwhelmingly made by men. Twenty-one percent of female respondents say they were not involved in the decision at all (see Figure 24).

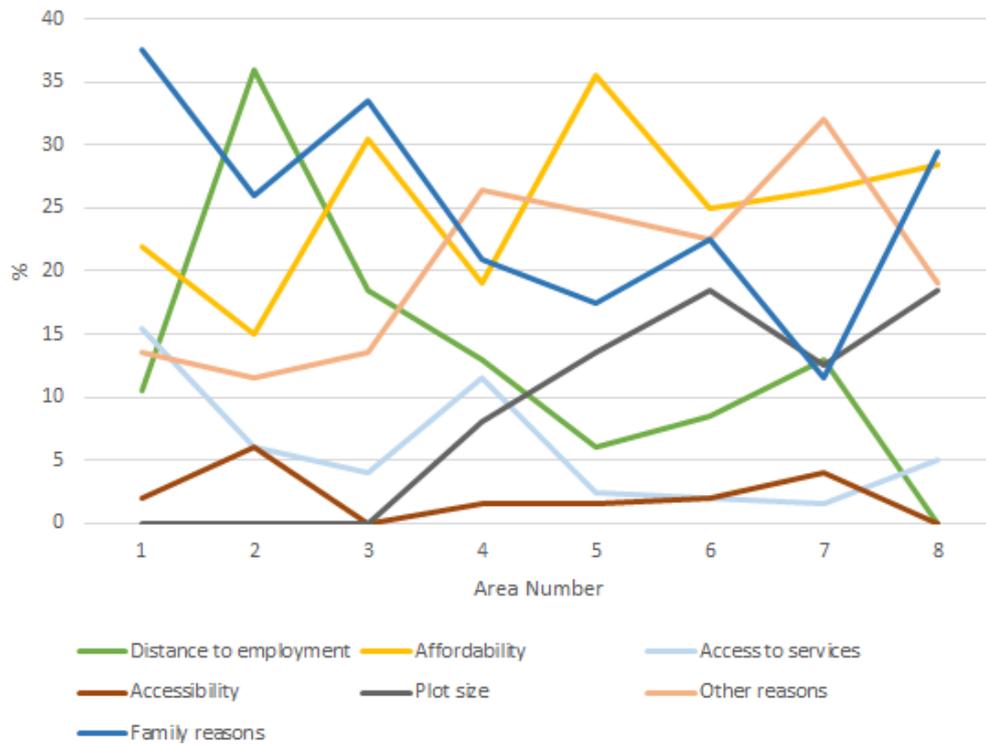


Figure 24: Reason to move to location

One important criterion for choosing a specific location is social networks. Since newcomers into the city will generally locate themselves with their relatives on family plots, this contributes to an urbanization pattern of increasing density as a result of incremental construction and housing development. In the graph above, in all areas of the household survey, family-related reasons were mentioned as one of the main reasons to move to an individual’s current location, which includes both the preference of being close to family or friends and inheritance. Social networks – having good neighbours or being close to family or friends – are also named as the most important benefits of the area, apart from areas 1 and 2 – the areas closest to the city centre, where the benefits of the location in relation to the city centre and accessibility prevail (see Figure 25).

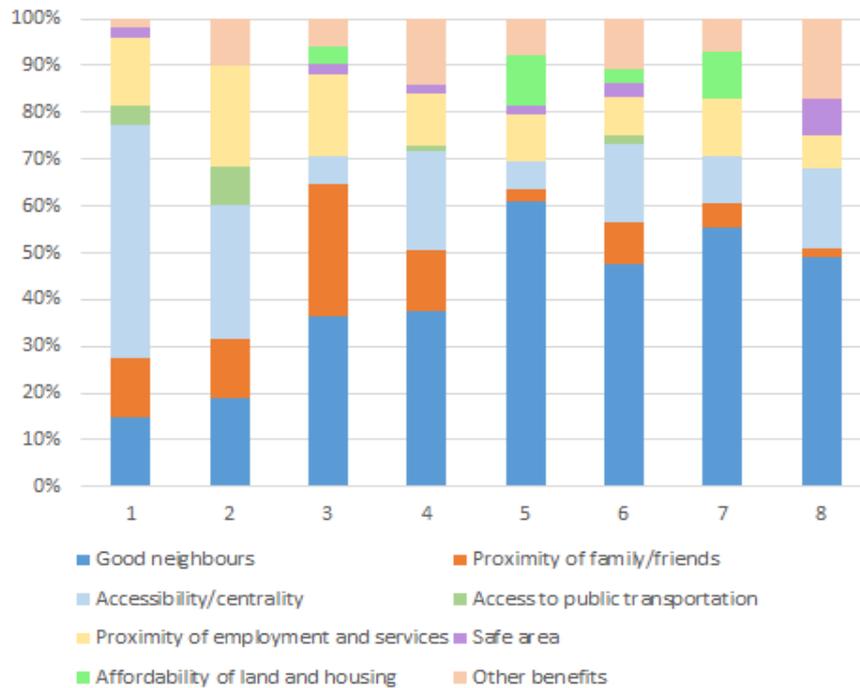


Figure 25: Household survey respondents' answer to the question: What do you consider the biggest benefits of your location?

In his article about modelling the influence of accessibility on the household's location decision, Eliasson (2010) describes that apart from monetary budget constraints, there are also time budget constraints, which determine people's choice of location. There is only so much time in a day and certain activities need to be carried out: work, school, homework, preparing food and eating, sleeping and so on. The distance between these activities and their residential location is important, but in addition, what counts is the connectivity between these places. This depends, among others, on the availability of transport infrastructure, the availability, cost and incidence of public transport, and the extent of congestion. While the latter is not yet a problem in Nampula, distances between residential areas in the periphery and job opportunities – mainly situated in the city centre – are considerable. The distance from the city centre to household survey research area 8 is about 9 km. Taking into account that only 11 per cent of survey respondents have a car, 18 per cent have a motorbike, 5 per cent have a bicycle, while 66 per cent do not have any of these means of transport, most respondents –

61 per cent resort to the *chapas*, minivans used for public transportation within cities, as their primary mode of transport. The results from the household survey show that especially respondents from areas 5 and 7 – the areas with limited accessibility – have much longer daily commuting times (see Figure 26).

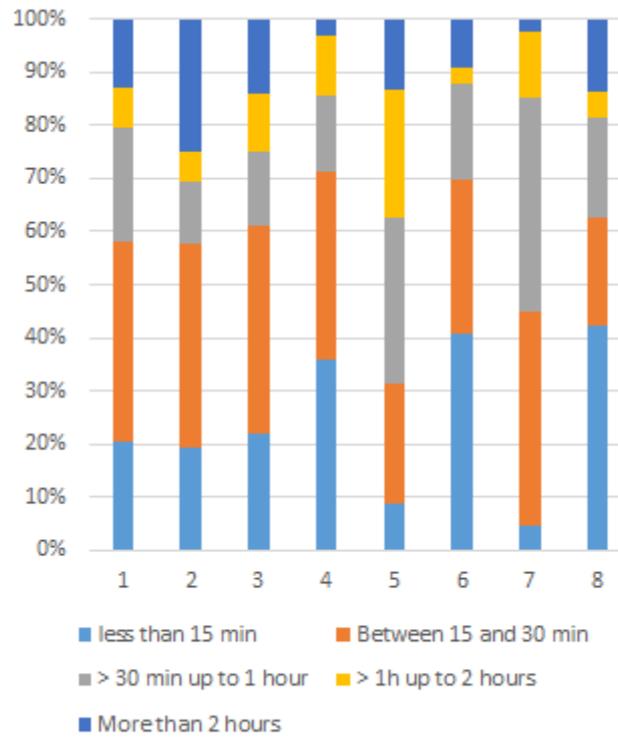


Figure 26: Daily commuting time

Infrastructure related to mobility, such as roads and railways, invariably attracts settlers, thereby shaping the urban growth. This can be clearly seen in the map of public and collective transport in Nampula (see Figure 27). Road infrastructure has shown to precede as well as follow urban expansion – people will settle as close as possible to existing infrastructure, while with time roads might eventually be constructed in those areas that were previously inaccessible. The availability of other basic infrastructure – such as water, electricity, sanitation, but also education, health, public administration and economic infrastructure – could also affect people’s decision on where to settle; however, as there are hardly any

sites where this infrastructure is available prior to the occupation of the area, it is less of a determinant in Mozambique.

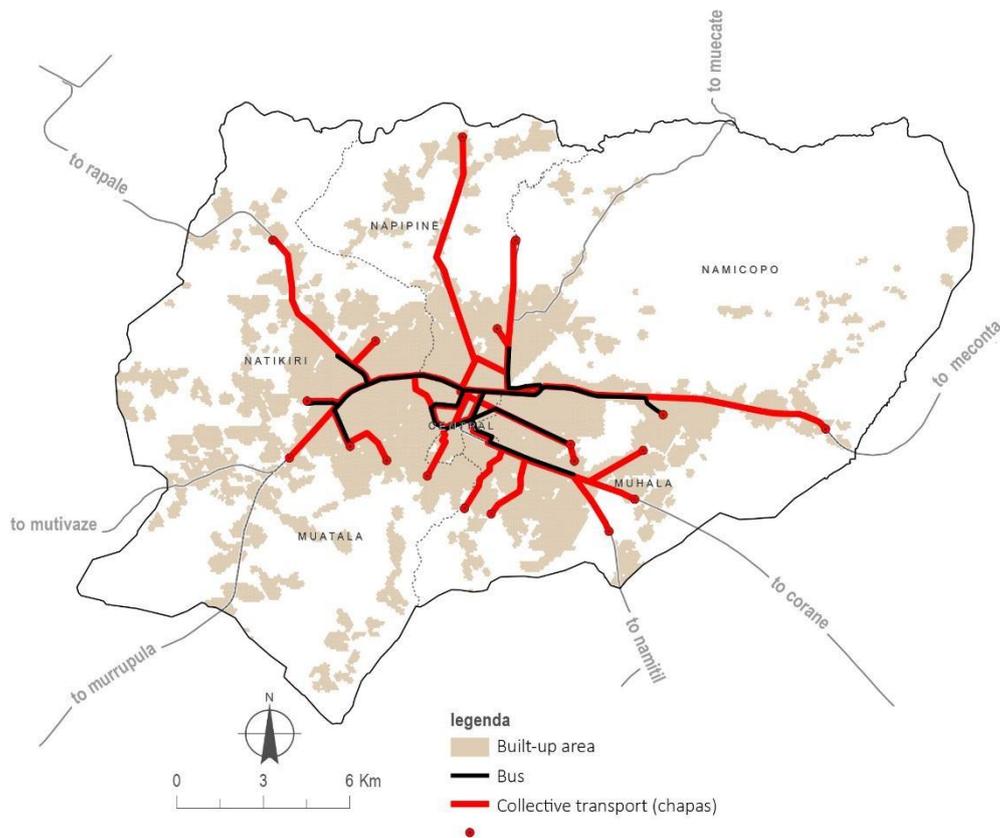


Figure 27: Map of public and collective transport in Nampula

Job opportunities in Mozambique are mainly situated in the city centres; therefore, connectivity to the city centre could be an important motivation for the choice of location, thus, promoting density. Exceptions are where large industrial activities attract large work forces to the outskirts, where they are located and thereby generally inducing expansion. Examples are the Mozal factory close to Matola, the mining activities around Moatize and the port area development in Nacala.

On the other hand, the advantage of having a larger plot size in areas further away from the city centre comes out quite explicitly in the household survey question on respondents' main reason to move to this location (see Figure 28). In fact, the average plot size does not increase in a linear way from area 1, closest to

the city centre, to area 8, but varies in correlation with the household income. Area 5, which has a significantly larger number of people earning less than 3,000 MT monthly, also has considerably smaller plot sizes. Areas 6, 7 and 8 then have larger plot sizes, whereas between these three areas, the average monthly income does not increase. The preference for bigger plot sizes obviously advances sprawl.

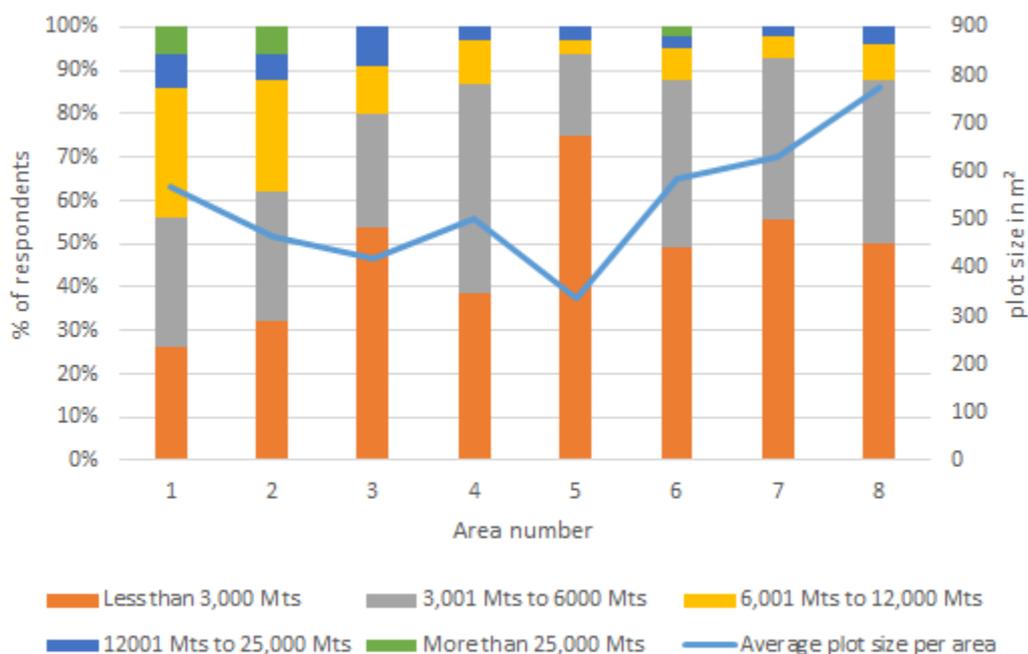


Figure 28: 'Plot size mentioned as main reason to move to location' and 'Average monthly income versus average plot size per area'

Lastly, perceptions of safety may influence compactness. The chief of the administrative post of Muhala in Nampula explained that a lot of people prefer the centre or at least the denser parts of the city because of safety reasons: since houses are closer to each other, there is more social control and cohesion, which increases the perception of safety (in interview, 24 March 2016).

6.3.2 Residential mobility

It is common for a city's population not to be steady – a certain number of people moving around. Statistics, however, do not cover circular migration, but only the in- and out-flux, indicating for Nampula municipality between 2002 and 2007 an average annual immigration rate of 4 per cent and an emigration rate of 3.2 per cent

(INE, 2013). The household survey also shows that only 21 per cent of the survey respondents have never moved, 7 per cent lived in the same area but in a different house, 44 per cent have lived in a different area in Nampula, while 28 per cent have lived outside Nampula before (see Figure 29). The main reason to move to Nampula is because of a job, as cited by 38 per cent of respondents. Regarding moving to a new house within Nampula, the main reasons mentioned are because of the low – or even free – price of the property or rent, and the distance to the job.

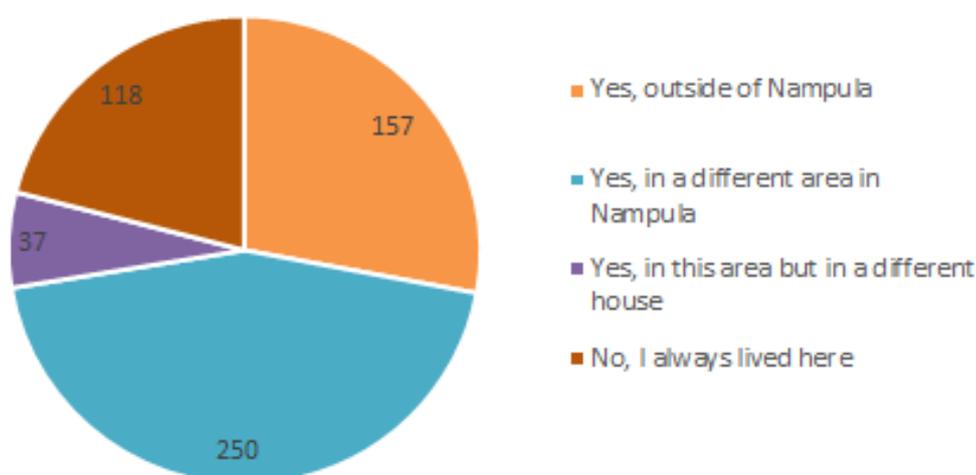


Figure 29: Household survey respondents' answer to the question: Have you lived in a different location before? Sample size = 562

Nampula's high migration rate indicates residential mobility. If people move around a lot, there needs to be a bigger housing stock, or in the case of Mozambique, availability of land for self-help housing, which leads to an increased consumption of land. Therefore, people's mobility also influences urban expansion. From the data from the household survey as shown in Figure 31, it can be observed that area 1, followed by areas 2 and 3 have a high percentage of people who have lived in the area for a long time. This is logical since these three areas have been consolidated for a longer time. Satellite images available for 2007 and 2015 show that area 4 densified heavily during these 8 years, occupying a fertile area along a small river; while areas 5 to 8 used to have only marginal land occupation until recently. This is reflected in the fact that around 40 to 60 per cent of respondents in

areas 5 to 8 have lived there for less than two years, and clearly shows the rapid expansion of the city over the past few years, in line with observations from the GIS analysis.

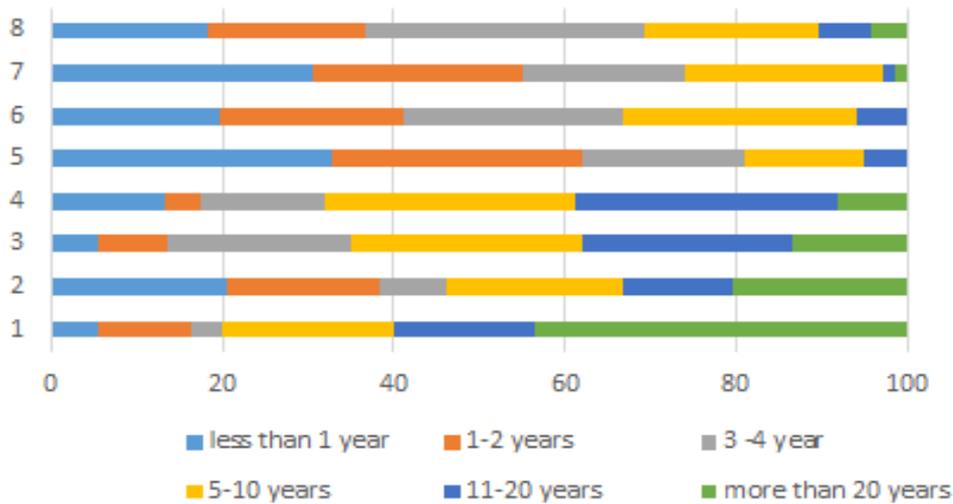


Figure 30: Household survey respondents' answer to the question: How long have you been living in this location?

Just over half of respondents – 52 per cent, indicate that they would prefer to live elsewhere in the city, with better accessibility – 31 per cent per cent, and good neighbours – 22 per cent, being their main expectations from the new area. In

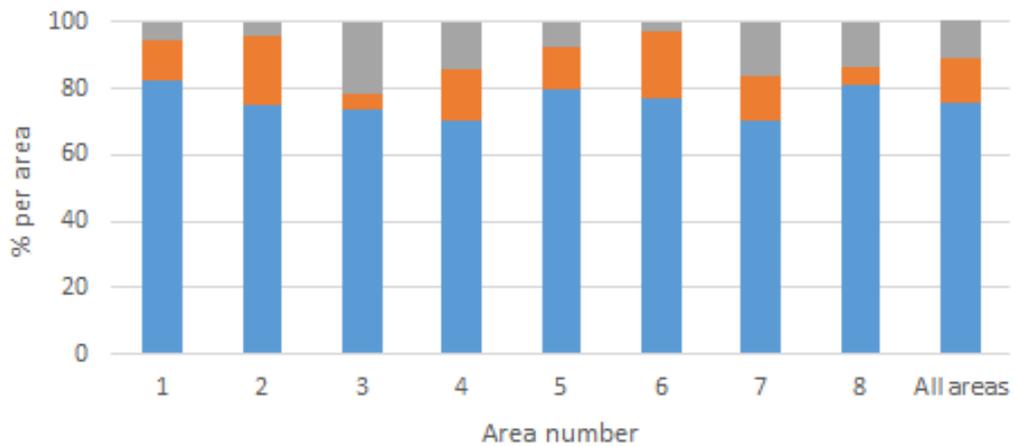


Figure 31: Ownership or renting

case such opportunities come up, they might consider moving. However, when looking at the ratio of renters to owners (see Figure 30), the high ratio of property owners stands out. Homeowners generally are less likely to move in comparison to renters (Head and Lloyd-Ellis, 2012); this indicates that the land market is catering especially to newcomers, and only to a lesser extent to current residents.

This situation is further confirmed by the high percentage of people who consider themselves a permanent resident of the area – 73 per cent, the low incidence of living in a risk area (see Figure 33) and the minority perceived threat of eviction (see Figure 32). Raimundo and Raimundo (2012) observed that in settlements in Maputo, people were not willing to leave their plots unless very exceptional circumstances existed.

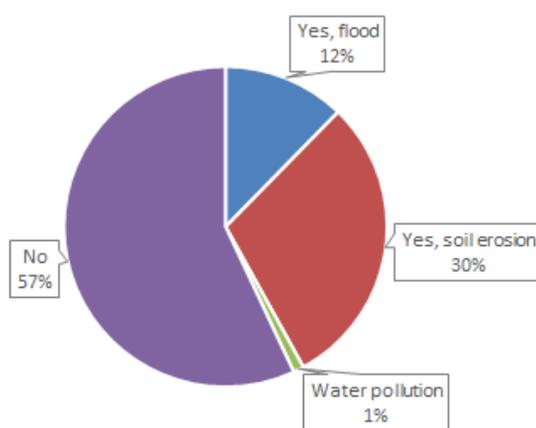


Figure 33: Living in a risk area

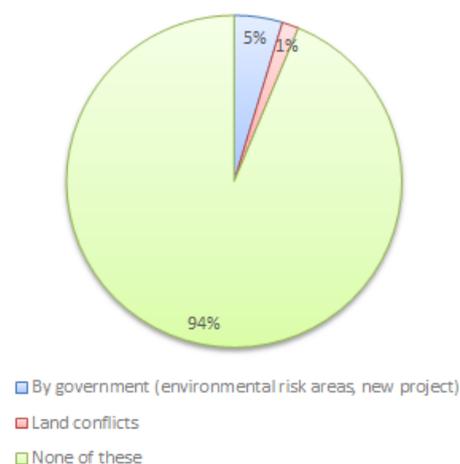


Figure 32: Threat of eviction

6.3.3 Building attitudes and practices

Because of the lack of financial options, houses in Mozambican cities are usually built at a very slow pace. The combination of a poor population and the absence of credit institutions that will lend to these people mean that most houses are built gradually, bits and pieces being added as money becomes available. Investing in housing is a high priority: it is after investing in a business the most stated option when respondents of the household survey were asked what they would do with 100,000 MT – 26 per cent would invest in building a new house on their plot, 9 per

cent would buy real estate and move away, and 6 per cent chose another option, among which many mentioned they would improve their house (see Figure 34).

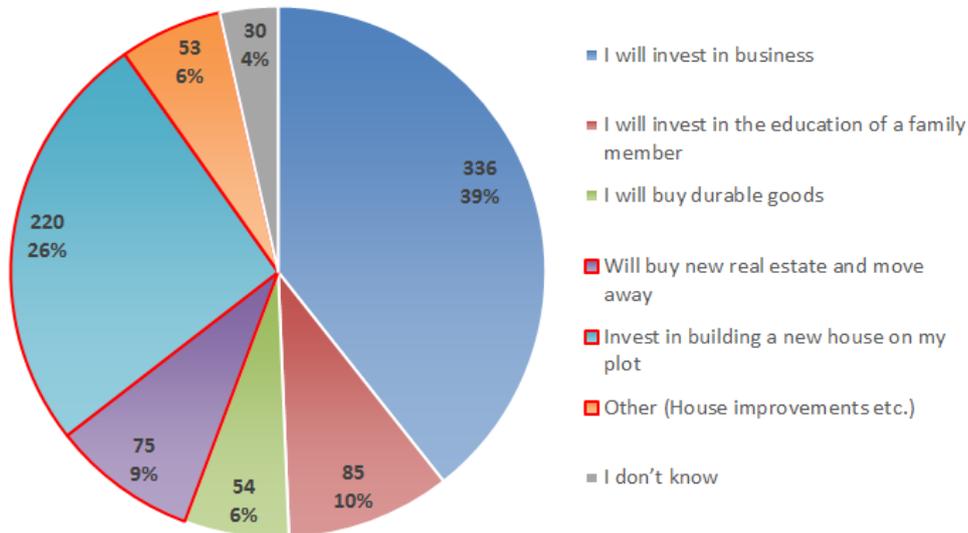


Figure 34: Household survey respondents' answer to the question: If you win a lottery with MZN 100.000 how will you utilize this amount of money?

When households make the decision to build with improved material (no longer building the traditional mud houses), many tend to dream big, starting large construction sites with many rooms, which slows the process even further. Even though households tend to move in as soon as they manage a roof over (part of)



Figure 35: Unfinished construction - Nampula, 2016

their house, many plots are unoccupied for years on end (see Figure 35), thus contributing to expansion as other interested parties must look for land elsewhere.

6.3.4 Implications

Both densification and expansion tendencies have been observed as the result of individual choices of location, residential mobility and building attitudes and practices. Densification takes place not as a process of verticalization but as an intensification of the use of urban floor. Expansion resulting from individual preferences on the other hand mainly takes place in a contiguous manner, as the search for sufficient available space is a trade-off between proximity, accessibility, and affordability.

Three core processes of the current urbanization can be observed: (i) peri-urbanization, that is, the construction of mainly precarious houses in still predominantly rural areas; (ii) densification of former peripheral areas that are locked in between the centre and the urban fringe, and that attract more durable housing; and (iii) flows from and into the central areas, where the increase of the built density does not necessarily correspond to the decreasing population densities, which is mainly from converting the use of spaces.

These processes are not necessarily consecutive but happen in different order and in parallel, along with being interlinked and functioning in all directions. It can be observed, for example, that more centrally located households also shift location into the peripheries, if the location advantage is convincing – which most often lies in having a bigger plot. The visible result of this scenario is the current urban form with its occupational patterns and its imminent problems.

It can be already concluded here that the urban stakeholders do not yet recognize the potential benefits of a better structured urbanization, although there is evidence of negative impacts because of the dispersed urban sprawl. These negative impacts include the increasing difficulty in providing infrastructure and services in urban areas, long routes within the city and consequently the increased costs of doing business and hindrances for developing a sustainable local economy.

However, this setting is seemingly not perceived as problematic by the stakeholders involved. Rather the opposite has to be stated: many of the stakeholders have accommodated to the setting and even manage to draw personal benefits from it (see section 'Benefits of dysfunctionalities').

This leads to the importance of discussing the intentions behind the processes of urban growth. Mozambique, unlike other rapidly urbanizing countries, has no strict anti-urbanization policy. As indicated through the authors' research, a pragmatic response for accommodating new populations has evolved in all growing cities. However, this represents only a temporary solution that will contribute to a set of new problems in the long term. The lack of the intention to plan and steer growth will result in low economic development paired with the future need to redo and reorder many urban areas within the next decades. As experiences from other countries indicate, economic losses are mainly because of unplanned development: implementing new grids over chaotically grown structures *ad posteriori* is unavoidable, especially when intending to densify the areas. This means that infrastructure and housing must be rebuilt partially from scratch.

7 Conclusions

The research led to three main conclusions that can also be aligned with the previously made distinction between actors, processes and outcomes. In terms of actors, the findings made it evident that within the complex setting of a semi-formal market organization, all stakeholders managed to accommodate and pursue their own interest. For this conclusion, the researchers coined the term 'benefits of dysfunctionalities', which presents a common obstacle in developing countries, despite not often being recognized in terms of its negative long-term impacts.

The second conclusion relates to the process of urbanization, which does not follow a specific plan or paradigm, and hence does not produce outcomes that could be related to a specific spatial concept. However, some elements within this process can be attributed to expansion, as well as densification, which makes them part of a larger coherent whole. Moreover, this interconnection between the two is

also of chronological and spatial relevance, which has implications for the process itself.

The third conclusion looks into the impacts of unsustainable urban growth, which is strongly related to the first two conclusions, mainly in terms of the organization of spatial development. From the evidence collected, the spatial patterns are the outcomes of the urbanization processes, but not the root cause of the attested unsustainability. In this third conclusion, the organization of space will be discussed as a process that needs to be oriented through models that serve urban sustainability.

7.1 Benefits of dysfunctionalities

In many African countries, the dysfunctionality of the planning, legal, and administrative apparatus have been related to a general lack of transparency regarding how land is allocated, transmitted or 'purchased'. With the coexistence of different land management systems, both pre- and post-colonial, as a primary issue, legal disputes related to land and property are inevitable, in regards to ownership, subdivision, taxation, or tenant problems.

In Mozambique, most housing lack all or some of the required permits, and the majority of the plots are 'informally' registered or unregistered. This is mainly because of the dysfunctional administrative processes for acquiring either a land-use title, or a construction permit, as these processes are neither consistent nor systematic.

Even businesses, workshops, and other commercial constructions do not always acquire all legal documents. The bureaucratic process has always been slow and the local authorities, therefore, have been recognizing customary land rights, as opposed to taking action against buildings erected without the necessary permission. Thus, this kind of production of space remains the predominant, and socially accepted, modality within the peri-urban areas of Mozambique. The current legal status of a building, or the registration of a plot, generally has had little impact on the social or economic situation of the owner; for example, even though it is

possible to apply for a construction permit for houses made from local 'non-durable' materials, most self-producers would not see this as a necessity. Notwithstanding, formal housing can also exist in more precarious areas. Consequently, a situation has arisen where neither the homeowner feels the obligation to formalize their property, nor the municipality to acknowledge the right of the formalized homeowners by connecting their property to infrastructure. Therefore, the formalization process has become quite insignificant for both parties and does not prove to be a tool to either steer or manage urban development.

In the case of Mozambique, two major types of dysfunctionalities can be identified: ante dysfunctionality, that is, the inability of the planning system to manage and control expansion; and post dysfunctionality – with the majority of the acquired DUATs not being recognized or registered in the cadastre, and hence remaining outside of the system. Between these two types, there are all kinds of variations and different levels of formality. It is important to stress once again that these inconsistent processes are culturally, socially and, to a certain level, even legally accepted and embedded into the contemporary setting of land acquisition.

7.1.1 Technical and institutional dysfunctionalities

The overlap of planning actors, and the lack of clarity regarding the specific duties among the various entities responsible for planning, has always been highlighted – in particular, among MITADER, MEF, MAEFP and the DNTF, the cadastre authority. Apart from this, technical dysfunctionalities complicate the scenario, such as the overlap or non-correspondence of plot position during the digitization process (*Direção Nacional de Terras e Florestas, Apresentação, 2011*). This is mainly because of the inconsistencies of the data provided by the cartography compared to the geo-referenced data. Such problems emerged during the process of registration of all occupied parcels, which began in 2003 and is now supported by municipal projects for land registration. In general, there is a widespread consensus that institutional weaknesses that cause the deficiencies derive from a lack of plans, staff and budget. However, the scarcity of resources goes hand in hand with the lack of clarity about available land for investments; there is neither a clear commitment to protect

communities' land, nor is there a legal definition for the status of 'land for investment'. This weakens potential protective measures and the rule of law, as it extends the outreach of the informal market even to community land.

Nevertheless, in the light of the recent urban expansion trends and through the massive regularization programmes, a shift from the 'recognition' of rights to the 'allocation' of rights has been witnessed. This shift holds the potential to reshape the culturally embedded set of benefits deriving from a dysfunctional land market.

It is quite predictable that unattended urbanization soon will be the major cause for many future challenges. Because of the lack of policies that would be able to steer growth in its different aspects, the major bulk of the hidden costs of urbanization will be borne by the poor – as they will have to settle at underserved urban peripheries. This will result in aggravating the urban divide and further contributing to social and economic fragmentation.

7.1.2 Benefits specified by actors

The benefits derived from the dysfunctionality of the land regulatory system, and of the urban land market in Mozambique, are visible and well-known by almost all urban actors, but they are not properly studied and documented in terms of literature. Over the past few decades, those benefits have been addressed in terms of land access, most of all considering the appropriation of peripheral land by a wealthier elite starting in 1980s or even by civil servants within the municipalities. The most common documented land processes are private land transactions, even in case of non-possession of DUAT – thus, with a clear benefit for the land-seeking elite and a further dislocation of the urban poor. The second issue related to land access is poor levels of land management transparency, which benefits civil servants or planning officers through the perpetration of corruptive modalities in land allocation or DUAT emissions. These two mentioned dynamics are strictly linked to each other and with other actors as well. The benefits to these interlinked actors are further explained in the following points:

- Real estate agents: their benefits mainly derive from the combination of two factors: (i) the lack of a formal market within a context of (ii) increasing urban land demand.
- Local leaders: who seek their own benefit and often act as real estate mediators when a private transaction occurs, frequently with a monetary compensation. This is particularly the case for informal settlements, where cultural habits interweave with new dynamics of land access (see the case of inverse planning in Costa do Sol, Maputo) or peri-urban settlements where local authorities still play a crucial, traditional, and post-colonial role in land allocation, subdivision and administration by transmitting the householders request to the municipality.
- Land owners or users: it needs to be pointed out first that the 'informal' character of the settlements does not always represent a level of vulnerability. Both urban dwellers and the authorities rely more on negotiation and finding agreeable compromises, than on legal titles and the possession of construction permits. Although the selling of the land is not permitted by the law, as already stressed, a consolidated land market does exist and everyone can actually buy or sell a DUAT or a dwelling, and thus, the plot as well. Land owners are generally well compensated in the case of such private transactions, although in many cases the urban poor hold a more vulnerable position within the land market. The main reasons of such a market-led vulnerability are as follows: (i) the rapidity of the transaction; (ii) the fact that a very poor household may not know the real value of their DUAT/house in peripheral areas; (iii) the lack of negotiation possibilities; (iv) and the absence of mediators or of social ties or networks. Nevertheless, with the latest urban trends and with the increasing involvement of the private sector in the peri-urban planning and development, there are clear signals, at least in Maputo, of how even the poorest segments of the society have a renewed consciousness concerning the real value of their land, as well as their potential power in negotiation (Mazzolini 2006). These factors were highlighted in the interview with Polana Caniço Committee President

(June 2016), and the interview with Costa do Sol neighbourhood administration officer. For example, in the thriving area of Polana Caniço A in Maputo, 13 low-income or poor inhabitants, after receiving their DUATs, sold their house - *casa comboio* in exchange for a flat in a new building (2016, on-going process). In this sense, the dysfunctionality of the land planning and regulation permitted the entrance of new actors, the reshaping of the land market, and allowed some excluded householders to enter a new process and achieve better compensation.

- The local authorities at Municipal level: a big component of the benefits derived from the dysfunctions in land and housing markets is strictly linked with corruptive modalities, such as the illegal selling of plots, like selling of plots without DUAT or plots in unsafe zones, or the emission of DUATs, even in the case of noncompliance with the regulations. For this reason, the recently developed municipal plan in Maputo – ProMaputo – aims to enable public and civil society oversight to reinforce internal efforts to reduce administrative irregularities and corrupt practices (ProMaputo II document, 2015). Nevertheless, there are sufficient proofs that these actors, such as the *Chefe do Quarteirão* or *Chefe do bairro*, are also reinventing their role within this new regulatory framework (Mazzolini, interview with Costa Do Sol neighbourhood functionary, June 2016).
- The private sector: in Maputo, the local private sector, through its technical expertise and the deep knowledge of the local realpolitik, seems proactive in substituting the local planning authorities by providing urbanization and parcelling plans when and where the inhabitants require them and where the municipality is not able to implement such actions.

7.1.3 Socio-economic benefits

Razzaz (1994) describes the socio-economic benefits as the ability to benefit from the inconsistencies in strategies and administrative arrangements. In this sense, two main sets of advantages can be distinguished:

(i) The advantages related to the inconsistency of the planning and regulatory apparatus, which provides a higher level of legitimacy of the customary land access systems. These advantages are particularly important for the marginalized members of society, both in rural and urban areas. *De facto*, most of the Mozambican population achieve their land and location interest in accordance with customary norms and practices. Nevertheless, customary practices do not benefit all the inhabitants in the same manner: men generally draw the most benefit from customary land transactions, while women basically remain excluded from the process of land acquisition (ACIS 2012).

(ii) The advantages resulting from new actors entering the planning process to substitute tasks of the local administration because of their limited technical and human resources. This becomes visible in Maputo's most demanded zones, where land pressure is high and where any parcelling plan that 'works', or rather that fits the minimum spatial standards, is automatically approved. This kind of attitude is fostering a market competition among local architects and topographers and some communities; for example, the Costa do Sol neighbourhood relies entirely on the private sector to have their zone 'planned'. The entrance of a local private sector seems to have benefitted the inhabitants from all social strata, increasing their knowledge about the real price of their plot, thus allowing them to sell and negotiate at a fair price (interview with Costa do Sol residents, June 2016; interview with Costa do Sol neighbourhood official, June 2016).

(iii) Social cohesion: in some cases, particularly in the expansion zones of Maputo, at the fringes between the 'formal' grid and the 'unofficially planned' areas (Jenkins 2004), the lack of a clear positioning of the municipality in the land conflicts has led to a renewed social cohesion (regardless of the involved social classes), a sense of community and creativity in problem solving.

7.1.4 Consequences for the social fabric

The short-term benefits are related to the customary occupation rights, based on a general lack of clarity about how to lead with the *ocupação de boa fé*, in lucrative zones undergoing high market pressure, while considering that this kind of

occupation is regulated through oral norms and testified proceedings, without any documentation. The level of protection of occupational rights gives the urban poor great benefits in terms of land tenure security, and consequently in terms of urban and social inclusion – as land is managed through a superposition of a traditional, hence ‘formalize-able’ framework, since it is legally, culturally, and socially accepted.

Nevertheless, this specific advantage of the poor holding land can cause general constraints for sustainable urbanization. Plots that are only occupied because of customary rights are not included in an urbanization plan, with the consequence of lacking a DUAT and a formal title. Without these, the urban poor have less negotiation powers, are more vulnerable to market pressures, and might be forced to move away. The benefits of dysfunctionalities tend to favour the more powerful, as opposed to efficient planning, which has the function of equilibrating the interests of differently equipped stakeholders. When the scarcity of available land increases, the competition will get more severe. The vulnerability of the poor could then result in general disadvantages for the urban fabric in the long term. The inability of poorer landholders to invest at scale in their real property could be turned into a convenient argument to evict them from their plots, in order to make room for investor-driven development. This will foster urban inequalities and gentrification and lead to the appearance of a dual city, where private transactions will discriminate the poorer segments of society.

These kinds of foreseeable outcomes of current urbanization trends are far more worrying than the question of how these processes can be better organized via spatial concepts. The discussion of compactness versus expansion neutralizes crucial socio-economic aspects.

7.2 Urban processes impact form and function

Any policy for urban development requires the conceptual understanding of not only the spatial processes, but also how to steer their impacts and achieve positive outcomes. In the absence of an authority sufficiently equipped with capacities to plan and implement, hardly any traces can be found of a conceptual approach to

improve the urban areas in Mozambique. Decision makers and technical staff both see their roles in structuring a self-induced dynamic of urban development, which at best means to structurally steer it and in most cases, only to control and monitor its results partially.

As the authors' research shows, most of the processes that create the urban form can be attributed to individual actions and scattered interventions of the public sector. Some of these (such as the construction of roads or the allocation of areas for new settlements) can be significant in scale, investment and resulting impacts, but they do not follow a specific intention regarding a desired urban form.

An important finding was that markets – regardless of their formal or informal character – function in the context of the political conditions and do not directly oppose the political and legal regimes, but rather hold advantages for the stakeholders who are active within land allocation, for which the study coined the term of 'benefits of the dysfunctionality'. The dysfunctional legal processes still do not impede opportunities to foster negotiations that satisfy all involved stakeholders. The inefficiency of steering and planning in Mozambique enables individuals and corporations to continue 'self-made urbanism', which is eventually harmful for the functionality of the urban fabric.

In other words, the benefits of the dysfunctionality of the land allocation, administration, and management are mainly economic and immediate; meanwhile the detriments resulting from the dysfunctions of the urban form are unsustainable and long-lasting. The aforementioned future costs for reformation and repair of urban areas are currently not considered and will thus aggravate future negative impacts. Given the current depression and slow economic growth, there are few alternatives to a dual city that already emerges in the larger cities and will ultimately dominate the urban patterns in the country.

The impact of settlements on newly acquired or occupied land is unsatisfactory from the perspective of efficient land use. It seems that urban density on its own is no panacea for urban, economic, and population growth (Turok 2015). Rather the contrary happens in Mozambique, where density is a feature of slums and poor informal settlements. In fact, density is the first indicator mentioned when

defining how a settlement or cluster of houses can be defined as ‘informal’ in a Mozambican city. The indicators used are density, income, social condition, legal condition (DUAT possession), and presence of infrastructure and services. Nevertheless, the use of the density parameter for the definition of what is informal is progressively undergoing a revision (Lage 2013), considering that this kind of definition is no longer applicable in areas where the family sizes are constantly varying.

The interest in marginal lands has increased because of the growing scarcity of suitable areas to develop human settlements. Some experts believe that there is not enough suitable land available for expansion, and that this issue is related to a lack of free space in buildable areas.

“The municipality makes a plan with areas for roads, infrastructure, [and] housing, but the people start to build their houses, they start to occupy, and there are no schools, no public spaces...[Furthermore], there are no resources to build the roads, so the space is used for housing,” stated a professor from CEDH (in interview, 1 April 2016). The spontaneous occupation of risk areas negatively affects the overall quality of the urban environment, especially in scenarios where there is poor sanitation. It enhances the susceptibility to flooding, which is already a major risk in the country.

Despite urban areas becoming increasingly important in demographic, economic and political terms, they continue to be a low priority for the national government. It might even be argued that the last wave of foreign investment has reverted to a rather neo-colonial position of exploitation of natural resources – energy, mineral, and agricultural resources – usually by foreign direct investors, including the emerging industrial countries (Brazil, India, and China), and does not focus on urban areas explicitly (Nielsen, 2012).

Revisiting the research question, which sought to find the right balance between making room for new urban land expansion and promoting compactness, resulted in the conclusion that the solution is not in the choice of the two alternatives. Through the study, it was conceived that a hybrid model of urban forms would not simply lead to more sustainable urban growth. The first chapters of this

monograph already have indicated the limits of this conception for Mozambique. The research originally intended to see how these concepts can best complement each other. However, while assessing current urbanization patterns and urban forms in Mozambique, it became apparent that the concepts should be understood as consecutive stages of development, as further explained in the box below.

Box 1

Densification through expansion

The concepts are not necessarily contradicting each other; they can be also understood in a successive order, where planned expansion prepares for compacting the urban area in the future.

Urban expansion is mainly a response to a high demand for new areas, which results from ongoing urban population growth. Areas with planned expansion are not necessarily less dense than more central areas in terms of permitted urban floor use ratios, but still need to be built up and developed in the future.

The 'compact city', on the other hand, brings the image of a final product to one's mind, that is, of an established urban form where urban growth is not a significant factor anymore, and where new populations can be integrated into the existing areas through further densification. There is no example for compact growth over new territory, thus, the concept of compactness does not include in its theory an urban fringe. Therefore, the two concepts cannot be compared against each other as they address different steps in the chronology of urban development.

In simplified terms, expansion can lead to the more mature form of compactness, although this is only a possibility and depends on a number of factors. In rapidly growing cities, planned expansion can be understood as an instrument to structure and order physical growth in a way that ensures the efficient future densification of the areas and eventually leads to a compact city.

This process has been studied extensively in the Americas, where such pre-colonial cities as Tenochtitlan and later the colonial cities introduced a chess-board grid to the urban areas as the predominant pattern that was also applied in the informal allotment for new peripheral settlements (Azuela 1993). On both sub-continent, there are numerous examples of posterior densification over the same street grid, including New York, Mexico City and Sao Paulo, but also smaller cities such as New Orleans, Puebla, and Fortaleza.

A central lesson learnt from these examples is that the physical structure is decisive for its sustainability. The given structure of the expansion determines the future possibility for the built environment to grow above the same plots.

7.3 Growth needs to be managed, not the spatial patterns

It is not surprising that current urban growth contributes to unsustainable urbanization. The research indicates the form of cities in Mozambique is the most evident expression of inefficient and harmful development. However, it is the management of cities that jeopardize future development, while the urban shape is only the spatial outcome of such inefficiency.

The unsustainable outcomes of urban growth are product of false incentives and shortcomings in the organization of spatial development. Short-term benefits and the little attention given to the impacts of an inefficient consumption of land – combined with lack of clarity when it comes to the responsibility of the diverse stakeholders – have created severe obstacles for urban development. These cannot be overcome by promoting specific spatial plans or concepts. Again, the two spatial concepts of urbanization are not of crucial relevance for explaining, let alone guiding, the current urban processes.

The final section of this chapter illustrates the important interdependencies of spatial organization, urban sustainability, and development processes with the example of urban economies.

7.3.1 Local economic development

Many people have argued that urban and economic growth are inseparable. Although this correlation is evident for most cities, the specific conditions for this interdependency, particularly which growth follows the other and what is their respective proportional impact, cannot be expressed in a formula. There are too many variables – starting from the national economic framework, governance conditions, kind of population growth, increase in availability of skilled labour (which depends on the efficiency of education and health services among others), and so forth. All these variables contribute to both economic and urban growth.

Urban form can claim to contribute to enabling an economic environment, but again, these possible contributors depend not on the form alone, but on the flows that it can accommodate, mainly in terms of access to goods and assets, the proximity to value chains, infrastructures and clients, among others. The benefits of location for the private sector are determined by proximity, as well as quick and easy access. Producing enterprises need to be close to infrastructure, such as electricity and water. They also need to be in reach of the workforce they need, and to the clients to whom they sell their products. This translates into the issue of proximity to main transportation routes (railway, highways and harbours), which ensures that the clients can be easily reached. It is these kinds of flows that determine the development of the private sector, and ultimately the success of any business. However, a central location is only one of the number of considerations, even for a local enterprise, for the cost-benefit analysis, which depends on the specific business. The location benefit is not only in relation to the mono- or poly-centric structure of the city where the enterprise is located but is also oriented towards regional and even supra-regional networks, which are part of value and production chains.

Although the benefits of compactness for the private sector and individual households have been proven in other contexts, these benefits need a number of pre-conditions that are not given in the country. Confronted with the lack of basic services and minimum hygienic standards, it is hard to argue for more density and compactness. The current urban form of secondary cities in Mozambique mainly

follows a layout driven by short-term opportunities, which also means that agglomeration benefits are not taken into considerations, and hence are also not fostered. Important preconditions for these benefits, such as economic clusters or specialized labour markets are simply non-existent outside of Maputo, the only significant urban economy of scale.

The lack of a vibrant, diversified economy in secondary cities constitutes a vicious circle: where economic development is not triggered, while ongoing rapid urbanization tends to even distort the economic structure of urban areas. The spatial growth process is not accompanied by a spatial concentration of economic activities and places new stress, mainly on the urban fringe.

A better targeted provision of infrastructure could serve as incubators for urban economic development, but this would require a dedicated urban economic policy.

Since land is a limited and non-reproduce-able resource, it means that there are long-term implications on the spatial layout of both the urban economy, as well as, the social fabric of cities. Spatial organization matters but needs to be discussed as a process; oriented through holistic models that serve urban sustainability - of which the spatial form is only one aspect.

7.4 Proposals for future research

This research agenda is built around thematic areas of urbanization and urban form, and differentiates between the various drivers of urban development, their origins and motivations. These drivers need to be further investigated to develop policy recommendations and support informed decision making. They can be divided into three relevant realms: (1) capacities to steer and monitor urban development; (2) factors that influence urban development, and particularly urban growth and morphologies; and (3) stakeholders and their activities. These three realms are strongly entangled with each other, but should be separated for the purpose of better understanding.

7.4.1 Steering and monitoring capacities

Local and national governments have different capacities to steer urban development. The corresponding areas for research on these capacities are diverse and interdisciplinary. Capacities in this context need to be understood in their broader sense, including human, technical and financial capacities. This includes legal capacities and, to a certain extent, social and negotiation skills, which are relevant in influencing external stakeholders. Moreover, decision-making powers at the local level need to be contextualized within institutional capacities, as this determines the environment that will influence urban development.

Special attention should be given to physical development, namely in terms of the instruments available to the public sector—specifically, to the local and national governments. Apart from policies and planning instruments, management tools and enforcement mechanisms for the effective application of rules and regulations to react to violations and allegiance (incentive and punishment) are also fundamental. Further research on urban planning practises is crucial, along with examining the applied concepts and visions of city-making. Although planning itself has a minor impact on the more informal processes of urbanization in Mozambique, it is essential to understand the gaps between ‘the plan’ and reality.

This research suggests that the following questions should be raised in subsequent research agendas:

What are the planning instruments, who uses them and with what intention? How much do these instruments allow for flexible, yet guided planning approaches? What are the standards defined by planning (plot size, zoning and uses), and how do these impact urban morphologies? At which levels of government are responsibilities outlined regarding urban planning and management?

In addition, research on policy impacts is necessary. Although policies are not limited to a specific level of government, the main initiative for improving urban

policies still lie with the national government. Research in this area would also require an assessment of the political economy for the urban sector in Mozambique.

7.4.2 Influencing factors

Through this study, the researchers identified two central factors that significantly influence current urbanization patterns in Mozambique: (a) the land markets, and (b) economic development.

i.) Land Markets

When analysing access to urban land in Mozambique, it is evident that the informal land market is the most applied modality. On the one hand, the lack of regulation and control of markets has so far facilitated the access to land for the population as a whole. On the other hand, the sophistication of its procedures has impacted the affordability of housing for future generations, and threatened the permanence of the most disadvantaged in prime locations. The mechanisms of the informal and semi-formal markets are socially accepted and ignored by local authorities. This happens mainly because this lucrative business generates benefits for many actors. In this aspect, future research on how rules and regulations affect the decisions of urban dwellers and land markets should be further investigated.

More comprehensive research on housing and land markets should be advanced, in terms of defining the quantity and nature of the demand, identifying locational preferences, and ultimately, discussing financial mechanisms to support the construction of houses, and facilitate access to credit. Research to support specific policy advice on how the housing sector can be made more efficient and can better cater to the urban poor is imperative.

This research suggests that the following questions should be raised in subsequent research agendas:

How do people get access to land: comparing time, costs, and networks involved in the different ways of obtaining land? How do land rights affect tenure

security? Who holds the land rights in urban areas in Mozambique? What are their motivations and intentions regarding land use and intensity? How affordable is urban land in Mozambique? Who can afford it, how much they can afford it, and where? What mechanisms or good practises exist to avoid land speculation and are they applicable in the context of Mozambique? How can land and property prices be controlled?

ii.) Economic development

The impacts and influences of economic development on urbanization, one of many drivers for urbanization, should be prioritized in the research on this subject. Economic development often is reviewed on the national level in non-spatial terms; however, the balance (or unbalance) of the national economy over the national territory is often the main factor for primary cities such as Maputo to grow quicker than the rest of the country. Understanding the economy of place is the entry point to organize cities and foster territorial development. Research is necessary to better explain the small agglomeration benefits that are currently manifesting in secondary cities.

The potential impacts of a system of cities can trigger diverse economic development, yet such a system is neither recognized nor fostered by the national government. Studies looking into the existing reciprocity and complementarity that is established between some cities would be very relevant (for example, along the Nacala corridor). Cities possess certain features that can supplement and strengthen each other. The different characteristics, such as coastal, agricultural, industrializing, tourist or corridor cities, should be analysed, and economic profiles need to be developed. In addition to the research on the economies of the systems of cities, this also entails the investigation of economic features of the different cities, down to the neighbourhood level where local features (such as mixed uses, informality, land markets, and others) dominate the local economic setting.

This research suggests that the following questions should be raised in subsequent research agendas:

How can a system of cities be organized in the Mozambican context? How are spatial development and urban growth taking place, and how can they become more integrated? How do cities evolve spatially over time (using satellite imagery and GIS)? Which types of cities can be discerned in Mozambique; what are implications for the urban form, and how can this be oriented towards enhancing efficiency in existing and future settlements?

Financing mechanisms for urban development should also be studied in terms of what infrastructure should be prioritized to better steer urban growth and the costs involved:

Which financing mechanisms can be applied to cover these costs? Which taxes and taxing systems are fair and affordable? What can citizens afford to pay? How high is the willingness to pay for taxes, and what are successful strategies to encourage this? Which actors could be interested in establishing partnerships for urban development, and how can win-win situations be fostered?

7.4.3 Stakeholders, their activities and actions

In Mozambique, many stakeholders relevant for urban development are found outside of the formal process of planning and management of land. This research showed that occupational patterns of the urban floor highly depend on the opportunities to access land. The actions adopted by individuals who have very limited economic means and do not follow any specific plan or policies of urban development are determining the shape and direction of the urban growth. A person's purchasing power in combination with preferences regarding location and building attitudes do affect the densification and expansion of cities. One negative impact of this is the presence of urban sprawl. The government's practises, even if limited and not intentional, also contribute to the city's expansion and promote sprawl. Further research on how policies, planning and other regulatory frameworks can steer choice for locations that promote certain densities is necessary.

Special attention needs to be given to the present and future particularities of the Mozambican urban morphologies. It should not be assumed that urban trends are universal, or that historic processes of urbanization will repeat regardless of time and location. How space is used determines its contribution, as a driver or a bottleneck for urban development. In line with the aforementioned ideas, identifying 'appropriate' density for the Mozambican context should be object of further research.

This research suggests that the following questions should be raised in subsequent research agendas:

How do cultural preferences influence desired and actual densities in Mozambique? To what extent can lifestyle changes be expected and desirable? How can verticalization and quality of life be linked? What would be appropriate densities for Mozambican cities, taking into account environmental sustainability, agglomeration benefits, affordability concerns and lifestyles? Which scenarios regarding urban growth and urban form are likely to happen, and which are preferred? How can costs and benefits of these different scenarios best be measured? What are the positive and negative aspects of the different scenarios from social, economic and environmental perspectives? How can positive aspects be optimized and negative aspects mitigated?

7.4.4 Concluding Remarks

In respect to spatial transformations, the developed research demonstrated why sprawl remains the dominant feature of urban growth in Mozambique. Rather than analysing a situation as a static condition, research needs to look at the dynamics of sprawl, thus ultimately enabling the estimation of future urban growth and its conditions. Further research on urbanization should include spatial, population and economic aspects, that is, quantify and measure the growth in different urban areas. The motors and trends directing spatial expansion, and the conditions attracting the influx of population, should also be identified. To better quantify the current growth and predict future growth, new data collection methods should be developed.

Additionally, existing planning practices should be adjusted and new strategies developed to incorporate these forecasts.

The review of urbanization prospects should include city-specific, in-depth assessments and a research focus on the main drivers of urban growth and urban development – which are not necessarily the same. Push factors, for example, contribute more to uncontrolled growth, while a sound urban development can represent a pull factor in itself. These drivers work within and across systems of cities, some of them being distinctive for a specific city or region, others being of a more universal nature.

To better understand the country's urban growth scenario, it is pivotal to assess the real and potential contribution of urban areas to social and economic development – which turns out to be a crucial driving force for urban development. This is true for most drivers – that is, they have the potential of driving urban development but are also driven by it. This contributes to the complexity of this and future research, but also helps to better understand the possibilities of steering urbanization. For example, evidence of the correlation between urbanization and economic growth indicates that with planned urban development better results for economic development can be achieved. However, this does not necessarily mean that cities that grow faster than others will undoubtedly prosper more. Future research should be able to specify the conditions under which this correlation is beneficial for urban development and when it is not.

8 Other contributions

Below are some examples of topics that were presented during the National Urban Research Forum (FUN-P), which took place on 7 and 8 June 2016 in Maputo. IHS organized the FUN-P, within the framework of the research presented in this research monograph.

Box 2

Implementation challenges of spatial planning in the city of Maputo - *Desafios de implementação de planos de ordenamento territorial no município de Maputo*

Author: César Cunguara

This paper aims to reflect on the mechanisms that contribute to the materialization of spatial planning instruments, so that part of the needs identified by all as a priority for the improvement of human settlements can be actually implemented. The paper argues that the implementation of Urbanization Plans is one of the main challenges faced by the municipalities in Mozambique nowadays. The urban interventions focused on solving the problems of informal settlements are usually triggered by external factors, such as land speculation and threats to health and environmental issues, which categorize them as reactions to old and present problems, lacking a vision of future.

The author emphasizes that municipalities in Mozambique are facing technical and institutional weaknesses: (i) incipient community participation, increased urban density and poverty levels; (ii) lack of institutional capacity to provide services, infrastructure and public facilities; (iii) lack of financial resources for housing finance; (iv) difficulty of implementation of legal instruments, which reduces the private sector; (v) and little ability to attract investment. However, significant progress has been recorded in the governmental framework of local authorities (*autarquias*) on the mechanisms of participation for the active engagement of citizens in democratic, inclusive and transparent municipal governance, even though there are still low levels of community involvement in participation forums participation. With regard to Spatial Planning Instruments, the main weaknesses in implementation are usually related to the funding system of the options adopted, in the integration and implementation of other complementary instruments, in the institutional capacity to operationalize the options of plans and, finally, in the decision-making process of the instruments themselves. Participation is also a weakness because in these instruments, participation is limited to only two public consultations.

The World Bank (2009) states that the funds of *autarquias* in Mozambique are very limited in terms of ability to cover all services and activities of their responsibility, although some authorities have made considerable progress in increasing revenues and financial management. In general, the lack of resources and inadequate financial management systems remain important limiting factors for the full compliance of its duties. The urban plans, when implemented, affect directly and indirectly the municipal budget in many ways, especially the value of land, as emphasized by Huddleston (2005). Thus, differences in property values translate almost directly into different tax revenue property or revenue potential associated with land uses planned where different land uses cause various patterns of municipal spending. On the other hand, the installation of sewage and water infrastructure and roads directly affects the property value and the revenue from the land development, and the location of certain types of public infrastructure, such as structural pathways may have significant impacts on land values providing the structure of concentrated development in agglomeration economies. This increase in property value, coming from the provision of infrastructures, can cause in some situations an increase in the tax burden from direct beneficiaries and overvaluation of the cost of basic services, inevitably under the logic of the real estate market, leading to the phenomenon of gentrification. Finally, it should be noted that in the Mozambican context, despite the negative social effects of the phenomenon, it is still commonly seen as a positive mark or effect of the urbanization process, and therefore indirectly fostered by the authorities.

Based on the case study of the city of Maputo, the author highlights that the Spatial Planning Instruments in the city of Maputo and Mozambique are in general of regulatory nature, referring the planning action to a passive land policy, mainly based on land use rules and building permit, overly dependent on private initiatives and the housing market. Besides that, although a well-defined hierarchy of land management plans exists, in practice, the urban spatial expansion occurs on an ad hoc basis, providing little or no infrastructure in most new developing areas. In this sense, public-private partnerships can be an important tool to be capitalized in order

to implement some urban procedures, which currently are carried out informally in a spontaneously and poorly coordinated way on the outskirts of the city, and the city will benefit from the process. This should result in new approaches to build 'consensus' between the Municipal Council and the public and private partners, and improve transparency and accountability in the use of financial and material resources, including budget approval processes, resource allocation and land use.

World Bank (2009). *Desenvolvimento Municipal em Moçambique: As Lições da Primeira Década*.

Huddleston, J. (2005). *The Intersection between planning and the municipal budget*. Madison: Lincoln Institute of Land Policy.

Box 3

Self-produced settlements in the pericentral neighbourhoods of the city of Maputo: formation, intervention and housing - *Assentamentos autoproduzidos nos bairros pericentrais da cidade de Maputo: formação, intervenção e habitação*

Author: Jessica Lage

This paper discusses the issue of 'informal' settlements in developing countries related to lack of urban organization and infrastructure, high population and housing densities, and poor living conditions. Intervention strategies and policies are developed to mitigate the problems, however, one of the major difficulties faced by these places is the enforcement of design and construction standards in housing, making them poorly adapted to the realities and needs of future residents. In this study, the historical context of pericentral – self-produced – neighbourhoods in Maputo is researched, focusing on the driving factors and on the problems usually faced; the paper questions the concepts and terminologies specifically assigned to them. In the neighbourhoods studied there are housing typologies resulting from a set of social, economic, political, environmental and cultural rights, which reflect specific ways of thinking, of distribution and building of the living space.

The author emphasizes that the main factors contributing to the emergence of these settlements are the following: lack of affordable housing options; rapid urbanization; and urban planning that ignores the socio-economic conditions of the population, which cause urban exclusion with the poor population living in areas without proper infrastructure and inadequate for living. While the formal urban reality follows the process of (i) acquisition of land title, (ii) infrastructure provision, (iii) building of house, and (iv) occupying the plot, the informal process is inverse. It begins with a spontaneous occupation of small groups of temporary and self-constructed housing – with the fear of expropriation – consolidating gradually and ‘cementing up’ with more resistant and definitive materials awaiting the reaction of the authorities. Over time, these settlements tend to densify, which makes more difficult the removal of houses and inhabitants. The lack of economic conditions of the inhabitants, social and spatial marginalization, the predominance of precarious buildings – without projects, plans and legalization – and the neglect of the majority of services, networks and decent infrastructure are some of the problems that can be mentioned. However, there are also benefits that should not be ignored – the self-help process, the sense of community, and the building style following aspects of people’s life, cultural and identity, which reinforce the concept of space as a social product.

Based on the case study of informal settlements located in the city of Maputo, the author stresses the need of a process that includes the participation of the inhabitants in the ideation of the place, choice of materials, technological solutions and regarding the logic of spatial distribution, creating a connection and a feeling of responsibility towards the housing. Moreover, the paper shows that many of the neighbourhoods studied do not fit completely the definition of informal settlements from UN-Habitat, even though they are still largely considered as informal settlements; therefore, there is a need for reformulation of current definitions for these places.

The typologies of the neighbourhoods are exposed to endogenous influences – by intrinsic traditional references to their cultural heritage and way of life, the need to

adapt, creativity, use of space and resource contention because of low income of most residents. And they are exposed to exogenous influences – by the growing emergence of families with better economic situation in these neighborhoods, as well as, the ambition to meet the new notions of modernity and urbanity found in referential, functional and aesthetic models, in the ‘cement city’. This duality of influences provides an identity to the houses. The city of Maputo is host to a rich culture, which can be perceived in the urban fabric and in the construction of housing. However, it is necessary to contribute to the development of these features with policies and intervention actions and conscious and consistent housing production in accordance with the existing reality.

Box 4

Urban tenure responsive land-use planning: A guide for city-level interventions

Author: Uchendu Eugene Chigbu

The author argues for a combination of land-use planning and tenure security to form an innovative tool for city-level interventions since land-uses that are not sensitive to tenure usually have negative impacts on urban land, either in sprawl or compact situations. This paper claims for a shift away from tenure-insensitive land-use planning towards a land-use planning that is sensitive to tenure, because often land-use planning initiatives in developing countries are either not sufficiently linked with tenure security or are isolated from it. The paper analyses the impact of land-use planning on tenure security in urban, peri-urban and rural areas of Chile, Ghana and Laos.

“Land-use planning has always been separated from tenure security improvements. In most cases, land-use planners have always assumed that tenure security is or should be in place before their activities (but this is hardly the case). This paper echoes the concept of tenure responsive land-use planning as a unifying concept for land-use planning and tenure security. By doing this, it asserts that land-use planning activities should be combined with tenure security improvements. Chigbu et al. (2016b: 8) raised two questions on this issue by asking, “Why combine land-use

planning and tenure security into one tool?" There are important reasons for combining these two concepts. Currently, only 30 per cent of developing countries' land areas have land titles, and it might take about 600 years before all developing countries' land areas would be covered by a titling (Global Land Tool Network, GLTN, 2014). Tenure responsive land-use planning provides a complementary option for tenure security improvement because land registration and cadastre (titling) lack the flexibility needed in addressing this very urgent concern".

"Using tenure sensitive land-use planning as a tool for city development, demands exploring land-use planning and tenure security as a single urban development concept and practice, rather than separate concepts and practices, as it currently is. It also means that land-use planning apart, general urban development and planning procedures need to be flexible enough to adapt and adjust to unforeseen circumstances or developments, rather than be rigid."

Based on the case studies, the author proposes a tenure responsive land-use planning framework consisting of eight steps: 1: Initiating the project (stakeholder analysis); 2: setting objectives (stakeholder team defines the specific objectives of the project); 3: collecting and recording data; 4: assessing and recording data; 5: preparing the land-use plan (final plan should be presented to the public for preliminary feedback and revision before being submitted for approval to the relevant authorities); 6: getting Official approval of plan; 7: implementing the plan; and 8: monitoring and evaluating plan implementation (Effective feedback mechanisms for adoptions, adaptations, improvements, re-planning or updating of the plan should be kept functional).

This iterative process of tenure responsive land-use planning corresponds to a land tool for city-level interventions in urban development, and its success strongly depends on the responsible handling of land rights and uses. Since sustainable urban development is not without functionally efficient and effective land uses and land rights enforcement, tenure responsive land-use planning serves as a transformative means for building safe, resilient and inclusive cities.

Reference List

- Abrantes, P. (2013) 'Forma urbana "sustentável" processos e metodologias (presentation)', Centro de Estudos Geográficos, Instituto de Geografia e Ordenamento do Território, Universidade de Lisboa, <www.mopt.org.pt/uploads/1/8/5/5/1855409/forma_urbana_sustentavel.pdf>, accessed April 2017.
- ACIS (2012) 'O Quadro Legal: Para o reconhecimento e a obtenção de direitos de terra em áreas rurais em Moçambique: um guia para legalização da ocupação', <www.acismoz.com/lib/services/publications/docs/Acesso%20Terra%20Rural%20Edicao%20III%20Portugues.pdf>, accessed April 2017.
- AfDB, OECD, UNDP and UNECA (2012) 'Mozambique 2012', <www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/Mozambique%20Full%20PDF%20Country%20Note.pdf>, accessed April 2017.
- African Development Bank, Organisation for Economic Co-operation and Development and United Nations Development Programme (2015) *African economic outlook 2015: regional development and spatial inclusion*, <www.africaneconomicoutlook.org/en/telechargements>, accessed April 2017.
- Allen, C. and V. Johnsen (2008) 'Access to housing finance in Africa: exploring the issues', Overview of the housing finance sector in Mozambique, Massala Consult, <www.housingfinance.org/uploads/Publicationsmanager/A2HF_Moz.pdf>, accessed April 2017.
- American Planning Association (1999) 'Planning communities for the 21st century; American Planning Association, Washington, DC.
- Andersen, J. E., P. Jenkins and M. Nielsen (2015a) 'Who plans the African city? A case study of Maputo: part 1 – the structural context.' *International Development Planning Review*, vol. 37, no.3, pp. 329-350.

Andersen, J. E., P. Jenkins and Nielsen, M. (2015b) 'Who plans the African city? A case study of Maputo: part 2 – agency in action', *International Development Planning Review*, vol. 37, no. 4, pp. 423-443.

Andreatta, V. and S. Magalhães (2011) 'Relatório sobre as condições do planejamento urbano, habitação e infraestruturas em Maputo, Moçambique', *International Growth Center, Programa Mozambique*, <www.theigc.org/wp-content/uploads/2014/11/Andreatta-2011-Working-Paper.pdf>, accessed April 2017.

Angel, S., et. al. (2011) *Making Room for a Planet of Cities: Policy focus report*. Lincoln Institute of Land Policy, Cambridge.
<www.citiesalliance.org/sites/citiesalliance.org/files/CA_Images/Making%20Room%20for%20a%20Planet%20of%20Cities.pdf>, accessed April 2017.

Arbury, J. (2005) *From Urban Sprawl to Compact City: An analysis of urban growth management in Auckland*, MA Thesis, University of Auckland, Geography and Environmental Science.

Berrisford, S. (2013) 'Getting Land Governance Right in Sub-Saharan Cities: More than land administration' in *Trading Places: Accessing land in African cities* edited by M. Napier et. al, African Minds, Cape Town, pp. 73-90.

Bostic, R., S. Gabriel and G. Painter (2009) 'Housing Wealth, Financial Wealth, and Consumption: New evidence from micro data', *Regional Science and Urban Economics*, vol.39, no. 1, pp. 79 - 89.

Breheny, M. (1992) 'The Compact City: An introduction', *Built Environment*, vol. 18 no. 4, pp. 241–246.

Burchell, R. W. and A. O. Adelaja (1992) 'Impact Assessment of the New Jersey Interim State Development and Redevelopment Plan', Office of State Planning, Trenton, New Jersey.

- Burchell, R., D. Listokin and C. Galley (2000) 'Smart Growth: More than a ghost of urban policy past, less than a bold new horizon', *Housing Policy Debate*, vol. 11, no. 4, pp. 821–879.
- Burgess, R (2000) 'The Compact City Debate: A global perspective' in *Compact cities: Sustainable Urban Forms for Developing Countries* edited by M. Jenks and R. Burgess, Spon Press, London, pp. 9-24.
- Burton, E. (2000) The Compact City: Just or just compact? A preliminary analysis, *Urban Studies*, vol. 37, no. 11, pp. 1969-2001.
- Camagni, R., M.C. Gibelli and P. Rigamonti (2002) 'Urban Mobility and Urban Form: The social and environmental costs of different patterns of urban expansion', *Ecological Economics*, vol. 40, no. 2, pp. 199-216.
- Care Economic Development Unit (2011) 'Women's Property Rights and Inheritance in Mozambique: Report of research and fieldwork', <http://landwise.resourceequity.org/records/2421>,
- Carlos, A.F.A. (2007) O espaço urbano: novos escritos sobre a cidade. São Paulo: FFLCH.
- Carmona, M. (2000) The Regional Dimension of the Compact City Debate: Latin America in *Compact cities: Sustainable Urban Forms for Developing Countries* edited by Jenks, M. and R. Burgess, Spon Press, London, pp. 53-62.
- Centre for Affordable Housing Finance in Africa (2015) 'Mozambique' in *Africa Housing Finance Yearbook 2015*, www.housingfinanceafrica.org/country/mozambique, accessed April 2017.
- CEDH-UEM (2005) Melhoria dos assentamentos informais, análise da situação, cidades de Maputo, Nacala e Manica, vol. 1, Maputo.
- Centro de Integridade Pública (2009) Relatório anual de controlo da corrupção em Moçambique 2008.

www.cip.org.mz/cipdoc%5C31_Relat%C3%B3rio%20Anual%20de%20Controlo%20da%20Corrup%C3%A7%C3%A3o%20em%20Mo%C3%A7ambique.pdf, accessed April 2017.

Chilundo, I. G. (2009) *Urban Sprawl in a Developing Country—Mechanisms to Accommodate Growth without Sprawl: A contribution for sustainable development-case study of Maputo City*, unpublished thesis (MSc), Institute for Housing and Development Studies.

Chitrakar, R.M., D.C. Baker and M. Guaralda (2015) 'Urban Growth and Development of Contemporary Neighbourhood Public Space in Kathmandu Valley, Nepal' *Habitat International*, vol. 53, pp.30–38.

Central Intelligence Agency (2016) 'The World Factbook – Mozambique', <https://www.cia.gov/library/publications/the-world-factbook/geos/mz.html>,

Ciccone, A. and R. E. Hall (1996) 'Productivity and the Density of Economic Activity,' *American Economic Review*, vol. 86, no. 1, pp. 54–70.

Clark, W.A.V. (2012) 'Residential Mobility and the Housing Market' in *The SAGE Handbook of Housing Studies* edited by D. F. Clapham, W. A. V. Clark, and K. Gibb, SAGE, London, pp. 66-83.

Clark, T. A. and Te-I Albert Tsai (2000) 'The Agricultural Consequences of Compact Development: The case of Asian cities' in *Compact Cities: Sustainable Urban Forms for Developing Countries* edited by M. Jenks and R. Burgess, Spon Press, London, pp. 63-72.

Collier, P. and A.J. Venables (2015) 'Housing and Urbanisation in Africa: Unleashing a formal market process' in *The Urban Imperative: Towards Competitive Cities* edited by E. Glaeser and A. Joshi-Ghani, Oxford University Press, Oxford.

Conselho Municipal da Cidade de Nampula (2015a) Projecto de requalificação da cidade de Nampula, Nampula.

Conselho Municipal da Cidade de Nampula (2015b) Projecto de requalificação da cidade de Nampula, Nampula.

Cueva, A.A. de la (1993) Los asentamientos populares y el orden jurídico en la urbanización periférica de América Latina, *Revista Mexicana de Sociología*, vol. 55 no. 3, pp.133 – 168.

Dewar, D., (2000) 'The Relevance of the Compact City Approach: The management of urban growth in South African Cities' in *Compact Cities: Sustainable Urban Forms in Developing Countries* edited by M. Jenks and R. Burgees, Spon Press, London, pp. 209–218.

Department for International Development (2014) Operational plan 2011-2016 Mozambique.

<<http://reliefweb.int/sites/reliefweb.int/files/resources/Mozambique.pdf>> accessed April 2017.

Diamantini and Nicchia (2009) 'The Emerging Role of Mozambican Small Urban Centres in Local Development: The case of Caia District, 15º Congresso da APDR, Redes e Desenvolvimento Regional, Cidade da Praia, Cabo Verde.

Diaz, D.R. and R. D. Torres, eds. (2012) *Latino Urbanism: The politics of planning, policy and redevelopment*, New York University Press, New York.

Dieleman, F. and M. Wegener (2004) 'Compact City and Urban Sprawl', *Built Environment*, vol. 30, no. 4, pp. 308-323.

DNTF and MCA (2011) Relatório do inventário e mapeamento do uso da terra: Município de Nampula (June), Nampula.

Duany, A., E. Plater-Zyberk and J. Speck (2001) *Suburban Nation*. North Point Press, New York.

Echenique, M. and A. Saint (2001) *Cities for the New Millennium*, Island, Washington, DC.

Eliasson, J. (2010) 'The Influence of Accessibility on Residential Location' in *Residential Location Choice Models and Applications* edited by F. Pagliara, J. Preston, and D. Simmonds, Springer, Berlin, pp. 137-164.

Fadda, G., P. Jiron and A. Allen (2000) 'Views from the Urban Fringe: Habitat, quality of life and gender in Santiago, Chile in *Compact cities: Sustainable Urban Forms for Developing Countries* edited by M. Jenks and R. Burgess, Spon Press, London, pp. 167-182.

Feser, E.J. and S.H. Sweeney. (2000) 'A Test for the Coincident Economic and Spatial Clustering of Business Enterprises', *Journal of Geographical Systems*, vol. 2, no. 4, pp. 349-373.

Galster, G. et. al. (2001) 'Wrestling Sprawl to the Ground: Defining and measuring an elusive concept', *Housing Policy Debate*, vol. 12, no. 4, pp. 681-717.

Garreau, J. (1991) *Edge City: Life on the New Frontier*, Doubleday, New York.

Gauthier, P. and J. Gilliland. (2006) 'Mapping Urban Morphology: A classification scheme for interpreting contributions to the study of urban form', *Urban Morphology*, vol. 10, no. 4, pp. 41-50.

Glaeser, E. and H. Sims. (2015) *Contagion, Crime and Congestion: Overcoming the downsides of density*, IGC Growth Brief Series 001, International Growth Centre, London.

Girardet, H. (1996) 'The Gaia Atlas of Cities: New Directions for Sustainable Urban Living', UN-Habitat, New York.

Hall, P. (2001) 'Sustainable cities or Town Cramming?' in *Planning for a Sustainable Future* edited by A. Layard, S. Davoudi and S. Batty, Spon Press, London,

Handy, S. et. al. (2002) 'How the Built Environment Affects Physical Activity: Views from urban planning', *American Journal of Preventative Medicine*, vol. 23, no. 2S, pp. 64-73.

Haughton, G. and C. Hunter (1994) *Sustainable Cities*, Jessica Kingsley, London.

Head, A. and H. Lloyd-Ellis (2012) 'Housing Liquidity, Mobility, and the Labour Market', *Review of Economic Studies*, vol. 79, pp. 1559–1589.

Heer, B. (2015) 'Peri-urbanism, Just Cities and Neoliberal Modernity: Comparative ethnography of ideals driving neighbourhood transformation in African urban conurbations, Presentation for RC21 International Conference on The ideal City: Between myth and reality. Representations, policies, contradictions and challenges for tomorrow's urban life, Urbino, Italy, August.

Hope, A. and J. Cox (2015) 'Topic Guide: Development Corridors', Coffey International Development, London.

Hossain, S., W. Scholz and S. Baumgart (2015) 'Translation of Urban Planning Models: Planning principles, procedural elements and institutional settings', *Habitat International*, vol. 48, pp. 140–148.

Howard, E. (1965) *Garden Cities of To-morrow*, The M.I.T. Press, Cambridge, MA.

Instituto Nacional de Estatística (2013) Perfil de Nampula, <www.ine.gov.mz/estatisticas/estatisticas-territorias-distributais/nampula/2013/cidade-de-nampula.pdf/view>, accessed April 2017.

Instituto Nacional de Estatística (n.d) População Projectada por Distritos, Nampula 2007-2040, <www.ine.gov.mz/estatisticas/estatisticas-demograficas-e-indicadores-sociais/projecoes-da-populacao/populacao-projectada-por-distritos-nampula-2007_2040.xls/view>, accessed April 2017.

Jackson, K. (1985) *The Crabgrass Frontier: The suburbanisation of the United States*. Oxford University Press, Oxford.

Jenkins, P. (2001) 'Strengthening access to land for housing for the poor in Maputo, Mozambique', *International Journal of Urban and Regional Research*, vol. 25, no. 3, pp. 629-648.

Jenkins, P. (2004) Beyond the Formal/Informal Dichotomy: Access to land in Maputo, Mozambique in *Reconsidering Informality: Perspectives from Urban Africa* edited by K.T. Hansen, K. T. and M. Vaa, Nordiska Afrikainstitutet, Uppsala, pp. 210-226.

Jenkins, P. (2013) 'Understanding Urbanisation, Urbanism and Urbanity in African Cities: Home spaces and house cultures in Maputo, Mozambique, 3 Jun, Institute for Science, Innovation and Society (InSIS), unpublished.

Jenks, M. (2000) 'Mega-cities: A need for new paradigms for urban design and sustainability', Proceedings, Megacities 2000, vol.1, Department of Architecture, University of Hong Kong, Hong Kong.

Jenks, M., E. Burton and K. Williams (1996) *The Compact City: A sustainable urban form?*, Spon Press, London.

Jenks, M. and R. Burgess, eds. (2000) *Compact Cities: Sustainable urban forms for developing countries*, Spon Press, London.

Katz, P. (1994) *The New Urbanism: Toward an architecture of community*, McGraw-Hill, New York.

Kihato, C. W. and L. Royston (2013) 'Rethinking Emerging Land Markets in Rapidly Growing Southern African Cities', *Urban Forum*, vol. 24, pp. 1-9.

Kihato, C. W. et. al. (2013) 'Multiple Land Regimes: Rethinking land governance in Maputo's peri-urban spaces', *Urban Forum*, vol. 24, pp. 65-83.

Lage, J. (2016) Assentamentos autoproduzidos nos bairros pericentrais da cidade de maputo - Formação, intervenção e habitação, Accepted for the National Urban Research Forum Mozambique, (June).

Lage, L. (2013) Caracterização dos assentamentos informais da cidade de Maputo (draft). Maputo.

Lage, L. and A. Mazembe (2016) *Avaliação da governação de terras 2015, Relatório Temático*.

LANDAC (2012) 'Mozambique Food Security and Land Governance Factsheet', <www.landgovernance.org/assets/2014/09/Mozambique-Factsheet-20121.pdf>, accessed April 2017.

Lawton, P., E. Murphy and D. Redmond (2013) 'Residential Preferences of the 'Creative Class'?', *Cities*, vol. 31, pp. 47–56.

Liang, L., S. Lin and Y. Li (2014) 'How Agglomeration in the Financial Services Industry Influences Economic Growth: Evidence from Chinese cities', *Economics Discussion Papers*, vol. 6, pp. 1-22.

Litman, T. (2015) 'Determining Optimal Urban Expansion', *Population and Vehicle Density, and Housing Types for Rapidly Growing Cities* (draft).

Macauhub (2015) Corredor de desenvolvimento de Maputo é caso de "sucesso", <<https://macauhub.com.mo/pt/2015/06/05/maputo-development-corridor-is-a-success-story/>>

Malauene, D. et. al. (2005) Research Report 7: Land registration in Maputo and Matola Cities, Mozambique, Land Studies Unit (IIED), University Eduardo Mondlane, Maputo.

Martini, M. (2012) Overview of corruption and anti-corruption in Mozambique, U4 Expert Answers No. 322, Anti-Corruption Resource Center, <www.u4.no/publications/overview-of-corruption-and-anti-corruption-in-mozambique/>, accessed April 2017.

Mazzolini, A. (2016) 'An Urban Middle Class and the Vacillation of 'Informal' Boundaries: Insights from Maputo, Mozambique', *Geography Research Forum*, in *publication*.

Millennium Challenge Corporation (2016) Mozambique Compact, <www.mcc.gov/where-we-work/program/mozambique-compact>, accessed April 2017.

McHarg, I. L. (1969) *Design with Nature*, Natural History Press, Garden City, NY.

Melo, V. (2012) 'Urbanisation Processes in the Expansion Areas of Luanda, Maputo and Johannesburg: Urban planning and everyday practices', International Planning History Society (IPHS) Conference, vol. 15, São Paulo.

Melo, V., (2015) A produção recente de periferias urbanas africanas. Discursos, práticas e configuração espacial, Maputo VS Luanda and Johannesburg, PHD thesis, Faculdade de Arquitectura, Universidade de Lisboa.

Melo, V. and L. S. Viegas (2012) Habitação de iniciativa pública em Luanda e Maputo. Modelos de intervenção e impactos socio-territoriais no novo milênio, vol. 21, no. 36, pp. 124-140.

Mitlin, D. and D. Satterthwaite (1996) Sustainable Development and Cities in, *Sustainability, the Environment and Urbanisation* edited by C. Pugh, Earthscan, London.

Moudon, A.V. (1997) 'Urban Morphology as an Emerging Interdisciplinary Field', *Urban Morphology*, vol. 1, no. 1, pp.3–10.

Mumford, L. (1961) *The City in History*, Seeker & Warburg, London.

Nampula Municipal Council (1999) Plano de Estrutura da Cidade de Nampula. Nampula.

Nampula Municipal Council (2014) Estatuto Orgânico e Quadro do Pessoal. Nampula.

- Napier, M. et. al. (2013) 'Trading Places: Accessing land in African cities', African Minds for Urban LandMark, Somerset West, www.africanminds.co.za/wp-content/uploads/2013/10/9781920489991_content1.pdf, accessed April 2017.
- Neuman, M. (2005) 'The Compact City Fallacy', *Journal of Planning Education and Research*, vol. 25, no. 1, pp.11–26
- Negrão, J. (2011) *The Urban Land Market in Mozambique*, Cruzeiro do Sul - Research Institute for Development, Maputo, http://mirror.unhabitat.org/downloads/docs/10787_1_594342.pdf, accessed April 2017.
- Nielsen, M. (2009) *In the Vicinity of the State: House construction, personhood and the state in Maputo, Mozambique*, PHD Dissertation, PHD Series, vol. 51, Department of Anthropology, Faculty of Social Sciences, Copenhagen.
- Nielsen, M., (2011) 'Inverse Governmentality: The paradoxical production of peri-urban planning in Maputo, Mozambique', *Critique of Anthropology*, vol. 31, no. 4, pp. 329–358.
- Nielsen, M. (2013) 'Analogic Asphalt: Suspended value conversions among young road workers in southern Mozambique', *HAU: Journal of Ethnographic Theory*, vol. 3, pp. 79–96.
- Organisation for Economic Co-Operation and Development (2012) 'Compact City Policies: A comparative assessment', OECD Green Growth Studies. Paris.
- Pestana Barros, C., A. Chivangue and A. Samagaio (2013) 'Urban Dynamics in Maputo, Mozambique', *Cities*, vol. 36, pp.74-82.
- Pieterse, E. (2014) 'Epistemological Practices of Southern Urbanism.' Draft Paper presented at the African Centre for Cities Academic Seminar, University of Cape Town, Cape Town.

Raimundo, J. A. and I. M. Raimundo (2012) 'Operation of the Market Study Land Access in Urban Areas : The case of Maputo', Urban LandMark, Maputo, <www.citiesalliance.org/sites/citiesalliance.org/files/report_maputo.pdf>, accessed April 2017.

Razzaz, Omar M. (1994) 'Contestation and Mutual Adjustment: The process of controlling land in Yajouz, Jordan', *Law & Society Review*, vol.28, no. 1, pp. 7-40.

Rode Associates (2010) 'How to Track Property Markets in African Cities', Paper delivered at a conference organized by Urban LandMark (draft). <www.urbanlandmark.org.za/conference/2010_papers/08.pdf>, accessed April 2017.

Song, Y., and G.-J. Knaap (2004) 'Measuring Urban Form: Is Portland winning the war on sprawl?', *Journal of the American Planning Association*, vol. 70, no. 2, pp. 210-25.

Tornimbeni, C. (2015) 'Land and Labour Contestation in Manica, Mozambique: Historical issues in contemporary dynamics'' in *State, Land and Democracy in Southern Africa* edited by A. Pallotti. and C. Tornimbeni, Routledge, Abingdon, England.

Turok, I., (2015) 'Housing and the Urban Premium,' *Habitat International*, vol. 54 (2016), pp. 234-240.

Tvedten, I., S. Roque and B. E. Bertelsen (2013) 'Urban Space and Poverty in Maputo, Mozambique.' *Cities Alliance Policy Brief*, vol. 12, no. 2, pp. 1-4.

United Cities and Local Governments (2009) 'Reflections from Africa: Mozambique and South Africa', <www.uclg.org/sites/default/files/EN_532_mzsapolicypaperwithattachment.pdf>, accessed April 2017.

United Cities and Local Governments (2013) Technical Exchange between Peers: Decentralized cooperation between Brazil and Mozambique., <www.uclg.org/sites/default/files/nampula_eng_0.pdf>, accessed April 2017.

United Nations-Habitat (2005) *Law, Land Tenure and Gender Review Series: Southern Africa*, UN-Habitat, Nairobi.

United Nations-Habitat (2010) *The State of African Cities: A framework for addressing urban challenges in Africa*, UN-Habitat, Nairobi.

United Nations-Habitat (2013) *Global Report on Human Settlements*, UN-Habitat, Nairobi.

United Nations (1992) *Agenda 21*. United Nations, New York.

United Nations, Department of Economic and Social Affairs (2014) *World Urbanisation Prospects: The 2014 Revision, Highlights*, United Nations, New York.

Urban Land Institute (1998) *ULI on the Future: Smart growth: economy, community, environment*, The Urban Land Institute, Washington, DC.

Urban LandMark (2013) 'Case Study: Maputo and informal land tenure arrangements', <www.urbanlandmark.org.za/downloads/tm2013_03.pdf>, accessed April 2017.

Urban LandMark and Progressus Consultancy (2013) 'Operation from the Market' Study: How the poor access, hold or trade land. Findings from research in two settlements in Tete, Mozambique', <www.urbanlandmark.org.za/downloads/moz_2013.pdf>, accessed April 2017.

USAID (2011) 'Property Rights and Country Profile – Mozambique', Overview. <www.usaidlandtenure.net/sites/default/files/country-profiles/full-reports/USAID_Land_Tenure_Mozambique_Profile.pdf>, accessed April 2016.

Ventura, A.G. et. Al. (2013) Peril dos dados básicos das cidades de Moçambique (edição preliminar) Documento de consulta para “Mesa de Cooperação-Brasil Moçambique” II Encontro dos Municípios com o Desenvolvimento Sustentável, Brasília, 23 Abril de 2013, <<http://asfes.org/files/descargas/PUBdefinitiva.pdf>>

Wackernagel, M. et al. (1997) *Ecological Footprint of Nations: How much nature do they use? How much nature do they have?*, Centro de Estudios para la Sustentabilidad Universidad Anáhuac de Xalapa, Xalapa, Mexico.
<www.ucl.ac.uk/dpu-projects/drivers_urb_change/urb_environment/pdf_Sustainability/CES_footprint_of_nations.pdf>, accessed April 2017.

Watson, V. (2014) ‘African Urban Fantasies, Dreams or Nightmares?’, *Environment and Urbanisation*, vol. 26 no. 1, pp. 215-231.

Weimer, B. (2012) ‘Municipal Tax Base in Mozambique: High potential – low degree of utilisation’, Discussion paper Deutsches Institut für Entwicklungspolitik, 1/2012.
<www.die-gdi.de/discussion-paper/article/municipal-tax-base-in-mozambique-high-potential-low-degree-of-utilisation/>, accessed April 2017.

Wiersinga, W. (1997) *Compensation as a Strategy for Improving Environmental Quality in Compact Cities*, Bureau SME, Amsterdam.

Williams, K., M. Jenks and E. Burton (1999) ‘How Much is Too Much? Urban intensification, social capacity and sustainable development’, *Open House International*, vol. 24, no. 1, pp.17–25.

Williams, K., E. Burton and M. Jenks, eds. (2000) *Achieving Sustainable Urban Form*, Spon Press, London.

World Bank (2009) ‘Desenvolvimento Municipal em Moçambique: As Lições da Primeira Década’,
<<http://siteresources.worldbank.org/INTMOZAMBIQUE/Resources/MunicipalPort.pdf>>, accessed April 2017.

World Bank (2016) 'Data – Mozambique',
<<http://data.worldbank.org/country/mozambique>>, accessed April 2017.

Wright, E.O. (2011) 'The 'Triadic' Model of Society in Somers: Genealogies of citizenship,'

Socio-Economic Review, vol. 9, pp. 405-418.

Citizenship. *Socio-economic Review*, 9, pp. 405-418.

Annexes

Annex 1: Household survey questionnaire

Inquérito domiciliar: fatores socioeconômicos e espaciais da escolha locacional: Nampula 2016

Conduzido por IHS
Institute for Housing and Urban Development Studies
Rotterdam, Holanda

Em nome de Cities Alliance

Esse inquérito domiciliar tem como objetivo identificar os motivos pelos quais levaram as pessoas a se mudar para a cidade de Nampula e para determinada região da cidade. Os dados coletados serão utilizados para o desenvolvimento de um projeto de pesquisa que tem como objetivo entender o processo de expansão urbana nas cidades de Moçambique.

I. Introdução

Pesquisador: apresente-se dizendo ao entrevistado o seu nome, o seu local de trabalho, o que pretende fazer e a finalidade da recolha de dados que vai efetuar. Deixe claro que o inquérito é anônimo e que não vai lhe comprometer em nenhum especto). **Após clarificar estes assuntos é que poderá iniciar com a sessão das perguntas que se seguem. Entrevistar somente os chefes de família (preferência), ou marido/esposa ou um(a) filho/a ADULTO/A.**

Domicílio n.

Data da entrevista

	Código	Nome
Unidade comunal		
Área Seleccionada		
Nome/no. da foto		

	Código	Assinatura
Código Pesquisador		
Código do Coordenador Equipe		
Verificado por		
Entrada de dados por		

Horário de Início

Horário de Término

Seção 1. Informações gerais

V101	Gênero do entrevistado Nome: _____ Código: [1] = Masculino; [2] = Feminino	Código	
V102	Entrevistado é o chefe de família? Senão, qual é a sua relação com o chefe da família? Código: [1] = sou chefe; [2] = cônjuge; [3] = filho/a; [4] = outro: _____ (especifique)	Código	
V103	Gênero do chefe de família Código: [1] = Masculino; [2] = Feminino	Código	
V104	Qual é o seu estado civil? Código: [1] = casado e vive com a família; [2] = casado mas não vive com a família; [3] = viúvo; [4] = divorciado; [5] = solteiro	Código	
V105	Qual é a proveniência do chefe de família? Código: [1] = nasceu aqui; [2] = de outro lugar dentro da província; [3] = de outra província _____ (Especifique); [4] = de outro país _____ (Especifique)	Código	
V106	Qual é a sua religião? Código: [1] = Islâmica; [2] = Católica; [3] = Protestante / Evangélica; [4] = Zione; [5] = Outros	Código	
V107	Qual é a fonte de sua renda principal e a secundária da sua família? Código: [1] = renda mensal fixa; [2] = renda irregular (pequeno comércio, prestação de serviços); [3] = aluguel de imóveis, [4] = machamba; [5] = doações / remessas	1ª	
		2ª	
V108	Qual é a renda familiar mensal? [1] = < 3.000 Mts; [2] = entre 3.000 Mts e 6.000 Mts [3] = entre 6.000 Mts e 12.000 Mts; [4] = entre 12.000 Mts e 25.000 Mts; [5] = > 25.000 Mts	Valor	

Seção 2. Perfil dos moradores

V201	Qual é o seu nível acadêmico? Qual o nível acadêmico de sua esposa/marido? (Se o inquirido não for casado, saltar esta pergunta). Marque o nível de escolaridade mais alto. [1] = não estudou [2] = primária; [3] = básico [4] = médio; [5] = superior	Entrevistado	
		Cônjuge	
V202	Quantas pessoas moram atualmente neste domicílio? Crianças: (0-12 anos) RapazesRaparigas Jovens: (13-17 anos) Rapazes Raparigas Adultos: (18-50 anos) HomensMulheres Idosos: (mais de 50 anos) Homens Mulheres	Total crianças e jovens	
		Total adultos	

Seção 3. Desejos (loteria)

V301	Se você ganhasse MZN 100.000 na loteria, como você utilizaria este dinheiro? (várias respostas possíveis) Código: [1] = Investiria num negócio próprio; [2] = Compraria uma casa e me mudaria; [3] = Construiria nova casa no meu talhão; [4] = Investiria na educação de algum membro da família; [5] = Compraria bens-duráveis; [6] Outros _____ (Especifique); [99] = não sabe	Código	
		Código	
		Código	
V302	Se alguém lhe desse MZN 4.000 fixo por mês extra, como você utilizaria esse dinheiro? (várias respostas possíveis) Código: [1] = investiria num negócio próprio; [2] = compraria uma casa e me mudaria; [3] = construiria nova casa no meu talhão; [4] = investiria na educação de algum membro da família; [5] = compraria bens-duráveis; [6] Outros _____ (Especifique); [99] = não sabe	Código	
		Código	
		Código	

Seção 4. Localização

V401	Você já morou em um lugar diferente? Código: [1] = sim fora de Nampula (ir para V402); [2] = sim, em uma área diferente dentro de Nampula (ir para V405); [3] = sim, na mesma área mas em outra casa (ir para V408); [4] = não, sempre morei aqui (ir para V409)	Código	
V402	Onde você morou antes de se mudar para Nampula? Código: [1] = zona rural em Moçambique; [2] = área urbana em Moçambique; [3] em outro país	Código	
V403	Quando você se mudou para Nampula? Código: [1] = menos de um ano; [2] = 1-2 anos; [3] = 3-4 anos; [4] = 5-10 anos; [5] = 11-20 anos; [6] = mais de 20 anos	Código	
V404	Qual foi a razão para se mudar a Nampula? (Coloque até três razões) Código: [1] = oportunidade de trabalho; [2] = o chefe de família ou cônjuge tinha família aqui; [3] = melhorar a qualidade de vida [4] = estudos; [5] = fui convidado pela família ou amigos; [6] = conflitos; [7] despejo; [8] = outros _____ (Especifique)	1ª razão	
		2ª razão	
		3ª razão	
V405	Se você morou em outros lugares em Nampula, onde foi? _____ (Especifique bairro e/ou unidade comunal)		
V406	Quem tomou a decisão por este local (bairro)? Código: [1] = decidi sozinho; [2] = eu decidi juntamente com meu cônjuge; [3] = eu não estava envolvido na tomada de decisão	Código	

V407	Qual foi a razão para mudar-se para este local (bairro)? (Coloque até três razões) Código: [1] = herdada (chefe de família ou cônjuge nasceu aqui); [2] = mais perto do trabalho; [3] = não paga aluguel; [4] = baixo preço da terra/propriedade ou aluguel; [5] = acesso a serviços básicos; [6] = proximidade de instalações públicas; [7] = fácil acesso; [8] = bom tamanho do terreno; [9] = proximidade a família e/ou amigos [10] = Outros _____ (especifique)	1ª razão	
		2ª razão	
		3ª razão	
V408	Há quanto tempo mora nessa área? Código: [1] = menos que um ano; [2] = 1-2 anos; [3] = 3-4 anos [4] = 5-10 anos; [5] = 11-20 anos; [6] = mais de 20 anos	Código	
V409	Você se considera um residente permanente dessa área? Código: [1] = sim; [2] = não	Código	
V410	Quais são os maiores benefícios da localização da sua casa? Por favor, mencione até três: Código: [1] = boa vizinhança; [2] = família / amigos ao redor; [3] = área central; [4] = boa acessibilidade; [5] = próximo ao transporte público; [6] = acesso aos serviços básicos (água, luz, tratamento esgoto); [7] = próximo aos mercados; [8] = acesso ao trabalho (ou oportunidades de trabalho); [9] = acesso à escola; [10] = área segura [11] = preços acessíveis de terra e habitação; [12] = Outros _____ (especifique)	1ª razão	
		2ª razão	
		3ª razão	
V411	Quais são as maiores desvantagens da localização da sua casa? Por favor, mencione até três: Código: [1] = má vizinhança; [2] = distante da família / amigos; [3] = distante do centro [4] = má acessibilidade; [5] = nenhum transporte público; [6] = sem acesso a serviços básicos; [7] = distante dos mercados; [8] = distante do trabalho (ou com poucas oportunidades de trabalho); [9] = falta de escolas; [10] = área insegura; [11] = terra / habitação custosas; [12] Outros _____ (especifique)	1ª razão	
		2ª razão	
		3ª razão	
V412	Neste bairro e nos últimos (5 anos) algum membro da sua família já foi vítima de: (várias respostas possíveis) Código: [1] = roubo; [2] = ameaças [3] = assédio sexual; [4] = violência física; [5] = não; [99] = não sabe	Homem/ menino	
		Mulher/ menina	
V413	Sua casa é localizada em uma área propensa a erosão do solo ou cheias? Código: [1] = cheias; [2] = erosão do solo; [3] = poluição das águas [4] = nenhuma	Código	
V414	Você gostaria de viver em outra área da cidade? [1] = não (ir para a seção 5); [2] = sim	Código	
V415	Se sim, onde preferiria morar? _____ (Especifique bairro e/ou unidade comunal)		

V416	E por qual motivo? Mencionar até três motivos. Código: [1] = boa vizinhança; [2] = família / amigos ao redor; [3] = área central; [4] = boa acessibilidade; [5] = próximo ao transporte público; [6] = acesso aos serviços básicos (água, luz, tratamento esgoto); [7] = próximo aos mercados; [8] = acesso ao trabalho (ou oportunidades de trabalho); [9] = acesso à escola; [10] = área segura [11] = preços acessíveis de terra e habitação; [12] = Outros _____ (especifique)	1ª razão	
		2ª razão	
		3ª razão	

Seção 5. Acesso a Terra

V501	Qual é o tamanho deste talhão? (estimativa) [1] = Área _____ ou Medidas _____ [99] Não sabe	Metros	
V502	Para qual finalidade você usa o seu talhão? Várias respostas possíveis: Código: [1] habitação; [2] a produção de alimentos (agricultura / criação de animais) para uso próprio; [3] para produção de alimentos para a geração de renda; [4] outra atividade produtiva (oficina, loja); [5] locação; [6] outra _____ (especifique)	1ª razão	
		2ª razão	
		3ª razão	
V503	A família aluga a casa ou é proprietária? Código: [1] = aluga (ir para V609); [2] = proprietária; [3] = não alugo e nem sou proprietário	Código	
V504	Quem é o dono do talhão? Código: [1] = eu; [2] = o chefe da família; [3] = outro membro da família; [4] = o locador; [5] = outro	Código	
V505	Como o chefe de família (ou proprietário) conseguiu o acesso à terra? Código: [1] = conselho municipal concedeu, [2] representante local atribuiu, [3] herança ou cedido; [4] comprei de outro proprietário, [5] comprei através de um comissionista, [6] comprei através de um agente imobiliário; [6] troquei com outro proprietário; [7] eu simplesmente ocupei a terra; [8] outros _____ (especifique); [99] = não sabe	Código	
V506	Quanto tempo demorou o processo de aquisição? Código: [1] <3 meses; [2] = 3 meses a 1 ano; [3] => 1 ano; [99] = não sabe	Código	
V507	Você tem algum documento que comprove a sua posse legal da terra? Código: [1] = DUAT; [2] = título da propriedade; [3] = declaração do secretário do bairro; [4] outros _____ (especifique); [99] = não sabe	Código	

Seção 6. Financiamento

V601	O proprietário comprou o talhão com ou sem a casa? Código: [1] com [2] sem [99] não sabe	Código	
V602	Quanto pagou pela propriedade? [1] _____; [99] = não sabe	Código	
V603	O proprietário construiu, reformou/ampliou a sua casa ou construiu outra edificação no seu talhão? (Múltiplas respostas possíveis) Código: [1] = construiu; [2] = reformou; [3] = ampliou; [4] = construiu outra edificação; [5] = nenhuma desses (ir para 606)	1ª razão	
		2ª razão	
		3ª razão	
V604	Caso sim, quais foram/são as razões para o investimento? (múltiplas respostas possíveis) Código: [1] = habitação; [2] = melhorar as condições de vida; [3] = providenciar para uma família em crescimento; [4] = para alugar; [5] = para abrir um negócio; [6] outras _____ (especifique)	1ª razão	
		2ª razão	
		3ª razão	
V605	Quanto dinheiro investiu na construção da propriedade? (incluindo construção e melhorias) Código: [1] = preencher o valor; [99] = não sabe	Código	
		Valor	
	TOTAL (Valor 602 + Valor 605)	Valor	
V606	Qual é o valor estimado da sua propriedade hoje? Código: [1] = preencher o valor; [99] = não sabe	Código	
		Valor	
	DIFERENÇA (Total – V606)	Valor	
V607	Qual o motivo dessa diferença (valorização ou desvalorização)? Código: [1] = aumento/diminuição da demanda; [2] = aumento/diminuição da segurança; [3] = investimentos do governo; [4] = desastres ambientais; [5] = regularização da terra; [6] = investimentos (ou falta) na casa/terreno	Código	
V608	Teve que tomar um empréstimo ao banco ou pedir dinheiro emprestado para comprar a propriedade? [1] = sim, e ainda não terminei de pagar [2] = sim, e já paguei de volta; [3] = não	Código	
V609	Se mora de aluguel, você tem algum contrato de aluguel? Código: [1] sim; [2] não	Código	
V610	Qual é o valor do aluguel? _____ por mês (calcular se o entrevistado disser por semana)	Aluguel mensal	
V611	Você tem outra propriedade? Código: [1] sim; [2] não (ir para seção 7)	Código	
V612	Onde é localizada? Código: [1] Nampula _____ (especifique a área)	Código	
	[2] Fora de Nampula _____ (especifique a área)		

V613	Para que fim? Código: [1] terrenos vagos; [2] machamba; [3] aluguel; [4] comercial; [5] eu não tenho outra propriedade; [6] outros _____ (especifique)	Código	
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Seção 7. Habitação

V701	Quantos pisos tem a sua casa?	Número	
V702	Quantos cômodos tem?	Número	
V703	Qual o material de construção das paredes da casa principal? Código: [1] = Bloco de cimento; [2] = Bloco de tijolo; [3] = Bloco de adobe; [4] = Pau-a-pique; [5] = outros _____ (especifique)	Código	
V704	Qual o material de construção da cobertura da casa principal? Código: [1] = Laje de betão; [2] = Telha Chapa de lusalite; [3] Chapa de zinco; [4] = capim; [5] = outros _____ (especifique)	Código	
V705	Paga algum imposto/alguma taxa para sua propriedade? (múltiplas respostas possíveis) Código: [1] = IPRA [2] taxa de lixo e rádio difusão; [3] Outro _____ (especifique); [4] Não pago	Código	
V706	Quantos edifícios tem no seu talhão? Código: [1] = Única unidade; [2] = Duas unidades; [3] = Mais do que dois	Código	
V707	A sua casa atual já foi danificada nos últimos dez anos? [1] = sim; [2] = não (ir para V709)	Código	
V708	Por qual razão? [1] = Chuvas/ventos; [2] = incêndio; [3] = má qualidade da construção (sem interferências externas); [4] = não foi danificada; [5] = outras _____	Código	
V709	Vocês enfrentam alguma ameaça de remoção? (múltiplas respostas possíveis) Código: [1] = Pelo governo (área de risco ambiental, novo projeto), [2] = Por investidores [3] Por questões de família (divórcio); [4] = conflitos pela posse de terra; [5] = nenhuma dessas	Código	

Seção 8. Acesso a serviços básicos

V801	Que tipo de serviço sanitário usa em seu domicílio? Código: [1] = vaso sanitário ligado à fossa séptica; [2] = latrina permanente (concreto); [3] = latrina aberta (temporária); [4] = latrina de suspensão; [5] a céu aberto; [6] = Outros _____ (especifique)	Código	
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V802	Qual é a fonte de abastecimento de água que usa para suas necessidades domésticas? (várias respostas possíveis) Código: [1] = abastecimento de água Individual / canalizado dentro da casa; [2] = abastecimento de água Individual / canalizado fora da casa; [3] = poço individual; [4] utiliza no vizinho; [5] = Fontanários Públicos; [6] = rios / canal / lagoa; [7] = outros _____ (especifique)	1ª	
		2ª	
		3ª	
V803	Da fonte de abastecimento de água principal, qual o melhor uso que faz para a água? Código: [1] = beber; [2] = cozinhar; [3] = higiene pessoal; [4] = limpeza; [5] = irrigação e animais	Código	
V804	Você tem água suficiente para as suas necessidades domésticas? (água para beber, cozinhar, limpeza, higiene pessoal, atividade produtiva (irrigação, animais)). Código: [1] sim; [2] não	Código	
V805	Se o abastecimento de água é fora de seu domicílio, quanto tempo gasta por dia para buscar água? Código: [1] Menos de 15 min; [2] de 15 a 30 minutos; [3] Mais de 30 min	Código	
V806	Quanto você tem que pagar pela água por mês? Código: [1] = _____ (coloque o valor); [2] = não tenho que pagar; [99] = não sabe	Código Valor	
V807	Sua casa é conectada a rede elétrica? Código: [1] sim; [2] não (ir para 809)	Código	
V808	Quanto é que você paga mensalmente por eletricidade? Código: [1] = _____ (coloque o valor); [2] = não tenho que pagar; [99] = não sabe	Código Valor	
V809	O que você faz com o lixo produzido na sua casa? Código: [1] = é recolhido em casa; [2] é recolhido na rua; [3] = aterro a céu aberto; [4] = deita fora em qualquer lugar; [5] = deita na vala de drenagem; [6] = queima; [7] = enterra; [8] = outros _____ (especifique)	Código	

Seção 09. Condições

V901	Você registrou seu talhão no município? Código: [1] = sim; [2] = não; [3] = foi registrado por outra pessoa (ex. antigos donos, familiares); [4] = foi registrado durante o projeto MCA	Código	
V902	Você entregou um pedido de permissão de uso para o município para seu talhão ou casa? Código: [1] = sim, permissão de habitação; [2] = sim licença de comércio; [3] = outros; [4] = não	Código	
V903	Você tem conhecimento de algum plano urbanístico para o seu bairro? Código: [1] sim; [2] não; [3] = mudanças vão ocorrer no futuro [4] = essa área é consolidada e continuará assim	Código	
V904	Você foi informado por algum agente do município sobre mudança no parcelamento do seu bairro? Código: [1] = sim, para melhorias de infraestrutura [2] = sim, para reassentamento [3] = não	Código	

Seção 10. Mobilidade

V1001	A sua família possui: (várias respostas possíveis) Código: [1] = bicicleta; [2] = motocicleta; [3] = carro; [4] = nenhum	1ª	
		2ª	
		3ª	
V1002	A sua casa tem acesso para carros ou motos? Código: [1] = sim, carro e moto; [2] = sim, moto apenas; [3] = não é acessível	Código	
V1003	Qual é o modo de transporte que você e seu cônjuge usam com mais frequência? Código: [1] = andar; [2] = bicicleta; [3] = automóvel; [4] = moto; [5] = mototáxi; [6] = Ônibus; [7] = Chapas	Entrevistado	
		Cônjuge	
V1004	Quanto tempo total você gasta por dia para se locomover em suas atividades diárias? Código: [1] = menos de 15 min [2] = de 15 a 30 min [3] = > 30 min até 1 hora; [4] = > 1h até 2 horas; [5] = mais do que 2 horas	Código	
V1005	Existe transporte público próximo à sua casa? Código: [1] = sim [2] = não	Código	
V1006	Quanto dinheiro você gasta em transporte mensalmente? Código: [1] _____ (preencher com o valor); [99] = não sabe	Valor	

Notas:

Annex 2: Structured interviews: questionnaire to experts

INQUÉRITO PARA ESPECIALISTAS PESQUISA

Os dados coletados por esse inquérito serão utilizados para o desenvolvimento de um projeto de pesquisa intitulado "*The urban expansion and compactness debate in the context of Mozambique*" que tem como objetivo entender o processo de expansão urbana nas cidades de Moçambique e promover um debate sobre os processos de expansão urbana versus cidade compacta.

Nome da organização ou instituição do respondente:

Nome e posição ocupada na instituição:

Parte 1: Expansão urbana de Nampula com difusão (sprawl)

1-Fatores e ou Causas que influenciam a expansão espalhada da cidade de Nampula (Urban Sprawl)

1.0 Quais os fatores ou causas que influenciaram ou influenciam a difusão (expansão) urbana em Nampula desde 1999 ate hoje?

1.1 Entre as possíveis causas ou fatores citados abaixo, qual ou quais o senhor/a pensa que estão entre os fatores que influenciam a difusão (ou espalhamento) urbano de Nampula:

- () Reclassificação de áreas antes definida como rural em urbana (quando aconteceu)?
- () Algum projeto, plano ou politica de desenvolvimento promovendo ou reservando áreas na periferia da cidade para expansão urbana. Qual ou quais?
- () Projetos de infraestrutura como abertura de novas vias, construção de shopping centers construídos fora da área urbana pelo governo ou particular que incentivaram as pessoas a construírem na periferia da cidade. Qual ou quais?
- () Alguma indústria construída fora da área urbana que atraiu as pessoas a morem perto. Qual ou quais?
- () Algum outro motivo particular que voce gostaria de acrescentar?

1.2-Por favor marque com um X uma ou mais razoes que você pensa que motivam as pessoas a viverem fora das áreas centrais da cidade?

- () preços do talhão (terrenos) mais baratos;
- () taxas municipais e de propriedades mais atrativas que no centro da cidade;
- () falta de casas ou apartamentos habitáveis no centro da cidade;
- () mais liberdade de construir fora da cidade e menos regulação do governo;

- () aberturas de novas vias (ruas ou estradas) que facilitaram o acesso a áreas fora da cidade;
- () políticas municipais e ou leis facilitando a posse de lotes (terrenos) maiores fora da cidade;
- () falta de controle do crescimento da cidade;
- () outras causas:

1.3. Por favor marque com um X se uma ou mais das seguintes manifestações de difusão urbana estão presentes em Nampula de acordo com o seu conhecimento?

- () crescimento intensivo do subúrbio (periferia);
- () baixas densidade habitacional na periferia em comparação com as regiões centrais da cidade;
- () construção de residências unifamiliares ou conjunto de residências ainda bairros descontínuo (fragmentado) com grandes espaços de terrenos vazios;
- () construção linear de residências e comércios ao longo de vias de transporte como estradas na periferia da cidade
- () uso do solo separado como áreas reservadas para residências, comércios e indústrias leves;
- () descentralização de empregos para a periferia;
- () construção de centros comerciais fora das áreas centrais com grandes áreas de estacionamentos para veículos,
- () outra (s) manifestações

Parte 2: Presença de fatores relacionados com o crescimento compacto na cidade de Nampula

2. 1. Marque com um X se uma ou mais de uma das características de crescimento compacto estão presentes em Nampula de acordo com o seu conhecimento:

- () existência de lei municipal exigindo densidades mínimas em certas áreas da cidade em vez de densidades máximas. Quando foi aprovada?
- () lei municipal promovendo o uso misto do solo (residências, comércio e indústrias leves no mesmo local
- () lei municipal ou projetos promovendo o desenvolvimento de novas residências em áreas não utilizadas ou abandonadas dentro da cidade (infill), Quantos projetos?
- () presença de pequenas parcelas de solo dentro da área urbana da cidade

() desenvolvimento de projetos residenciais e comerciais feitos contíguo a cidade e não separado

() presença de transporte público como ônibus

() existência de ciclo vias e calçadas adequadas para os pedestres;

() promoção e uso de bio combustíveis no setor de transporte da cidade

() Existe alguma lei, programa ou campanha visando poupar energia nas casas, indústrias, comércio, etc. Quando começou?

() Existência de lei, programa ou campanha de criação e incentivo ao aumento de áreas verdes e áreas públicas na cidade

() uso de material semipermeável nos pavimentos das ruas ou calçadas como por exemplo tijolos não cimentados

() outros

Parte 3 Impactos da expansão urbana e das mudanças climáticas no meio ambiente e na infraestrutura urbana da cidade:

3. 1. Em sua opinião qual a contribuição do sistema de transporte para a expansão com espalhamento da cidade?

3.2 O sistema de transporte público tem acompanhado a expansão urbana da cidade? E como?

3.3. Como o sistema de transporte poderá ser afetado pelas mudanças climáticas na cidade?

3.3.1. Existe algum projeto, programa ou campanhas incentivando o uso de fontes renováveis de energia? Quais e que programas?

3.3.2 Como o processo de expansão tem influenciado a qualidade ambiental da cidade?

Recursos hídricos:

Qualidade do ar:

Contaminação do solo:

3.4 Como a infraestrutura do sistema de água potável, esgotos domésticos e resíduos sólidos domésticos poderá ser afetado pelas mudanças climáticas na cidade?

Parte 4 Discussão sobre reservar áreas da periferia da cidade para a expansão futura da cidade versus promover uma expansão urbana mais compacta.

Hoje em dia existe uma grande discussão sobre dois conceitos (modelos ou paradigmas) de planejamento relacionado com a forma e a estrutura espacial das cidades:

O primeiro conceito defende que a expansão das cidades é inevitável e neste caso a solução é se reservar áreas (espaços não utilizados na periferia da cidade, por uma infraestrutura básica, e guardar esses espaços para acomodar o crescimento futuro da cidade.

O segundo defende uma forma de cidade mais compacta onde o crescimento futuro seria feito preferencialmente dentro da área urbana existente. Pare este segundo grupo planejar crescimento urbano mais compacto contribui melhor para a sustentabilidade contribuindo para reduzir os impactos nas áreas verdes, áreas agrícolas, biodiversidades e na produção de gases do efeito estufa pela redução da necessidade de transporte. Este conceito defende um aumento das densidades urbanas, com uso misto do solo, aumento de áreas verdes e uso multimodal de transporte focalizado nos transportes públicos, e individuais como bicicletas, e ruas seguras e adequadas para se caminhar.

A.1 No caso de Nampula o senhor acredita que é possível se reservar uma área na periferia da cidade e guardar esta área sem ocupação para um desenvolvimento futuro?

A.2 Em caso positivo o que deveria ser feito para garantir a preservação da área?

A.3 Em caso negativo, por que não seria possível? Quais as razões?

B O senhor acredita que é possível se promover um crescimento mais compacto na cidade de Nampula?

B. 1 Em caso positivo, que medidas o senhor (a) proporia?

B 2 Como aumentar as densidades das cidades se estas estão diminuindo na maioria das cidades incluindo muitas das cidades africanas?

B.2.1 Na literatura muitos autores defendem que em vez de se promover a construção de residências unitárias nas cidades, deveria se promover a construção de blocos de edifícios de 3 a 4 andares como uma forma de aumentar a densidade dentro das áreas urbanas e reduzir o custo de provisão de infraestrutura.

Esta solução poderia ser implementada em Nampula? O que deveria ser feito para promover esta alternativa?

B.3 Existe um modelo (conceito) alternativo a estes dois modelos discutidos nesta pesquisa? Qual? Como implementar em Nampula este modelo alternativo?

Annex 3: Semi-structured interview questions for local government

General planning

- Local government's appreciation of current urban spatial structure (urban fabric).
- Local government's assessment of how the city is growing currently (in the last 20 years) and their factors.
- What is the local government's vision on the development of the urban spatial structure?

- What plans exist regarding the spatial structure of the city (PEU, PPs)?

Planning for expansion

- What plans are there for expansion?
 - Location
 - Extent
 - Resources available
- What are minimum and average plot sizes for expansion?
- Who develops the plans and is there any participation from residents (and gender)?
- How are cross-cutting issues (gender, environment or resilience) taken into account during development of these plans?
- What do the plans say about government values (for example, size of plots, inclusion of services, mixed or mono-functional use)?
- How (much) does reality (implementation) correspond to plans? How can this discrepancy (if any) be explained?

Planning for regularization

- What plans are there for regularization?
 - Location
 - Extent
 - Resources available
- What are minimum and average plot sizes for regularization?
- Who develops the plans and is there any participation from residents (and gender)?
- How are cross-cutting issues (gender, environment or resilience) taken into account during development of these plans?
- What do the plans say about government values (for example, size of plots, inclusion of services, mixed or mono-functional use)?
- How (much) does reality (implementation) correspond to plans? How can this discrepancy (if any) be explained?

Appreciation

- Appreciation of current state of affairs regarding planning and implementation from a government point of view (system)?
- How do you think citizens appreciate the urban fabric?

- What do you think citizens appreciate/complain about regarding the planning system?

Process of land acquisition

- How is the official process for land acquisition/land regularization?
- What are the costs involved for the citizens?
- What are strengths/shortcomings of the current process?
- How many requests are received versus treated? What is the backlog?

Information on gender and land tenure in official processes

- What do you think are reasons that people do not adhere to these processes?
- How are land conflicts handled?

Land administration

- How is information processed and stored for later use?
- What are strengths/shortcomings of the current system?

Enforcement

- What kind of control is there on land allocation/occupation?
- How does this work in practice? (For example, only checking for permits or also on quality, size and so on.)

Awareness and appreciation

- How well informed do you think citizens are about the land management process?
- How informed do you think the citizens are about their land rights? (For example, legislation in general, ocupação de boa fé, taxes they should pay and so on.)
- What activities does a local government undertake to improve awareness on the process and the rights?
- How would you rate citizens' satisfaction with land management? (administration)
- How would you rate citizens' satisfaction with enforcement?

Financing

- Income/expenditure in general.
- Taxes/fees regarding land/housing.

- Which taxes/fees exist?
- Which of these are actually being collected? To what extent?
- Does the input for collecting justify the revenue generated?
- Citizen's satisfaction with amount and way of payment?
- Opportunities for increasing/improving revenues.
- Appreciation of resources available for land related issues.
- Wishes and desires.
- If given x amount, what would be your first priority to do with it?
- If given x amount for urban planning/land management, what would you do with it?

Capacity

- Who is involved in planning, land management and enforcement?
 - Visioning
 - Urban planning
 - Cadastre
 - Land allocation
 - Land clearance, for example, for roads
 - Tax collection on land (cobradores?)
 - Enforcement (fiscais?)
- How would you evaluate the capacity?
 - Amount of people
 - Level of education
 - Experience
 - Time at municipality
 - Professionalism
 - Engagement
 - Good collaboration

Annex 4: List of interviews

Interviewee	Institution	Date(s)
Mr. Ayuba	Chief of Muhala Posto Administrativo, Nampula Municipality	24/03/2016
Tapu Kara	Director Department of Urbanisation and FCA focal point	13/01/2016; 22/03/2016; 28/03/2016
Rachide Aliasse Mozica	Técnico Departamento de Cadastro, Construção e Infra-estrutura and FCA focal point	25/01/2016; 19/04/2016
Faquira Massalo	FIPAG	28/03/2016
Professor Valdemiro Aboo	UNILURIO	29/03/2016
Arq. Valdemiro Chamane	Municipal Council	30/03/2016
Artimisa	CDS (Centro de Desenvolvimento Sustentável (MITADER)	30/03/2016
Roberto Bernardo	UN Habitat	16/01/2016; 30/03/2016; 21/04/2016
Hortencio Artur Uareno	Transportation Department - Municipal Council	31/03/2016
Célia Jordão	Netherlands Embassy in Maputo	31/03/2016
Joost Möhlmann	UN-Habitat Mozambique	01/04/2016
Albino Mazembe	C.E.D.H. - Centro De Estudos e Desenvolvimento Do Habitat	01/04/2016
Mahamudo Amurane	Mayor, Nampula Municipal Council	18/04/2016

Gustavo Domingos Nihassa	Surveyor, Department of Urbanisation, Nampula Municipal Council	20/05/2016
Momade Sedik	Architect, Department of Environment, Nampula Municipal Council	20/05/2016
Jacinto Joaquim	Director, Department of Inspection, Nampula Municipal Council	23/05/2016