

**A 'Dream-House' For Luanda's Low Income Population: Analysing
Perceptions, Aspirations and Reality through a Participatory Post-
Occupancy Assessment (PPOA) Framework**

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To my beautiful mother

(1959-2016)

ABSTRACT

Luanda is one of the fastest developing and more prospective growing cities in Africa. Such view of economic development is frequently associated to a sharp population increase and subsequent physical expansion of cities' footprint. A phenomenon also observed in Luanda, especially as a result of successive rural-urban migration waves in search of safety during the many years of civil war. Although the armed conflict ceased in 2002 this upward demographic trend remains present today, putting extra pressure on an already saturated urban infrastructure. Luanda now accommodates more than 6.5 million people, although still partially relying on services and infrastructure dating back to the 1970s when it was planned for an approximate number of 475,000 inhabitants. In light of the above a renewed Luanda is taking shape whilst the capital's periphery is gradually populated with thousands of new houses destined to the low-income population, some of whom were previously residents of informal areas (*musseques*) within the city.

As a consequence presently and probably more than ever, the last decade has witnessed an increasing awareness of general housing issues in Angola. Topics such as urban growth, homelessness, and housing conditions, are now frequently raised and widely debated by academics, the media, national and international NGOs, local authorities and the general population. Moreover, and in line with international initiatives towards rethinking the urban agenda and improving the living conditions in slums worldwide, these discussions have been gradually translating into national policy making towards development of infrastructure, including provision of housing and intended improvement/upgrading of urban fabric. This is reflected for in the National Urbanism and Housing Programme - NUHP (*Programa Nacional de Urbanismo e Habitação*), a nation-wide programme set up by the Government in 2008/9 with the aim of mitigating housing scarcity by providing 1 million houses throughout the country. This government programme is also known as "My dream, My house" programme, a vague but catchy phrase alluding to the fulfilment of a dream of ownership and adequate living conditions, also supported by the article 85.^o of the 2010 revised Constitutional Law of Angola which states that "every citizen has the right to appropriate housing and to a decent quality of life".

This research emerged from within this context and focused on issues of occupant perceptions and acceptability regarding quality of dwellings, especially in newly built low-cost mass housing developments located in the periphery of Luanda. It explored whether current proposals to alleviate high demand for housing are meeting people's aspirations and needs, and ultimately improving their quality of life. Furthermore, it also explored whether the government's goals to improve the quality of the urban fabric and infrastructure of Luanda are being met. Amongst promises of fulfilment of a "dream" of ownership and adequate living conditions, this research investigated the low-cost housing

sector of Luanda as experienced and perceived by the inhabitants/occupants themselves. By carrying out a Participatory Post-Occupancy Assessment (PPOA), this work combined the technical framework of a building appraisal tool with a participatory approach to research. By doing so this thesis offered a contribution to knowledge arising from two perspectives, one focusing on methodological aspects and that of contextual nature.

This research demonstrated that using PPOA as an appraisal tool may contribute to overcome issues often associated with importing methodological strategies disconnected from context-specific circumstances. Moreover, focusing on a capital city within the Global-South, it opened a door to further explore discussions around adaptation and tailoring of research approaches to development contexts. PPOA demonstrated potential to shed light into people's appropriation of space in an informal settlement and within a mass-housing setting, thus also creating knowledge around the wider process of socio-spatial urban transformation in Luanda. Although not intending to be statistically representative, this research highlighted what appears to be a gap between intentions and actual capacity of the NUHP's "dream-houses" to meet resident's aspirations. It suggests that the fulfilment of such goal relies on an holistic approach to housing that takes into account a variety of factors beyond the dwelling as a structure. One that also contemplates and acknowledges owner-driven adaptation strategies, whilst guaranteeing the contextual conditions and support of a fully functional planning and legal framework.

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"Let us be grateful to the people who make us happy; they are the charming gardeners who make our souls blossom."

Marcel Proust

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Appendix 4 - Residents/Participants profiles and stories

LIST OF ACRONYMS (IN ALPHABETICAL ORDER)

FNLA	Frente Nacional de Libertação de Angola
IDPs	Internal Displaced Persons
IIED	International Institute for Environment and Development
INE	Instuto Nacional de Estatística (National Institute of Statistics)
MDGs	Millennium Development Goals
MDMH	My Dream My House (from Portuguese <i>Meu Sonho Minha Casa</i>)
MINUC	<i>Ministério de Urbanismo e Construção</i> – Ministry of Urbanism and Construction
MPLA	Movimento População Libertação de Angola
NUHP	National Urbanism and Housing Programme
POE	Post-Occupancy Evaluation
PRA	Participatory Rapid Appraisal
PPOA	Participatory Post-Occupancy Assessment
PUA	Participatory Urban Appraisal
RRA	Rapid Rural Appraisal
SSI	Semi-structured Interview
SDGs	Sustainable Development Goals
UNITA	União Nacional para a Independência Total de Angola

section A – **Context**

CHAPTER ONE – INTRODUCTION TO THE RESEARCH

“I would rather stay here in my house, but they will not do that. They need the coastline; they want to get everyone away from the southern area. I would rather stay in my house, because I don't believe they will give me one of those apartments... A tent or a small house there far away maybe. They are not giving apartments to whoever is leaving this place, I haven't seen that (...) I would prefer staying here. But that is not possible, not even in my dreams.
“

CHIC-15:F, resident of informal settlement (case study Area One) since 1992

1.1 – INTRODUCTION

Chapter One intends to provide an overview of the scope of this study, including the contextual background and methodological approach used throughout this research. It begins by exploring the geographical context of Angola and the country's recent history, focusing on the years of conflict that followed the independence from Portugal in 1975. It then follows to define keywords, terms and concepts which are used throughout the thesis and are fundamental to the sound understanding of its content. Subsequently, this chapter elaborates on the aim and objectives set for the research and explains how these were achieved. Moreover, it briefly states the contribution of this work in terms of original contribution to knowledge. The latter part of Chapter One gives a brief overview of the strategy and methodology, including the conceptual framework and timeline of the work. Finally it closes with a brief overview of the structure of the thesis.

1.2 – SCOPE

This thesis is entitled “A ‘Dream-House’ For Luanda’s Low Income Population: Analysing Perceptions, Aspirations and Reality through a Participatory Post-Occupancy Assessment (PPOA) Framework”. It provides an insight into the low-rent housing sector of Angola’s capital. It does so by exploring occupants’ perceptions and acceptability regarding the quality of dwellings in an informal settlement as well as in a newly built low-cost mass housing development located in the outskirts of Luanda.

The timeframe of this research coincides with efforts being made towards a nationwide reconstruction of infrastructure taking place in the aftermath of a recent history marked by more than 30 years of armed conflict that ended in 2002. The many years of war have put great pressure on an already fragile infrastructure, which as a consequence struggled to keep up with a rapid demographic growth coupled with internal mass rural-urban population movements, particularly towards Luanda. Contrary to what would be expected, the end of the war did not have a significant impact on the demographic upward trend, and different sources report a number of current total population in Luanda varying approximately between 5.3 million (UNDESA, 2014) and 6.5 million people (INE, 2014). According to the National Institute of Statistics (*Instituto Nacional de Estatística - INE*) this corresponds to approximately 27 per cent of 24,383,301 inhabitants of Angola (INE, 2014). More than 80 per cent of the population in Luanda is considered to live in slum-like conditions (UN-Habitat, 2014), although it is likely that these figures are in reality higher, as the poor and slum populations are often left out or undercounted in census and thus not represented (Davis, 2006).

Nevertheless and probably more than ever, the last decade has witnessed an increasing awareness of general housing issues in Angola. Topics such as urban growth, homelessness, and housing conditions, are now frequently raised and widely debated by academics, the media, national and international NGOs, local authorities and also the general population. Moreover, and in line with international initiatives towards rethinking the urban agenda and improving the living conditions in slums worldwide¹, these discussions have been gradually translating into national policy making towards development of infrastructure, including provision of housing and intended improvement/upgrading of urban fabric. This is reflected for example in the National Urbanism and Housing Programme (*Programa Nacional de Urbanismo e Habitação*) - henceforth designated as NUHP; a nation-wide programme set up by the Government in 2008/9 with the aim of addressing housing scarcity by providing 1 million houses

¹ Expressed for example in the former MDGs Target 7D (Have achieved by 2020 a significant improvement in the lives of at least 100 million slum dwellers (United Nations, 2014a) and the newly formed SDGs Goal 11 ("Make cities and human settlements inclusive, safe, resilient and sustainable" (United Nations, 2015b).

throughout the country (Mucuta, 2009). Although the NUHP extends its action to more than housing provision, it also became widely known as the 'One Million Houses Programme' and later as 'My dream, My house' (MDMH) Programme, since it is frequently referred to in the media as the means to fulfil Angolans' dream of owning their own house. The latter - 'My Dream, My House' - was also the motto that inspired the title of this dissertation.

However, as shall be seen further ahead in Chapter Three, section 3.3, the intentions framed by the titles officially and unofficially attributed to the NUHP have not been free of criticisms. Questions have been raised concerning the feasibility of implementing such programme, especially with regards to matching numbers against population requirements. Moreover, these concerns have been further reinforced by the successive postponements of the programme's initial deadline, which at the time this research began was indicated as 2014 and is still ongoing. Consequently, it remains an uncertainty as to whether or not it is possible to successfully meet the programme's targets whilst providing people with their 'dream-house'.

This research arises from within the context framed above, whereby a renewed Luanda is taking shape whilst contemplating thousands of new houses destined to the low-income population, some of whom previously inhabited Luanda's informal settlements. Hence, focusing on housing provided under the NUHP's framework, but also looking at dwellings in informal settlements, this research looks at two case study areas in Luanda (in one informal settlement and in one formally planned area) to explore whether current proposals to mitigate high demand for housing are meeting people's aspirations and needs, and ultimately improving their quality of life. Furthermore, it also reflects on whether the Programme's goals to improve the quality of the urban fabric and infrastructure of Luanda are being met. In order to achieve the above, collect and analyse relevant data, this thesis brings together two well conceptual approaches which although originating from distinct disciplines - Post Occupancy Evaluation (POE) and Participatory Rapid Appraisal (PRA) - are combined to form a new strategy of assessment. One that combines the technical framework of a building appraisal tool with a participatory approach to provide an accurate insight into the occupants' satisfaction and performance of recently built low-cost housing in Luanda.

1.3 - SETTING THE SCENE: CONTEXT

1.3.1 - Geographical background

Angola is located on the south-central west Coast of Africa, South of the Equator and North of the Tropic of Capricorn, between the parallels 4° 22' and 18° 02' South and the meridians 11° 41' and 24° 05' East. Its landmass makes it the fourth largest country in Africa with an area of 1,246,700 km². Angola borders with four countries, in a total extension of 4,837 km - Republic of Congo and Democratic Republic of Congo on the north, Namibia on the south, and Zambia on the east. A thin strip of Democratic Republic of Congo separates Angola from the 7,270 km² enclave of Cabinda, also part of the territory. On the west side, the Atlantic Ocean provides Angola with 4,837 km of coast line.

Angola comprises 18 provinces – Bengo, Bengela, Bié, Cabinda, Cuando, Cubango, Cuanza Norte, Cuanza Sul, Cunene, Huambo, Huíla, Luanda, Lunda Norte, Lunda Sul, Malanje, Moxico, Namibe, Uíge and Zaire. As seen in figure 1.1, the capital of Angola, Luanda, is located on the north coast of the country. In terms of administrative limits Luanda is divided into seven municipalities and six urban districts. Other important cities include Huambo, Soyo, Lobito, Bengela, Lubango, Malengue and Kuito.



Figure 1.1 - Luanda in the World Source: Maps adapted from: Wikipedia, Google Earth (2015)

1.3.2 - From war to peace: a recent history marked by violence and conflict

Despite the decline of civil wars registered in recent years in Africa (UN-Habitat, 2014), the continent's recent history is nevertheless deeply marked by violent conflicts and wars. In 1998 UN Secretary General Kofi Annan called attention to the fact that more than 30 wars had been fought across Africa (United Nations, 1998) and in the early 2000s over 350 million people lived in countries directly or indirectly affected by conflict (Michailof *et al.*, 2002). Angola too is amongst the approximately half of all African countries touched by war, one that despite short periods of cease fire, endured for more than 25 years before peace was finally installed in 2002.

Although it is not in the scope of this work to elaborate an in-depth account of Angola's political and historical background, not making reference to the many years of war and its consequences would be to ignore events that played a vital role in shaping present day

Angola. Therefore, this section highlights key moments and facts from the fight for colonial liberation and civil war up until peace was restored.

The war in Angola is characterised by different moments: firstly a conflict emerged as a consequence of Angola's drive for independence from its colonial power Portugal (1961-1975), to which followed a 27 year civil war (1975-2002), the latter being the result of political instability and fight for power and leadership between opposing former liberation movements.

Partially influenced by the independence of neighbouring Belgian Congo in 1960, the first signs of conflict led by pro-independence movements against Portuguese authorities first began in early 1960s. In 1961 two rival pro-independence movements - FNLA (*Frente Nacional de Libertação de Angola*; National Front for the Liberation of Angola) and MPLA (*Movimento Popular de Libertação de Angola*, Popular Movement for the Liberation of Angola) - actively engaged in an armed conflict against colonial authorities. Those two groups were later joined in 1966 by a third - UNITA (*União Nacional para a Independência Total de Angola*; National Union for the Total Independence of Angola). However, due to dissension between the three, in early 1970s the Portuguese recovered the advantage in the fight. Nevertheless, the latter finally left the country in 1975 as a consequence of a military coup that took place in Portugal in 1974, from which a new government emerged that granted independence to Angola.

After the independence, power was not handed over to a particular pro-independence group, which eventually resulted in an intrastate armed conflict over who would get to lead the government of the recently made independent Angola. Although MPLA succeeded with what was an internationally acknowledged Marxist-inspired government, it was soon challenged by the remaining two groups (FNLA and UNITA). Later, with considerable support from foreign intervention, the MPLA defeated FNLA during the late 1970s. This did not however change the situation, as UNITA, even after being defeated in the elections that took place in 1992, resumed the conflict. Unlike other sub-Saharan countries also under conflicts of similar nature such as Mozambique, the availability of local resources in Angola to which both the government and the opposing parties had access to contributed greatly to perpetuate the conflict. In addition to providing means to finance the conflict it also, as pointed by Oppenheimer and Raposo, made access to power more attractive (Oppenheimer and Raposo, 2007).

Angola's civil war was one of the longest and bloodiest conflicts that took place during the Cold War. Although mainly a fight over power between Angolan liberation movements, it brought to the battleground heavy foreign intervention by opposing power blocks such as the Soviet Union, United States, Cuba and South Africa. It was only in 2002 after the killing of UNITA's leader Jonas Savimbi that a path towards a negotiated settlement of the war

was finally paved. It is estimated that the war in Angola caused over four million Internally-Displaced Persons (IDPs) (Political Economy Research Institute, 2015) and a number of direct or indirect deaths which different sources place between 800,000 (IDMC, 2013) people and 1.5 million people (Lacina and Gleditsch, 2005).

With nearly 15 years passed since the end of the war, its effects are still very much felt today. The overcrowded capital, once destiny of approximately 25 per cent of the rural population searching for safety in the cities during the war, remains witness to that. As shall be discussed in Chapter Two, the war had a profound effect on Angola's structure, it had devastating effects on the country's infrastructure, public administration and social fabric.

1.3.3 - Keywords and Concepts

In order to provide a better understanding of the background and issues discussed throughout the thesis, the present section focuses on definitions of key terms and concepts. Hence, it elaborates on 'informal settlements' (and 'informal housing'), 'slums', 'peri-urban areas', and 'low-cost housing' (considering the context in which the research is taking place).

In the literature terms such as slums, *barrios*, *barriados*, *villes misérables*, *favelas*, shanty towns, *bustees*, *ranchos*, *gecekondus*, spontaneous uncontrolled squatter settlements, *bidonvilles*, *caniços*, *musseques* and others, illustrate how widespread and homogenous the phenomenon of informal settlements has become across the world. Although the terms may differ according to the geographical or cultural setting in which they are used, these nevertheless tend to refer to common patterns and reflect similar issues. This includes for example the nature of tenure arrangements in which dwellings tend to fall under de Soto's "dead capital" (de Soto, 2001) classification, where ownership arrangements are established outside of formal or legal systems and managed locally. When analysed from a built environment lenses, all of the above are associated to basic and inadequate housing, poor conditions, shelter with minimum resources, low quality building materials, transitional or temporary nature of dwellings, self-built activities, high density, etc.

As far as the use of the term 'slum' in particular is concerned, it has been used in the English language since the 19th century to refer to a space in which the living conditions were "of a squalid and wretched character" (UN-Habitat, 2003a, p.7). Since then, although its definition has undergone a series of modifications, it still remains as possibly the most

commonly used term when referring to the aspects listed above. The term 'slum' is used by UN-Habitat, to describe the following:

"a wide range of low-income settlements and/or poor human living conditions and note that these inadequate housing conditions exemplify the variety of manifestations of poverty as defined in the Programme of Action adopted at the World Summit for Social Development. The term slum includes the traditional meaning, that is, housing areas that were once respectable or even desirable, but which have since deteriorated, as the original dwellers have moved to new and better areas of cities. The condition of the old houses has then declined, and the units have been progressively subdivided and rented out to lower-income groups. A typical example is the inner-city slums of many historical towns and cities in both the industrial and the developing countries.

The term slum has, however, come to include also the vast informal settlements that are quickly becoming the most visual expression of urban poverty. The quality of dwellings in such settlements varies from the simplest shack to permanent structures, while access to water, electricity, sanitation and other basic services and infrastructure tends to be limited. Such settlements are referred to by a wide range of names and include a variety of tenurial arrangements..."

(UN-Habitat, 2003a, p.7)

In the specialist literature, the word 'slums' is frequently used interchangeably with other terms, such as 'shanty towns' and 'squatter settlements'. Nevertheless, the potential lack of accuracy/objectivity in which one may incur when using those terms interchangeably are often pointed in the literature (Obudho and Mhlanga, 1988; UN-Habitat, 2003b). Hence, generally 'slums' tend to refer to occupation in old areas experiencing decay and deterioration, within existing fabric of cities. Furthermore, slums are typically associated with a relatively permanent built environment, and tend not to lack secure of tenure (UN-Habitat, 2003b). This is not the case with 'squatter settlements' which, according to Obudho and Mhlanga (1988, p.9) refer to primitive forms of shelter built on unoccupied land, either on the city centre or in the outskirts of the city (peri-urban). A very similar definition is also attributed to 'shanty towns' (UN-Habitat, 2003b).

Another term used is 'informal settlements', which definition mainly relates to legal status of the land and its occupation (land tenure) and the lack of compliance with planning and building regulations² (United Nations, 2001). As a contrast, formal housing refers to housing that complies with regulations with some form of recognised land tenure. With

² According to UN-Habitat, informal settlements are defined as: i) residential areas where a group of housing unit s has been constructed on land to which the occupants have no legal claim, or which they occupy illegally; ii) unplanned settlements and areas where housing is not in compliance with current planning and building regulations (unauthorized housing) (United Nations, 2001).

formal housing markets in the developing world failing to supply shelter for the majority of the population in such contexts, most additions to the housing stock are usually made through the former, within illegal or informal land markets (Davis, 2006). As a result, the majority of city growth takes place as the consequence of people building their own houses on peripheral and unserviced and unstructured lands (de Soto, 2001).

Despite acknowledging the relevance and wide use of the term 'slums', this research seeks to avoid using it due to the often negative perceptions associated with it. This position is in fact common amongst a "more sensitive, politically correct, and academically rigorous" (UN-Habitat, 2003a, p.9) community who rarely uses the term slum in their work (UN-Habitat, 2003a). Moreover, the literature also puts forth specific terms used locally to refer to settlements of such nature in Angola. The Portuguese term '*musseques*' is for example frequently used to define the informal built areas of Angola and particularly in Luanda. However, this term was rarely employed by the inhabitants of these settlements during fieldwork, who instead use '*bairro*' - which literally translates from Portuguese as neighbourhood - and then add the name attributed to the various areas (eg. *bairro Chicala*, *bairro Cazenga*, *bairro Rocha Pinto*, *bairro Sambizanga*, etc.). These identify neighbourhoods according to territorial administrative boundaries also tied up to local democratic processes or assessments such as census (Barton *et al.*, 2003).

The preference for the term '*bairro*' was also pointed out by Monteiro (1973) when carrying out a study in the *musseques* in Luanda during the colonial period. Following up from the definition of neighbourhood above, '*Bairro*' in this case is used as an impartial term as it refers to a spatial feature and location (smallest political-administrative division) and is applied equally to both formal and informal areas. Furthermore, it does not necessarily reflect a particular social connotation, unlike 'slum'. For this reason, it was decided that although both '*musseques*' and '*bairro*' would be used in the body of text of this thesis, the former would be more predominant to the first section (Section A - Context) as it is used in the literature, whereas '*bairro*' was considered more adequate for the following sections, including the analysis and discussion. A more detailed description and background of '*musseques*' in the context of this study will be provided in Chapter Two, section 2.5.

Understanding the concept of 'peri-urban' is also important in this context, particularly when the terms 'rural' and 'urban' do not seem to be sufficient to accommodate spatial phenomena associated with urban growth in cities like Luanda. Before the late 1980s, when the dichotomy of 'rural' and 'urban' represented the main basis for explaining human behaviour and activities within urban areas and their surroundings, little focus was given to what was taking place in the urban fringes (Simon, 2008). This apparent lack of attention, which Simon (2008, p.168) attributes to the association of urban fringes with a

short-term, unimportant and uninteresting transitional area, eventually shifted in the beginning of the 1990s with the acknowledgement of the long-term persistence and importance of transitional zones between cities and rural areas. Thus he suggests that terms 'urban' and 'rural' alone may no longer to reflect accurately the complex interactions between both areas and, in many parts of the world - particularly the Global South - and potentially have an impact on policy-making (Simon *et al.*, 2006).

For the purpose of this work, the researcher follows Simon's (2008) definition of peri-urban interface as "zone of (dynamic) transition or interaction between urban and rural areas; usually used in the context of rapidly urbanizing poor countries." (Simon, 2008, p. 170).

1.4 - RESEARCH SETTING: IDENTIFYING A GAP IN KNOWLEDGE

This thesis places itself in a current wider discussion on housing deficit associated with physical urban expansion and population growth within developing countries. Moreover, it uses that as an entry point to explore Luanda's perceptions of housing from the perspective of those inhabiting the low-rent sector, including the informal settlements of the capital.

The settlements emerging in Luanda's periphery absorb some of the people displaced from informal settlements (*musseques*) but are also open to those who would not otherwise be able to afford living closer to Luanda's centre. Despite repeated remarks on dream-houses associated with promises of ownership and improved living conditions for those on a low-income, very little is known about whether this brief has been met and about the occupants' response to the houses.

The world is becoming increasingly more urban. Currently globally more people live in urban areas than in rural areas. According to the World Urbanization Prospects (United Nations, 2014b), 54 per cent of the world population lived in urban areas in 2014, a figure projected to increase to 66 percent by 2050. In terms of geographical distribution of urban population, Africa and Asia remain mostly rural (with 40 and 48 per cent of their respective populations being urban), as a contrast the more urbanized areas like Northern America, Latin America and the Caribbean, and Europe. However the former are urbanising faster than the remaining regions and statistics anticipate that these will become 56 and 64 per cent urban by the year 2050 (United Nations, 2014b).

As far as Africa is concerned, recent data point to an unprecedented population growth and projects that the total population is to "nearly double from around one billion in 2010 to almost to two billion by 2040 and may well surpass three billion by 2070" (United

Nations, 2014b, p.17). Although progressing unevenly, urbanisation in Africa is increasing, a fact that has been drawing attention to potential further proliferation of urban poverty and urban slums, already a prominent feature of Africa's urban areas. This is likely to become an even more present phenomenon in the future, especially in smaller scale cities and towns throughout rapid urbanising African countries. In reference to this, the UN-Habitat suggest that considering the current trends, these smaller scale urban areas will be surrounded by informal settlements, thus replicating patterns already observed in Africa's larger cities (United Nations, 2014b). As illustrated in the charts below, Angola part of the most urbanised region in Sub-Saharan Africa (Southern Africa) is experiencing similar urbanisation patterns as those referred above.

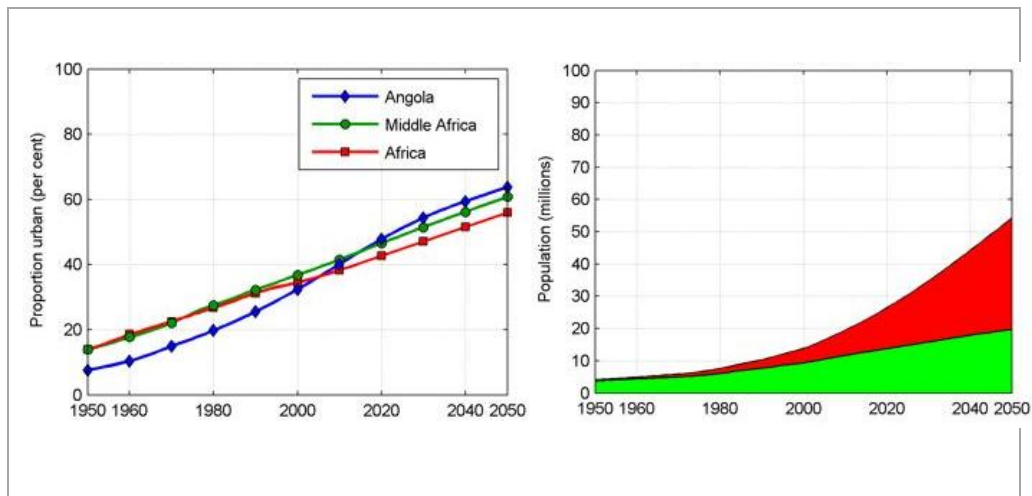


Fig. 1.2 – Left: Proportion urban population in Angola as compared to Middle Africa and Africa. Right: Urban (red) and rural (green) populations in Angola. Source: (UNDESA, 2014)

The subject of informality in the urban built environment of developing countries has been widely discussed in the literature from different perspectives and fronts, particularly since the mid-20th century. Much of these discussions emerged in parallel with the phenomenon of rapid and unplanned/informal urban growth generally felt in capitals of the developing world (see for example: UN-Habitat, 2003b, p. 7; UN-Habitat, 2008). This fact is widely pointed throughout the literature of the same period and has been acquiring further relevancy as the discussions around the possible consequences of unplanned urban development first emerged onto the world's arena (see for example: Brandt, 1980; Obudho and Mhlana, 1988; Turner, 1976; UN-Habitat, 1996a; WCED, 1987). Since then urban growth and the spread of informal settlements have been debated side by side, and it is suggested that the development of the latter is a direct outcome of the high rate of urbanisation. Recent estimates, such as those observed in figure 1.2 above, which indicate a further growth in urban population of developing countries over years to come, confirm and reinforce the significance of this matter in the global scale.

Political, economic, social or cultural aspects are only some of the aspects of informality debated in the literature on the subject. However, for the purpose of this work, although the above will be briefly touched upon, it is to aspects of the built environment and respective occupants that special emphasis will be given. Furthermore, this topic is addressed considering the case of Angola.

As mentioned earlier, before 2002 Angola was in war for more than three decades. Despite international efforts towards demining and continuous clearing operations carried out by international NGOs and the National Institute of Demining, Angola is still heavily contaminated by landmines and other unexploded explosive devices. Although the exact extent of the current contamination it is not clear, recent sources have categorised the landmine presence as very heavy contamination, which corresponds to a total of more than 100Km² (Landmine and Cluster Munition Monitor, 2013). This research intends to bridge a gap in knowledge created by a long period of hostility and war and capture the specificities of production and occupation of low-cost housing in Luanda. Furthermore, it particularly hopes to shed light into low-cost

1.5 - AIM AND OBJECTIVES

The Aim and Objectives defined for this thesis are as follows:

Aim: Develop and test a framework of analysis based on the combination of the tools Post-Occupancy Evaluation (POE) and Participatory Rapid Appraisal (PRA) and assess occupancy satisfaction of urban inhabitants of Luanda living in an informal settlement and in a low-cost mass housing project.

The Aim above is to be achieved through the following **Objectives**:

1. Examine solutions implemented to address and mitigate housing problems arising from Luanda's urban growth and clearance of informal settlements - focusing on the National Urbanism and Housing Programme (NUHP) - and place these within the wider context of international guidelines such as the Millennium Development Goals (MDGs) and the newly formed Sustainable Development Goals (SDGs);
2. With regards to appraisal methodologies available, critically analyse Post Occupancy Evaluation (POE) as built environment assessment tool. Moreover, investigate and critically review Participatory Rural Appraisal (PRA) in terms of how it is used to assess people's views and aspirations in development research; Explore the potential tailoring of both to the context of this research.

3. Through the application of the framework Participatory Post-Occupancy Assessment (PPOA), identify problems and/or good practices and identify lessons and principles to take forward and inform housing programmes in Luanda, and beyond.

1.6 - CONTRIBUTION TO KNOWLEDGE

The original contribution of this research intends to be both methodological and of content to the local context. On the one hand it introduces PPOA as a framework of analysis based on POE and PRA, which has been developed in order to provide a first-hand insight into people's perceptions of housing. On the other hand, in light of the gap in knowledge identified on point 1.4, the outcomes of this research also intend to contribute to the existing body of knowledge on the dynamics of housing growing populations in rapid urbanising countries within the developing world, focusing specifically in Luanda.

Findings arising from this research suggest that using a PPOA framework represents a valuable tool to provide an insight into how dwellings in the case study areas perform after occupation, and whether or not these are responding successfully to occupants' needs and requirements. Moreover, considering that a large number of low-cost housing is to be constructed in the periphery of Luanda to absorb a growing population in years to come, using PPOA at a large scale could potentially provide an entry-point to assess successes and failures in past and current projects. Moreover, the outcomes of such practice may inform policy-making, thus contributing positively towards the improvement of strategies to house a growing population, and the design of housing programmes responsive to people's actual needs and aspirations.

With regards to contribution in terms of content, the information gathered through the implementation of such a framework ascertains how the low-cost housing delivered to former informal settlements' residents in Luanda is contributing to the improvement of their quality of life. This provided a snapshot of the current context in terms of relationship and interaction between people and the built environment, particularly in informal housing and dwellings recently built as part of a government led large-scale housing programme.

Although not intending to be statistically representative, this research revealed a gap between intentions and actual capacity of the NUHP's 'dream-houses' to meet resident's aspirations. It suggests that the fulfilment of such goal relies on an holistic approach to housing that takes into account a variety of factors beyond the dwelling as a structure. One that also contemplates and acknowledges owner-driven adaptation strategies, whilst guaranteeing the contextual conditions and support of a fully functional planning and legal framework.

1.7 - RESEARCH METHODOLOGY

The following figure is a diagrammatic representation of the conceptual framework developed for the purpose of this research. It demonstrates that PPOA emerged from the overlap between POE and PRA, capturing the essence of both conceptual approaches in terms of essence and methods. An extended and more detailed version of this diagram can be found in Chapter Five (Methodological Approach), Section 5.2.1.

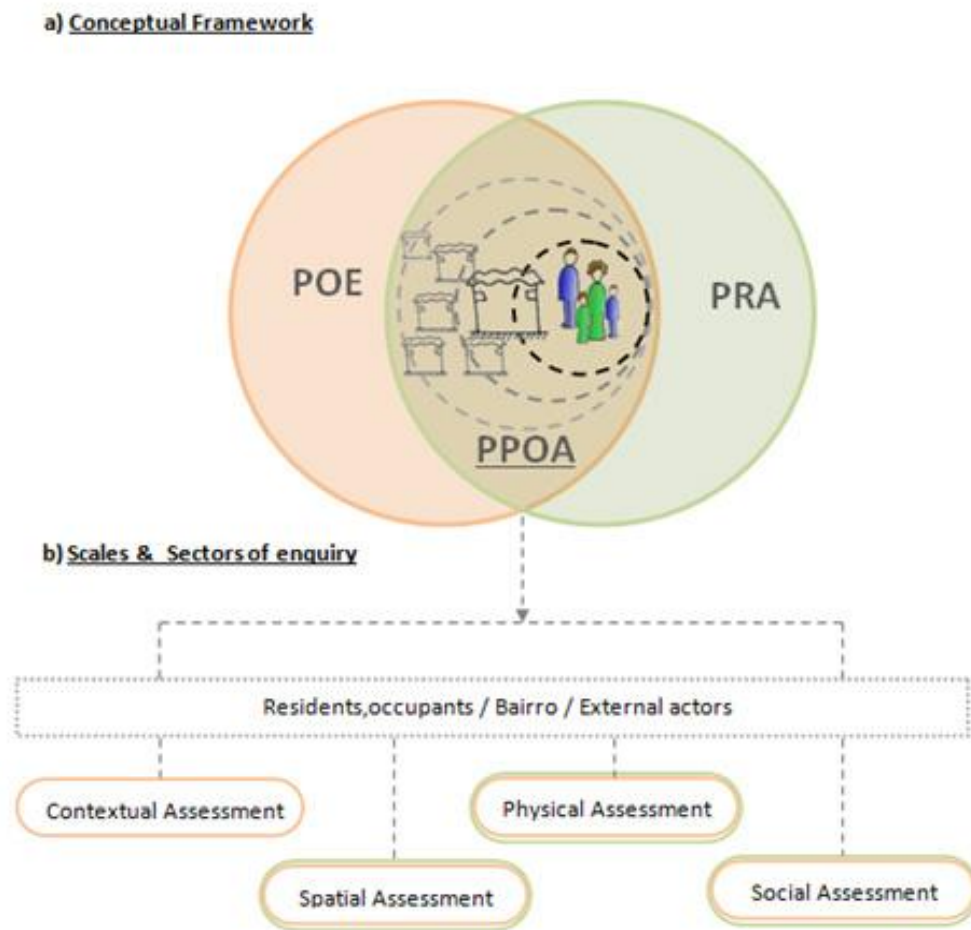


Fig. 1.3 – Diagram representing conceptual framework.

The research methodology's design and strategy used during the course of this research is described in detail in Chapter Five. The progression of this research from a methodological point of view can be succinctly described as follows:

In order to set up the background for the study, the research was initiated with a thorough review of the available (published and unpublished) literature. This covered general issues associated with the research topic in Africa with a focus in Angola and Luanda. In order to inform the methodological approach of this research, the literature review also explored literature on building assessment and participatory research

methods, focusing on POE and PRA respectively. Following that, the methodology was developed and tested on case study areas identified previously to fieldwork. Lastly, the data gathered was processed and analysed, to which a presentation of findings followed, finishing with discussion and conclusion.

In terms of meeting each of the objectives, **Objective 1)** was achieved by carrying out desk-based research and a review of literature on the subject; this focused on a combination of literature review and analysis of official reports and documents (produced by the government and local and/or international organisations). **Objective 2)**, although consisting of a review of data research and collection techniques available – POE and PRA – had the intention of informing the latter of the objectives and contribute towards designing the methodology to implement the PPOA methodological framework. In order to do this, a critical analysis was carried out to emphasise, not only the benefits of POE, but also to identify potential limitations and barriers that would perhaps compromise its application in the context of this research. As a consequence of that, and as part of the same objective, it is suggested that the limitations could be overcome by using Participatory Methods (PMs), especially PRA. Hence, **Objective 3)** was achieved by developing and testing a framework and respective methodological strategy based on the combination of the two approaches mentioned above, created specifically for this research. Following on previous conventional methods that have been adapted to PMs (Example: Participatory Geographical Information System – PGIS), the researcher named this framework as Participatory Post Occupancy Assessment - PPOA. Furthermore, Objective 3 encompasses the findings which emerged from data collection carried out during field work, as well as the respective analysis. Moreover this objective is concerned with the dissemination of knowledge acquired through this work.

The following summarises the steps taken in order to achieve each of the objectives stated on section 1.5 and thus fulfil the overall aim of this research. Objectives 1 and 2 bear a strong theoretical component and rely primarily on information available on published and unpublished literature, whereas objective three is a combination of theoretical and practical activities.

1.7.1 - Literature Review: Objective 1

- *Examine solutions implemented to address and mitigate housing problems arising from clearance of Luanda's informal settlements - focusing on the NUHP - and place these within the wider context of international guidelines such as the MDGs and the newly formed SDGs.*

This research was initiated with an in-depth literature review on the topics directly and indirectly related to the subject investigated. As stated in Thyer (2010) reviewing the literature allows the researcher to identify gaps in knowledge, through the creation of a base of information from previous research. As the same author further states,

"the literature review is a foundational stage in the development of any research project. [...] Its results provide the groundwork for every other stage of the study. It helps the researcher to learn about previous studies, anticipate and avoid problems in their own research, define concepts, identify measures, and select design"

(Thyer, 2010, p.504)

With regards to this particular work, the literature review stage explores and develops specifically three main areas of knowledge that have been divided into two initial chapters with context about Angola and a third chapter focused on POE and PRA. Those are respectively: **1)** An introduction featuring information on issues around the urbanisation and housing crisis in Angola; **2)** Responses to Angola's housing deficit with a focus of low-income housing strategies in Luanda; and **3)** Appraisal methods used in the built environment as well as Participatory Methods used in development research.

As far as item 1 above is concerned, information was obtained from various sources, namely books, journal articles, academic papers, academic unpublished (Masters dissertations and PhD thesis) and published research work, government official reports and other publications, articles from press, statistical data, online image databases, documents from historical archives, cartography, amongst others. Previous studies that looked at the informal settlements of Luanda were carefully analysed (See for example: Moreira, 2012; Raposo and Salvador, 2007; Rodrigues, 2003). In addition to the sources mentioned for item 1), media reports, online news statements, local and international NGOs and human rights Organisations (e.g. SOS Habitat, Development Workshop Angola, UN-Habitat, UNDP, UNESCO, CARE, Amnesty International, Human Rights Watch), governmental reports, as well as various articles and papers were also carefully analysed in order to inform the content of item 2).

1.7.2 - Literature review: Objective 2

- *With regards to appraisal methodologies available, critically analyse POE as built environment assessment tool. Moreover, investigate and critically review PRA in terms of how it is used to assess people's views and aspirations in development research; Explore the potential tailoring of both to the context of this research.*

In order to fulfil Objective 2, the research was oriented towards specialist literature on POE and PRA and retrieve information from academic papers, articles, reports, and books. Key authors in both fields were identified and their work reviewed. Key authors in POE included amongst others: Leaman, Prieser, Stevenson, and Vischer, and in PRA, Chambers, Kumar, Mukherjee, Narayanasamy, and Sanderson. Further to the above, it also drew from the researcher's own experience in carrying out POE studies.

1.7.3 - Data collection, analysis and discussion: Objective 3

- *Through the application of the framework Participatory Post-Occupancy Assessment (PPOA), identify problems and/or good practices and identify lessons and principles to take forward and inform housing programmes in Luanda - and beyond.*

Following the understanding of POE and PRA gained through the fulfilment of Objective 2, Objective 3 was achieved through the desk-based development and respective practical implementation of PPOA framework during fieldwork and analysis of findings. Chapter Five explains in detail the method including data collection tools. Finally, the discussion of outcomes informed the conclusion.

1.8 - TIMELINE OF RESEARCH

The timeline for this research was initially designed for a period of three years and later extended to a total of seven years, through which several milestones were distributed. It was later extended to accommodate further period of fieldwork and analysis. Both the analytical framework and timeline are described below.

The student enrolled for the MPhil/PhD Research Degree in the academic year of 2009/10 at Oxford Brookes University. The first stage of the research programme consisted of completing a research methods course provided by the graduate school, including the required assignments. Moreover, during the first academic year the proposal of registration for the MPhil/PhD programme was submitted and accepted by the committee – March 2010 and the ethics approval for this study was granted in February 2011. The proposal as submitted for the registration suffered a major modification that had a direct influence in the programme and timeline. The transfer from MPhil to PhD was granted in May 2011. The first stage of fieldwork took place for one month starting 22nd September 2011 and the second stage one month starting 20th July 2013, both taking place in

Luanda. The period of analysis and writing up followed following the return from fieldwork and was extended until June 2016.

There were a number of challenges and limitations encountered throughout the research, especially during fieldwork stage. These are further developed in section 5.6. This mostly resulted in a series of adjustments, which had an impact on the implementation of the methodological strategy and therefore on the time allocated to data collection and analysis. The research was adjusted whilst the fieldwork was taking place in order to accommodate changes and still collect as much relevant data as possible in order achieve the objectives. Moreover, the time the time allocated for each stage of the research was also extended beyond what was initially predicted.

1.9 - THESIS OVERVIEW AND STRUCTURE

A brief outline of the thesis is provided below, including a summary of each chapter.

Chapter Two - Overview of housing situation in Luanda: Consequences of continuous rapid urban growth and strategies to combat housing deficit

Chapter Two firstly provides an historical perspective on the topic of Luanda's rapid population growth and physical expansion. Based on available literature, the urban growth phenomenon in Luanda since the early 1960s is attributed to a combination of factors, amongst which are changes in population patterns (growth and rural-urban migrations) that took place during the war, and ineffective or inexistent policies on urban management. Following this, it examines the overall impact of the above to the formal and informal housing sector in Luanda, with particular focus on the latter. Furthermore, Chapter Two characterises the specific nature of informal settlements of Luanda (*musseques*), elaborating on their evolution and emerging issues during the process of rapid urbanisation until today. This chapter closes with an overview into government-led proposals put forth to mitigate the housing shortages in Luanda.

Chapter Three - Informal settlements to low-cost 'dream-houses'

Following the approach to issues related to low-cost housing in Luanda identified in the previous section, Chapter Three elaborates on strategies and measures developed as a response to housing issues in Luanda. In order to do so, it builds up on available literature and other sources on preventive and corrective measures locally planned and implemented mostly as a result of the uncontrolled spread of the *musseques* in the capital

of Angola. Moreover, these strategies are analysed in light of international guidelines such as the MDGs and the newly formed SDGs.

Chapter Four - Contribution of POE and PRA to appraise low-cost urban fabric in Luanda

Chapter Four reviews literature of two disciplines: that on tools currently implemented in the building sector to evaluate and monitor the performance of buildings; and the literature on tools of participatory nature used to collect data in research carried out in development context. By combining these two disciplines this chapter intends to partially – combined with Chapter Five (Methodological approach) - fulfil Objective 3. Moreover, it also provides the background for the subsequent chapter in which the methodological approach designed for this research is explained in detail.

Chapter Five - Methodological Approach

Chapter Five describes in detail the methodological approach used in the course of this research. The methodological strategy has been designed to collect and subsequently analyse data in order to meet the aim of research set for this research. The chapter is structured into three sections. The first part outlines and explains the research design strategy, including data collection methods (drawn from the theoretical information provided on Chapter three on POE and PRA); the second sheds light onto the process of case study selection; and the latter part elaborates on data analysis as well as limitations and ethical considerations associated with the research.

Chapter Six - PPOA: Contextual and Spatial Assessments

Chapter Six is the first of three empirical chapters included in this thesis (Six, Seven and Eight). It unpacks the conceptual framework that guided this research, and elaborates on the findings emerging from fieldwork in both case study areas. These are compartmentalised according to different sectors of enquiry (Contextual, Spatial) in association to the case study areas' context. The remaining sectors of enquiry, namely physical and social assessments, also part of the PPOA process, are addressed in the subsequent chapter. Chapter Six focuses on the more technical aspects of PPOA and covers the scales of *bairro* and external actors. It relates mostly to findings that emerged prior to extensive interaction with residents in both case study areas and captures the first layer of information on the context and issues in place.

Chapter Seven - PPOA: Physical Assessment

Chapter Seven, the second empirical chapter, further explores the outcomes of the PPOA process, focusing on aspects related to the physical assessment. These findings emerged as a result of a combination of technical analysis driven by the researcher and the use of participatory enquiry tools in order to gather participants' input during the data gathering process. In terms of general structure, chapter seven demonstrates separately the findings relating to the physical assessment, namely in terms of 1) building fabric, adequacy and appropriateness, 2) structural stability and construction process, and 3) Infrastructure, services and accessibility. Each of the subsections above includes a detailed description of the findings and finishes off with a PPOA section summary highlighting the main issues which emerged from the technical analysis. These are further supported by a series of relevant visual elements and participants quotes and stories.

Chapter Eight- PPOA: Social Assessment

Chapter Eight comprises the outcomes of the latter section of the PPOA process and therefore focuses on the findings arising from the social assessment carried out in both case study areas. The findings herein were mostly driven by participants' input thus the technical background brought by the researcher played a secondary role in the data gathering process. Hence it draws mostly from the background of a PRA approach. It further captures the views of stakeholders on the issues under discussion. Following the same structure as the previous two chapters, it demonstrates separately the findings relating to the social assessment, namely in terms of 1) space, layout and aesthetics, and 2) safety and security. Each of the subsections above includes a detailed description of the findings and finishes off with a PPOA section summary highlighting the main issues encountered.

Chapter Nine - Analysis and discussion

Chapter Nine revisits and discusses the main findings which emerged from the implementation of the PPOA framework. It also aims to fulfil the final stage of PPOA through the production of relevant information that can be inform future low-cost mass housing projects in Luanda and Angola. This is achieved through critically reflecting on the findings of the data and empirical sections and discussing these in light of the aim and objectives set for this research.

Chapter Ten - Conclusion

This section brings the thesis to a closure and focuses on the contributions to knowledge generated as an outcome of this research work. In terms of contribution to knowledge, there were two major contributions arising from this research: 1) The development of a methodology which combines two distinct existing ways of enquiry to collect data on built environment and occupant satisfaction in a context of development; and 2) testing the PPOA framework through generating findings resulting from its application in two case study areas in Luanda.

1.10 - SUMMARY

As the introduction to the main body of the thesis, Chapter One provided an overview of the scope of this research, including contextual background and methodological approach. It started by exploring the geographical context of Angola and the recent history of the country, focusing on the years of conflict that followed the independence. It then followed to define keywords, terms and concepts which are used throughout the thesis and were considered fundamental to the understanding of the content. It then elaborated on the aim and objectives set for the research and stated the intended original contribution to knowledge. Additionally, the research approach in terms of strategy and methodology were summarised, including the conceptual framework and timeline of the work. Chapter one closed with a brief overview of the structure of the thesis.

section B – **Literature Review**

CHAPTER TWO – Overview of housing situation in Luanda: Consequences of continuous rapid urban growth and strategies to combat housing deficit

‘...They have a horror of the emptiness that in their heads means a square, a garden, a park, a waste of space that would be better with a tower in the middle [...] yes tower, because its users/prisoners live in fear of going out, living the city, enclosed and protected from the misery that spread itself around them.[...] And they want to build more towers to attract more people and more cars? The towers will have car parks, say the advocates of futuristic ideas. The problem is to get in or out of the park because the streets are packed with cars.’

Pepetela, Angolan writer; Horror of the Emptiness, 2009 - *Horror do Vazio*³

2.1 - INTRODUCTION

Chapter Two opens the literature review section and addresses the main contextual issues associated with the research topic. It does so by looking at the expansion of informal settlements in Luanda and exploring theories sourced from the literature that attribute this phenomenon to a combination of factors, namely changes in population patterns (growth and migration) and lack of or ineffective policies on urban management and planning. Moreover, Chapter Two elaborates on issues of urban poverty and housing in Luanda, with particularly emphasis on low-cost housing and informal settlements. The final section of this chapter looks at responses and measures put in place in order to address the proliferation of informal settlements during the colonial and post-colonial era.

³ Translation from original in Portuguese

2.2 – CONTRIBUTION OF POPULATION GROWTH AND HIGH URBANISATION RATES TO HOUSING SHORTAGES IN LUANDA

2.2.1 – Historical note on Luanda's urban growth

Luanda is the second largest city in the sub-region of Central Africa and is one of the fastest developing cities in the whole of Africa (UN-Habitat, 2014). Moreover, the capital of Angola is also amid the seven more prospective growing cities in Central Africa (UN-Habitat, 2010, p.208). Although Luanda was originally planned in the 1970s to accommodate an approximate number of 475,000 inhabitants (República de Angola, 2001), today, according to different sources now houses between five and six and a half million people (INE, 2014; UNDESA, 2014), whilst functioning with many of the same services and infrastructure from the 1970s.

Despite the figures above, Luanda's growth has not always been this rapid. During the 70 years subsequent to its foundation in 1576, the physical expansion and demographic growth of Luanda was practically inexistent. At the time Luanda's resident population was scarce and basically consisted of state workers and people whose activities were related to the slave trade. Nevertheless, due to its privileged location with regards to accessing the kingdoms of Congo, Angola and Benguela, Luanda was still regarded as an important military, commercial and administrative centre (Amaral, 1968). The growth of Luanda would remain stable throughout the three centuries that followed. A trend which only changed after the official abolition of slave trade in 1836. With the interruption of what had been one of the paramount economic drivers of the city, the shift was then made towards other activities, entailing a new socio-economic dynamics, and largely contributing to the increase of people arriving and settling in Luanda (Amaral, 1968).

It would take at least a century for the growth of Luanda to reveal its impact. The problems associated with its development, both in terms of population growth and physical expansion, were visible in the urban fabric particularly after 1948-50. A period to which is also associated an overall rising prosperity and modernisation of the capital. However, despite efforts being made by the government towards anticipating the city's growth at the time, Luanda's urban fabric was showing clear signs of stress and inability to cope with an increasing population, making any urban plan implemented rapidly ineffective and obsolete (Amaral, 1968).

image not available due to copyright restrictions

Fig 2.1: Luanda's physical expansion over time. Source: MINUC, 2009

Year	1940	1960	1970	1958	1995	2000
Population	61,000	224,000	480,613	1,138,000	2,100,000	3,276,991

Table 2.1 - Population growth in Luanda 1940-2000. Adapted from Sources: (Cain, 2004b; Cain *et al.*, 2002)

Year	2011(a)	2014b	2015(b)	2020c	2025c
Population	5,068,000	6,542,944	6,183,000	7,555,000	8,924,000

Table 2.2 - Population growth in Luanda 2011-2025. Adapted from: a – Estimate by (UNDESA, 2012a); b - Preliminary results from Census 2014 (INE, 2014); c - estimates by (UNDESA, 2012b)

2.2.2 – Current demographic profile of Luanda

Although it is widely agreed that the overall population has been increasing in Angola, it is difficult to ascertain its accurate current demographic profile, particularly due to the different figures found on various sources. The most recent demographic official figures come from the 2014 census, 44 years after the last official census had been conducted during the colonial era⁴. This gap between both is often attributed to the many years of

⁴ The reliability of the 1970's general census have been contested in 2006 by the Angolan Planning Minister. He argued that because "most locals failed to cooperate with the count, for fear that numbers would be used by the colonial administration's secret police to round up people" the results of the general census may not have reflected the reality then (ECA, 2006).

civil war lived in the country, which prevented accurate population surveys to take place (MINUA, 2006).

Nevertheless, much of the often contradictory statistical data currently available are based on partial surveys conducted since 1970 (MINUA, 2006), the official national census and estimates and projections provided by institutions like the United Nations. With regards to Luanda, although the results from the 2014 census were at the time of this research preliminary, these nevertheless provide an insight into Luanda's population figures without having to rely on estimates. Despite the potential lack of accuracy with regards to demographic patterns, the literature emphasises the growth of urban population, pointing the many years of armed conflict as one of the factors with the biggest impact on the demographic structure of the country. A trend also observed in other African countries that much like Angola recently emerged from conflicts, (UN-Habitat, 2010). Recent figures seem to point out to the continuous rising trend of the population since the civil war ended in 2002. The World Population Prospects – 2012 revision estimated (UNDESA, 2012a) that the total population in Angola in 2010 was set at just above 19 million and was growing at the rate of 2.7 per cent (2010-2015). Although it was anticipated that the total resident population in Angola could reach 24 million in 2020 (UNDESA, 2011a), current data suggests that this figure has already been reached in 2014⁵ (INE, 2014).

Additionally, and despite earlier hopes that the population growth could be reduced as a result of peace, estimates indicate that population does continue to grow in Luanda, although presently as a consequence of a combination of natural growth and high fertility rates (Development Workshop, 2005). The urban population in Angola more than doubled after the independence, which adding to the above can perhaps be explained by the combination of mass population displacements and a high fertility rate⁶ (UNDESA, 2011b). A tendency that as it was mentioned before, is observed elsewhere in the African continent where urban population currently increases through natural growth, rather than due to the rural-urban migrations that characterised the post-independence period throughout Africa (UN-Habitat, 1996b).

⁵ The preliminary results of the 2014 Census indicate that on the 16th May 2014 there were 24,383,301 residents in Angola, of whom 11,803,488 male and 12,579,813 female (INE, 2014).

⁶ According to estimates by the United Nations, Department of Economic and Social Affairs – World Population Prospects 2010, since 1965 Angola consistently had one of highest fertility rates in the world (UNDESA, 2011a).

2.2.3 – Urban housing shortages

Although the population growth is particularly evident in the case of cities located along the coastal strip, the distribution of population is geographically uneven and it has been the capital Luanda to house the biggest number of people since the mass population movements started (Trindade, 2000), a trend that has not yet changed.

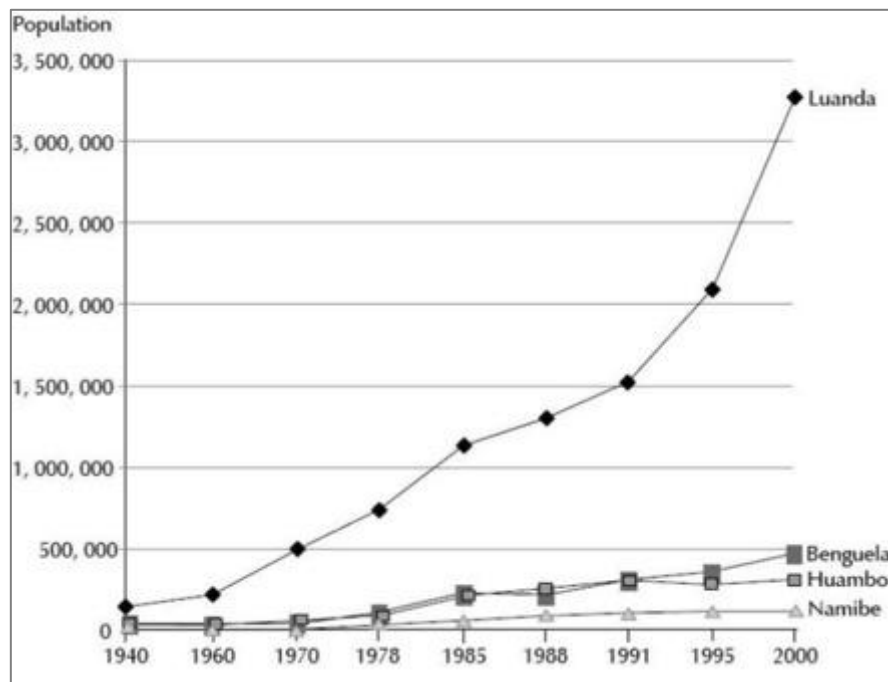


Fig 2.2 - Population growth in Luanda compared to different cities of Angola - Sources: (Cain, 2004a; Cain *et al.*, 2002)

The escalating perception of housing issues in Angola has been present in the literature since the mid 1960's. These problems tend to refer to either conditions of existing housing or to the insufficient housing to accommodate the ever growing population residing in the larger urban agglomerations of Angola, with particular emphasis often being made to the low-income population. Moreover, despite the issues above refer to a widespread phenomenon, they tend to be more evident in the capital Luanda due to the rate at which both its resident population and the built area's footprint are increasing. This is further aggravated by the fact that much of Luanda's low-income population who inhabits the vast area of informal settlements. The acute housing shortage in Luanda has been therefore mostly attributed to a rapid growth of the resident population combined with a high rate of urbanisation. Population growth has marked Luanda especially since the second half of the 20th century and, according to recent projections, is expected to increase significantly in years to come (UNDESA, 2012b) – see figure 2.2 above. A fact that can potentially further emphasise an already grave housing shortage problem (ANGOP,

2006b). Whilst Luanda is frequently portrayed in the literature as an African capital struggling with a challenging housing crisis, other sources make mention to thriving economic prosperity and even label it as the most expensive city in the world (Mercer, 2015). A fact which, according to the UN-Habitat, also makes Luanda the capital of the most unequal country "in almost every sphere of life" amongst its neighbouring countries, including in what concerns access to housing and urban land (UN-Habitat, 2010, p.189).

The case of formal housing shortage in Luanda - particularly of low-cost housing - is not a unique case in the context of developing countries. In fact this phenomenon has been widely pointed in the literature as present generally throughout the African continent, where the provision of shelter through informal housing is the norm for millions of people, a number which is anticipated to reach 759.4 million in 2030 (UN-Habitat, 2010).

Although East and West Africa are indicated as the regions with the highest annual urbanisation rates in 2005-2010, it is Western Africa region that reveals the top annual population growth. Moreover, although the urban growth rates are distinct when analysing countries individually, the overall trend is ascendant (UN-Habitat, 2008). With regards to this, as Tipple and Speak explain, this "near-universal failure to supply housing needed" (Tipple and Speak, 2009, p.35) is particularly severe in capital cities of Africa. The case of Luanda is no exception, in the wider context of other African capitals which, whilst heading towards a paradigm of rapid development, seem to struggle with successfully providing housing and infrastructure to their fast growing resident population.

According to the UN-Habitat (2006, p.163), in the year 2000 Angola had an estimated formal housing (as per definition provided in section 1.1.3 earlier) deficit of 700,000 units. Although some anticipated that this figure would double to 1.4 million by 2015 (República de Angola, 2001; UN-Habitat, 2006), more recent reports point to a figure closer to 2 million (Bessa, 2010). As far as the capital is concerned, in 2006 it was estimated that the deficit of formal housing in Luanda was around 170,000 units (ANGOP, 2006a). As a result, either due to failure of the formally planned urban areas to keep up with incoming population or natural growth; or due to fact that many cannot afford the life standards of living in Luanda, non-serviced areas of informally built settlements emerge and expand beyond the limits of the formal city. Overall, it is estimated that in Angola approximately 55.5 percent of the urban population is considered to live under slum conditions (UN-Habitat, 2016b), whereas in Luanda this condition is attributed to 70 to 80 percent of its inhabitants (UN-Habitat, 2014). Although featuring an array of statistical indicators, the latest census carried out in Luanda in 2014 do not feature data on the number of people inhabiting informal settlements.

2.2.4 - A shift from conflict-led rural- urban migrations to natural urban growth: housing shortages

The various waves of population displacements that occurred throughout the many years of civil war in Angola have had a significant contribution to the formation of Luanda's urban fabric. As seen in Cain (2014), the population growth during the war is a result of perceptions of safety associated with coastal cities, which were regarded as safe havens providing protection from instability and insecurity. These rural-urban migration patterns, particularly towards Luanda did not cease during the brief moments of cease fire, and were rather used as windows of opportunity to move family and resources to the safety of cities (Cain, 2004a). In times of war, the safety provided by the urban setting of the *musseques* meant that these informally built areas of Luanda were also the choice of destiny for the majority of the fleeing population. The *musseques* are therefore often referred to as the maximum expression of the effect of urban growth in the capital (Trindade, 2000, p. 431). An effect that would be visible not only until the end of the war in 2002, as the majority of housing provision in Luanda was still made through the informal sector (Jenkins et al, 2002), but also until recently as mentioned in section 2.2.3.

More than ten years after peace was installed, the consequences of mass rural-urban population displacements of people are still visible in many parts of Angola, but especially in the urban fabric of Luanda. Despite the end of the civil war, as pointed out earlier the rising population trend does not seem to be coming to a halt. In fact, today's literature tends to contradict early statements that suggested a return of the displaced population to their rural provinces of origin once the war would end. Instead, the post-war reality has been proving to be somewhat different as new generations eventually and urban rooted livelihoods tie people to settle in urban areas. With regards to the latter, Cain states that families were reluctant to leave their activities in the urban informal economy market, a concern that extends to the school age youth who were already integrated in the educational system. The same author also makes reference to the fact that as time passes it is less likely that people return to their previous rural areas, since "once rural-urban migrants have spent more than two agricultural seasons off their lands the probability of their return falls below half" (Cain, 2004a, p.100). Consequently, far from the rural lifestyle that once defined the essence of Angola, the country has been gradually embracing an urban paradigm, with an estimate urban population of more than 60 per cent already residing in urban areas (INE, 2014).

After many years of war putting the provision housing on hold, today this issue has been included on the agenda as part of a major national reconstruction plan. A visit to the

capital is enough to provide an idea of just how engaged Angola stands in its overall regeneration. Moreover, although this process affects many fronts of development, the interventions at the construction sector level are definitely playing a privileged role in the whole process. This can be observed by policies designed by the current government, who have been promoting an ambitious nationwide programme as a flagship to the reconstruction and development of Angola. This programme's initial goal was to build one million houses before the end of 2012, from which 115 thousand were to be provided by the government, 120 thousand by the private sector, 80 thousand by cooperatives and finally 685 thousand are to be constructed through self-help building activities (Mucuta, 2009). However, according to the President of Angola, José Eduardo dos Santos, shortly after its inception the Programme has been considerably affected by the international financial crisis, which resulted in a considerable adjustments being made to the initial plan (dos Santos, 2008). These adjustments altered for example the initial timeframe proposed to build the 1 million houses (2008-2012).

The large scale reconstruction strategy, and particularly the NUHP, puts Angola on track with other nations in the fight towards improving life of slum dwellers worldwide. However, as shall be seen in Chapter Three, the implementation of the Programme has equally been target of intense criticism (for example: Amnesty International, 2008; Amnesty International, 2010; Croese, 2011; Peel, 2013), particularly in respect to the impact on the residents of the *musseques*.

2.3 - EVOLVING VIEWS ON HOUSING ISSUES IN LUANDA

2.3.1 - Observations on formal housing

The literature tends to approach housing issues in Luanda from two distinct - although intrinsically connected - perspectives: that of the formal and the informal built environment. With regards to the former, and looking at this issue from a micro-scale, i.e. the buildings, it is often suggested that the inception of the housing crisis in Angola immediately followed the abolition of slave trade in 1836, as the ships used to carry slaves and building materials were discontinued as a consequence Ribeiro (1961). Based on accounts from the 1800s, Bulfin (2009) argues that interrupting the supply of building materials that were previously transported in slave ships had a negative impact on the formal building sector in Angola as these were the materials used towards building the colonial settlers' houses. With relation to this, Ribeiro (1961) further mentions that the timber imported from Brazil in slave ships, which was used for roof beams and flooring, was considered of better quality and performance when compared to the locally available

timber. Hence, the above seems to suggest that the lack of quality of buildings themselves was directly linked with the kind of building materials used. Moreover, it is also implied that, given the absence of these construction materials, the quality of formal construction was no longer able to meet standards to which the colonial settlers were accustomed to before (Ribeiro, 1961).

The literature also approaches the discussion on housing crisis from a different angle, one in which is suggested that more general attitude towards the built environment may in fact be in the origin of the early stages of the housing crisis in Luanda. This is seen in Amaral (1968), who was of the opinion that the housing crisis in Luanda was the result of the combination of lack of maintenance, a very poor and unsanitary overall condition of buildings (and adjacent areas) and a complete absence of infrastructure in Luanda's urban fabric. The same author further states that the above has largely contributed to defame the image of Luanda, which became known as one of the poorest cities in the world since the 17th century - a condition that only seem to have improved after the Second World War (Amaral, 1968). However, as the first signs of development and growing prosperity emerged in Luanda, the ill-preparation of the planning authorities to deal with an increasing population became obvious, as noted by Egerton (Egerton, 1957 cited in Bulfin, 2009). He describes how despite efforts being made to attract more Portuguese immigrants to Luanda, the colonial government was failing to provide enough housing for colonial officials (Egerton, 1957 cited in Bulfin, 2009).

Adding to the lack of housing to accommodate a growing immigrant population, the literature also makes reference to the housing crisis from a cultural perspective. An example of this is introduced by Amaral (1968) who raises attention to a crisis of 'identity' and cultural nature, as far as the production of the built environment is concerned. He argued that the increasing prosperity of Luanda's economy lead to an unrestrained demand for modernity in the formal building sector, therefore, a desire to emulate the built form of western cities. Moreover, he criticises how the urban planning approach taken in order to deal with Luanda's demographic explosion of the 1960s might have also resulted in the loss of local and vernacular architectural traditions in detriment of modern concepts of architecture (Amaral, 1968). In his words,

"Traditional colonial architecture has disappeared and the old neighbourhoods have been demolished to make way for tall blocks of iron and concrete, identical and bland as any other modern city, anywhere on the globe" (Amaral, 1968, p.25).

To which he adds the following:

"The city loses its originality, due to the constant desire for modernization, rampant speculation. Between 1958-67 were built more than 2200 buildings, many of which correspond to blocks of multi-storey skyscrapers, the pride of today's cities." (Amaral, 1968, p.26)

Today, most of the discussions focusing on issues regarding the formal built environment in Luanda tend to be associated with aspects of conservation/rehabilitation and/or construction of new buildings. In an era marked by the growth of the construction sector, mostly fuelled by a post-war 'national reconstruction' (Governo da República de Angola, 2008), the idea of development seems to be closely associated with erecting new buildings, rather than with the conservation/restoration of existing ones (Comarmond, 2010). The debate on conservation vs. new built raises questions on whether architectural heritage is being disregarded due to decisions made solely based on profit margins.

Such discussions are not distant from Amaral's fears mentioned above. Just as he was concerned that the construction of 'modern' multi-storey apartment blocks would result in a loss of originality of the city (Amaral, 1968), today there is the fear that the rampant construction of new buildings may result in a loss of identity of the city (Comarmond, 2010). Despite the debate, those who advocate for the conservation do not oppose completely to the development of the city but they rather stand for a conscious and responsible integration of the new and the old (Kaliengue, 2010). Although there are some initiatives currently taking place in Luanda to raise awareness to the importance Luanda's heritage⁷, as demonstrated in figures 2.3 and 2.4 the skylight of the capital remains populated with new tower blocks and dozens of cranes, whilst many of Luanda's historical buildings are left in ruins. Despite a legal framework in place to address this issue, some sources call attention for the need to establish a monitoring practice to detect cases when this is not taken into consideration or followed (Kaliengue, 2010).

In addition to issues of conservation mentioned above, the lack of general quality of buildings as well as the quality of the imported building materials (especially those coming from China) have also been raised in relation to the new built environment in Luanda (Kaliengue, 2010). This shall be touched upon in the empirical sections of this thesis, namely Chapters Six, Seven and Eight as it was raised frequently by participants during fieldwork. The rehabilitation of the existing urban fabric of Luanda is also covered in the government's NHUP (MINUC, 2009).

⁷ Local universities and architects have been conducting initiatives with locals in order to raise awareness for the heritage of Luanda. One of these initiatives is called 'Reviver Luanda' (Relive Luanda) and, amongst other activities, consists of guided walks through the historical centre of the capital (Jornal de Angola, 2011).

Chapter Two - Overview of housing situation in Luanda: Consequences of continuous rapid urban growth and strategies to combat housing deficit

The following images emphasise the current dynamics observed in Luanda's urban fabric with the prominence of new construction playing a key role in local development strategy.



Fig 2.3: Bay of Luanda,
view from the fort.

Photo by Célia

Macedo, 2013



Fig 2.4: Tower blocks
under construction in
Luanda's city centre.

Photo by Célia

Macedo, 2011



Fig 2.5: Construction
of new tower blocks
in the outskirts of
Luanda, Zango Zero –

Photo by Célia

Macedo, 2011



Fig 2.6: Kilamba Kiaxe,
new satellite city in
the outskirts of

Luanda – Photo by

Célia Macedo, 2013

2.4.2 - Observations on informal housing

Similarly to what was observed for the formal housing sector, the earlier literature attributes the origin of issues with informal housing to lack of city planning during the colonial era. However, and despite apparently emerging in parallel, the crises in the formal and informal housing sectors of Luanda are of a distinct nature.

With Luanda gradually becoming a point of attraction to foreign investment and people in the 1950s, the production of housing and infrastructure increased to be able to accommodate demand and a rapid increasing population. This increasing prosperity attracted not only foreigners but also the Angolan indigenous population seeking work and a better life (Amaral, 1968). Luanda's urban fabric, however, did not respond proportionally to this population influx. With regards to this, the literature often suggests that the plans to expand Luanda failed to accommodate the Angolan population migrating to the capital due to a high demand for labour in works of construction. An issue raised for example in Egerton (Egerton, 1957, cited in Bulfin, 2009), who notes that housing the indigenous people was never considered a priority for the colonial government, who were mainly focusing their attention and resources in providing formal housing. As a result, the indigenous population frequently resorted to self-building activities in order to guarantee a roof over their heads. This informal and unplanned construction of dwellings would lead to what Amaral classified as an "inevitable and irreversible phenomenon" (Amaral, 1968, p. 14), settlements with very little or no habitability conditions or, as he further states "the neighbourhoods of misery" (Amaral, 1968, p.14). These built areas, designated as *musseques* became a synonymous of unhealthy settlements throughout the four centuries of Portuguese colonial rule of Angola. As it will be discussed in chapter three, despite efforts towards improving living conditions in the *musseques*, since then the situation has not yet changed considerably.

As mentioned previously in section 1.3.3, the term *musseques* broadly refers to 'slums'. However, although both terms are often used interchangeably in the literature, there are some particular aspects which are specific to Luanda's context. These are explored in the section below which briefly reflects on the origins of the term *musseque* and subsequently looks at key aspects of their evolution in the overall context of Luanda.

2.5 - LUANDA'S MUSSEQUES: CONCEPTS AND THEIR NATURE

The word '*musseque*' is described in the literature as an adaptation to the Portuguese language from a Kimbundo⁸ word – *musseque* or *musseke* – which is translated as sand, or some sources state, red sand (Trindade, 2000). Therefore, location wise it refers to the sandy soils and more fertile plateau of Luanda (Monteiro, 1973). Moreover, it is also mentioned that the term is associated with the settlements of central-North Angola, referring to the type of construction and building materials used in their buildings (Núñez, 1981), which once again refers to the materials made from soil. It was only later that the term evolved to acquire a social connotation, when its use began to indicate the clusters of huts built on the plateau of Luanda, erected by those who found themselves forced to leave the urban area (Monteiro, 1973). The term *musseque* has been used up to the present day to refer to informal built areas of Luanda, frequently bearing a pejorative meaning. According to Monteiro this negative connotation probably explains why '*musseque*' is sometimes replaced by the word 'bairro' (neighbourhood) by many residents of these areas (Monteiro, 1973, p.54). Furthermore, despite the fact that '*musseque*' does feature in the literature on Luanda, geographical information such as maps, tend to use the word 'Bairro' instead. The preference for the term 'bairro' as opposed to '*musseque*' was also observed when interacting with residents during fieldwork.

The growth and physical expansion of the *musseques* is intrinsically connected with Luanda's growth and development. The figures below illustrate the area of Luanda occupied by musseques and informal settlements, contrasting information from the 1960s with current information based on satellite images (Cain, 2015). These intend to demonstrate the expansion of musseques outwards into the periphery of Luanda but also the prevalence of their presence within the formal city in the present.

⁸ Kimbundo is one of the bantu languages spoken in Angola, particularly in the Northwest of the country. It is spoken by the Mbundu, the second largest ethnolinguistic group in Angola. According to Collelo (1991), in 1988 the Mbundu made up an estimated 25 percent of the total Angolan population.



Fig.2.7 – Distribution of population in *musseques* in Luanda in 1964. Legend reads (in ascendant order): 800; 3000; 6000, 13,000 number of individuals. Source (Amaral, 1968)

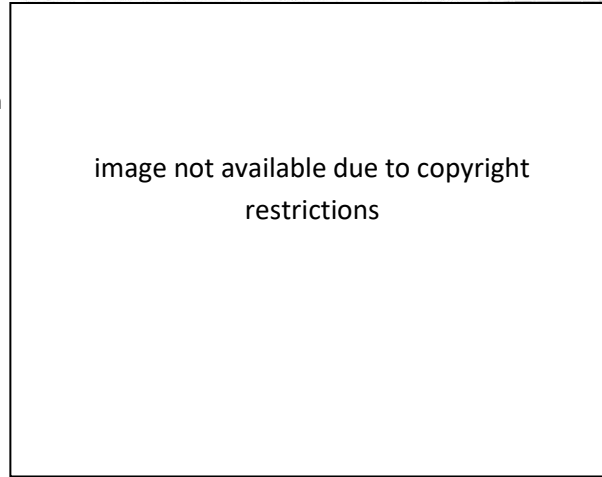


Fig 2.8 – Map of Luanda and surrounding areas, 1968. The areas marked as *musseques* and settlements of huts are highlighted. Adapted from (Amaral, 1968)

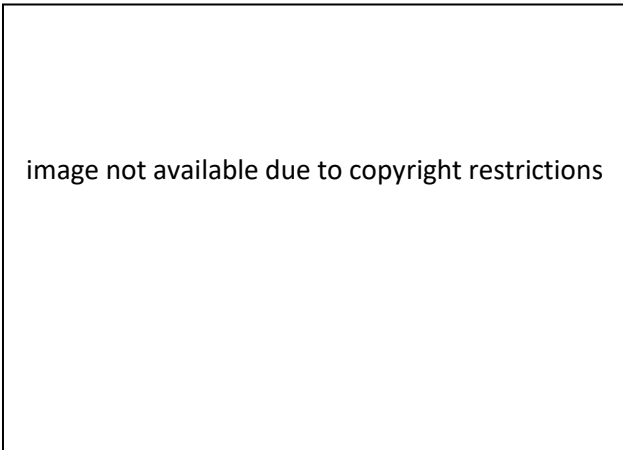


Fig. 2.9 – Distribution of *musseques* in Luanda. From aerial images and participatory mapping (colours represent typologies categorised by

DW). Adapted from (Cain, 2015). Red circle marks the approximate location of the centre of Luanda.



Fig. 2.10 – Map showing population density in Luanda. Adapted from (Cain, 2015). The red circle marks the approximate location of the centre of Luanda.

Chapter Two - Overview of housing situation in Luanda: Consequences of continuous rapid urban growth and strategies to combat housing deficit

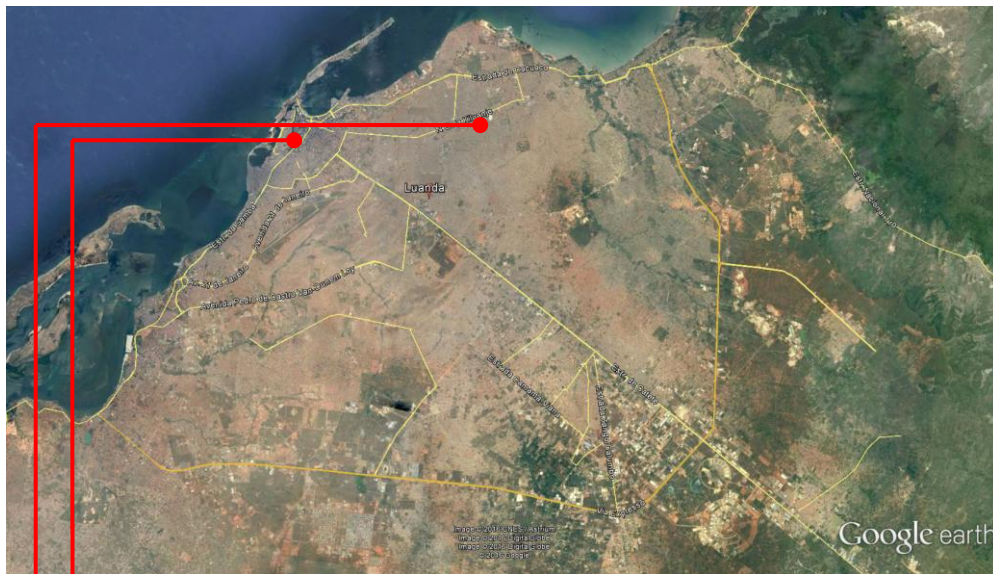


Fig. 2.11 - Aerial view of Luanda. Google Earth, 2016



Fig. 2.12–
Bairro Chicala,
Luanda. Photo
by Célia
Macedo, 2011



Fig. 2.13 –
Bairro
Sambizanga,
one of the
largest and
earliest
musseques in
Luanda. Photo
by Célia
Macedo, 2011

2.5.1 - Change and adaptation in the musseques

Angola has had a continuous contact with Europe since the 16th century, with the transfer of construction skills between Angola and Portugal dating back to the same period⁹. What started as importing workmanship in order to build fortresses and city walls to protect colonial settlements from the indigenous population, later resulted in the dissemination and adaptation of building techniques to other uses and buildings types, including colonial and indigenous buildings (Ribeiro, 1961). According to Elleh (1997) this continuous contact with the West has deprived Angola's capability of expressing itself architecturally. Although this argument might be debatable, the contact with a colonial style would certainly have a strong influence in shaping Angola's indigenous built environment throughout the years. Studies conducted in the first half of the 20th century on indigenous dwellings in Angola seem to suggest that buildings based on European models were associated with evolution and development (Mateus, 1934). Moreover, the combination of indigenous and colonial elements resulted in a new type of dwelling that (Thissen, 1966) designated as "imported house". These were all non-traditional houses, i.e., all of those which moved away from ancestral construction practices, either due to European influences or due to influences of other regional tribes. The imported house was usually constructed either with adobe blocks or with wattle and daub (Thissen, 1966).

The evolution in the indigenous dwellings was noticeable also in Luanda, as clusters of informal settlements developed gradually in its outskirts. This area, which up until the 19th century had been used mostly for agriculture, would then accommodate various waves of migrants seeking work and a better life in Luanda and begin to form the musseques.

Unlike what was observed in the main city - in which European concepts of architectural and urban space were gradually introduced during the 20th century - construction activities in the musseques mainly consisted of self-building activities, with no formal orientation or guidance¹⁰. As far as building materials used, from up until the 1980 the most common materials were wood and burnt brick (with the latter being more expensive). Thissen further mentions a transition from temporary construction materials to more permanent ones, although an urban plan or an overall organisational formal strategy was not followed (Thissen, 1966).

⁹ As specified in the letter of donation of the captaincy of Angola to its first governor in 1571, 400 Portuguese workers were to be placed in Angola, amongst which were eight builders and three rammed earth master builders (Ribeiro, 1961).

¹⁰ Ramiro Monteiro in his work entitled *A família nos musseques de Luanda* – The family in the musseques of Luanda (1973), determined that in a survey conducted in various *musseques* the majority of houses were self-built (85.1%), whereas the percentage of houses bought was 11.25% and those inherited would not surpass 3.5%).

Recent studies show that concrete blocks and ceramic bricks are used as walling material by the majority of population in the *musseques* in Luanda, although with a prevalence of the former. Other materials like corrugated iron or adobe blocks can also be found, although more rarely. Moreover, with regards to roofing the most used material is corrugated iron and the floors tend to be either covered in cement or, when there are financial means, mosaic floors (Development Workshop, 2011a) .

The first set of images below represents the evolution of building types in Angola, whilst the latter illustrates the diversity of building technologies and fabrics found today in one of Luanda's *musseques* (Bairro Cazenga).

image not available due to copyright restrictions

Fig. 2.14 – Types of indigenous shelters in Angola. Source (Redinha, 1964)

image not available due to copyright restrictions

Fig 2.15 - Plans and axonometric drawing of 'imported rectangular house'. Source: (Thissen, 1966)

image not available due to copyright restrictions

Fig 2.16 - Wattle and daub house with European influence. Source: (Redinha, 1964)



Fig. 2.17 – Wattle-and-daub house - Bairro Cazenga, Luanda. Photo by Célia Macedo, 2011



Fig. 2.18 - Wooden house - Bairro Cazenga, Luanda. Photo by Célia Macedo, 2011



Fig. 2.19 - Concrete block house - Bairro Cazenga, Luanda. Photo by Célia Macedo, 2011



Fig 2.20 - Fired brick house - Bairro Cazenga, Luanda. Photo by Célia Macedo, 2011

2.5.2 - Perceptions associated with dwellings in *musseques* through time

Given the precarious state of dwellings informal settlements, towards the end of the colonial occupation, the general perception of these areas was a complete contrast with the “European city” (also often called “cement city” or “white city”). The literature refers to the *musseques* as a place with dense labyrinths of wattle and daub huts that spontaneously occupied any piece of land available (Amaral, 1968). The dwellings were said to be disposed of minimum sanitary conditions and commodities and its residents, according to some lived in inhuman conditions (Núñez, 1981). Moreover, terms such as poverty, malnutrition, overcrowding, and degradation are frequently repeated to characterise the living conditions in the *musseques*. With time it became clear that the poor quality and precarious nature of the structures in the *musseques*, meant that both buildings and people were very susceptible to disasters, natural or otherwise. With respect to this, Amaral mentions that the *musseques* were amongst the most plagued areas of Luanda, with people and buildings being destroyed by occasional fires, epidemics and violent rains (Amaral, 1983).

Despite the authorities' apparent lack of awareness suggested by the continuous growth of the *musseques* during the colonial era, literature shows that the expansion of informal areas in Luanda did not go unnoticed. In fact, various reports and studies conducted by the colonial government since the 1950s indicate the acknowledgment of the potential issues associated with the growth of the informal settlements¹¹. However, regardless of the complexity of the problem, there was a negative feeling installed towards the development of a short-term viable solution to address the expansion of *musseques*. These issues were debated in an urbanism conference held in Lisbon in 1961, where it was concluded that it would be impossible to incur in the development of strategies and policies towards improvement of *musseques*, given the very high costs involved in providing houses to the indigenous population (Fonte, 2007). The same feeling of powerlessness was shared by Amaral, who was of the opinion that the proliferation of the *musseques* was an “inevitable and irreversible phenomenon” (Amaral, 1968, p.14). Moreover, he further suggests that a more in-depth knowledge of the reality in the *musseques* could contribute towards finding a way to address the problems installed, amongst which are the very poor state of the built environment. Amaral (1983), already after the independence from Portugal, called attention for the fact that very little was known about the urban periphery – where a large area of *musseques* were located –, of the complicated and multifaceted problems that *musseques* enclose. This has since been

¹¹ In the Historical Archive (Arquivo Histórico Ultramarino), there are various documents on the subject of issues affecting the housing sector in Luanda during the colonial era. The following are some examples: Improvement of traditional housing in Angola, 1958; Preliminary study of the housing problem in Luanda, 1962; Study of the low-cost houses of the *musseque* Prenda, 1963.

changing and more attention has been oriented towards informal settlements, a path mostly lead by the most prominent NGO in Angola, DW (Development Workshop). Such work results in a growing body of information on conditions in informal settlements in Luanda that touches upon issues of poverty, risk, environmental degradation, access to water and sanitation (see for example: Cain *et al.*, 2002; Development Workshop, 2005; Development Workshop, 2011a).

2.6 - EXPANSION OF MUSSEQUES: REACTIONS AND IMPACT

2.6.1 - Colonial Era

The consequences of lack of effective responses to rural-urban migration patterns and concerns towards a housing crisis in Luanda have been discussed in the literature since mid-20th century. A study dating back to early 1950s, conducted in the first stages of the urbanisation process in Luanda addresses issues of an uncontrolled growth observed in the informal urban fabric. Moreover, it suggests the integration of neighbourhoods to accommodate indigenous population in the urban fabric. It is perhaps worth mentioning that an indigenous person in the 1950s was defined as:

“The natives are a class protected by juridical legislation, attending to their status of evolution. The indigenous are considered the individuals of black race or descendants, who, by their appearance and customs, do not distinguish themselves from that of the ordinary person of that race” (Machado, 1952, p. 1).

Machado believed that planning and organising the indigenous areas within the city limits was more important than organising the “civilised” residential areas, given the accentuated influx of population at the time (Machado, 1952).

The ‘Study on the indigenous house in Luanda’ (1952) advocates that urban planning of Luanda needs to incorporate planning of residential units for the indigenous population in order to avoid further proliferation of informal areas. According to the author, the objective was to produce built environment that could successfully conciliate hygiene with economy. As far as housing form is concerned, detailed orientations are provided that describe dwellings with an external area with a maximum height of two storeys (Machado, 1952). It was also hoped that these economic constructions could be adapted according to the social evolution of the residents as well as to different contexts.

Ten years later, in 1962, with Luanda’s population surpassing 220,000 people – many of whom on a low-income - a different paradigm of housing was put in place. One in which the growing population would be accommodated in multi-storey blocks rather than in

single detached houses with external area allocated as mentioned above (Laboratório de Engenharia, 1962). Based on Jenkin's analysis of the modernist architectural legacy in Angola and Mozambique, it is likely that such practices were influenced by the presence of Portuguese modernist architects who, in many cases, chose to abandon the restrictions of dictatorship instituted in Portugal, to work in 'overseas provinces' (Jenkins, 2009). However, this phenomenon is not limited to Angola. Similar manifestations of a new formal architectural style - the International Style – brought by European architects (or of European origin), dominated building practices in Africa between the 1950s and 1970s (Folkers, 2011). This approach which, as Folkers states, discarded African traditional architecture, was intended to control population movement from rural to urban areas, in the case of Angola at the time was believed to be the most appropriate considering the high population numbers. These practices were advocated in a preliminary study carried out for Luanda, in which was concluded that high rise buildings would meet the housing demand (Laboratório de Engenharia, 1962). Despite being considered a strategy to meet housing demand, no mention is made to low-income population. Instead the study stated that this solution would be suitable for middle income population (Laboratório de Engenharia, 1962). Principles also observed in residential blocks built in Luanda in the early 1960s (the Prenda Quarter) designed according to the Athens Charter and which architectural forms featured residential blocks suspended on pilotis reveal a direct influence of the Dwelling Units of Le Corbusier (Miranda, 2012).

Following the introduction of these measures, criticisms focused on the appropriateness of the solutions suggested to address the housing crisis in Luanda. Questions were raised regarding not only the social implications of such plans, but also concerning the consequences to the urban fabric of Luanda itself (Amaral, 1968). Although recognising that addressing the precarious conditions of the built environment would in the *musseques* would be a paramount task, during the colonial period efforts have been made towards reducing the proliferation of informal settlements. Many of these consisted of urban plans to address housing shortage as well as the problems resulting from the almost total lack of infrastructure in the *musseques*. Nevertheless, according to Amaral (1968), the success of the urban planning experiments to reduce the proliferation of informal settlements was debatable, since these often failed to consider both natural and human environments. An example provided by this author was the inadequacy of the building's design to people's cultural context, in which the states that the importance of the outside space to cook or socialise and other social aspects were ignored. Furthermore, the discontent was also frequently associated with physical characteristics of the buildings, whereby many were considered structurally unsound and formed monotonous streets where landscape was scarce.

Nevertheless, as shall be seen in Chapter Three, a similar approach to is still visible today as new new-cities composed of clusters of multi-storey blocks are being built in the outskirts of Luanda.

2.6.2 - Post-colonial Era: Paving the way towards a Nationwide Housing Programme

The urban plans aforementioned were mostly brought to a halt after the independence in 1975 and throughout the civil war that lasted more than 20 years. As a consequence, the conditions experienced in the *musseques* today have not undergone dramatic changes over the last years. In fact, apart from the few musseques existing inside the actual city, which did not have further room to grow, the settlements in the periphery continue to expand outwards, increasing the distance between the city and the musseques. In addition to the spreading out of existing areas, new musseques were even created after the independence. This is for example the case with the musseque Rocha Pinto which had an estimate population of roughly 900 thousand people and due to the distance to the centre of Luanda, has achieved nearly self-sufficiency by incorporating basic services within its limits (Trindade, 2000).

Currently, probably more than ever in Angola's history, acting on existing housing issues is pointed as a priority on the government's agenda. The intention to provide Angolan population with the right to housing and a decent quality of life has been raised various times by authorities (and has gradually been permeating into policy making) since peace was installed in 2002. In 2004 the government document 'Strategy for Combating Poverty' acknowledges extreme poverty as a serious issue in Angola (República de Angola, 2004). This report states that reducing poverty and improving people's quality of life is a goal to achieve in a near future. Given what was mentioned earlier about population growth and informal settlements, this is an objective that in order to be achieved entails a great impact on the building sector. Moreover, the authorities' acknowledgment regarding poverty and housing problems has been repeatedly raised in reports and official statements that tend to emphasise intentions to improve the overall conditions of the *musseques* and remaining degraded buildings of urban areas. Such intentions mainly rely on urban requalification programmes that range from providing infrastructures to existing degraded areas, to design and building of whole new parts of Luanda – including new satellite cities.

The latter includes the construction of social housing to accommodate and relocate the low-income fringe of population, especially the homeless and displaced. In line with this target, in 2009 the Government launched the NUHP, with a goal of building one million

houses before the end of 2012, from which 115 thousand were to be provided by the government, 120 thousand by the private sector, 80 thousand by cooperatives and 685 thousand to be constructed through self-help building activities (Gameiro, 2015). It is likely that this large scale housing programme has drawn inspiration from similar initiatives aimed at providing low-cost housing for the low-income population implemented elsewhere in the world such as Mexico, Brazil, Sri-Lanka or Sweden. As far as the outcomes of the NUHP in Angola are concerned, given that the programme is still ongoing at this stage it is not yet possible to fully assess the impact of its implementation. Nevertheless, questions have already been raised regarding how the one million houses goal is being pursued and especially as to its effectiveness amongst the poor population of the current informal settlements. International organisations such as Amnesty International have reported that in order to clear land for the construction of new housing developments, continuous evictions of thousands of families have been taking place in the periphery of Angolan cities. Furthermore, as Amnesty International adds, this has often been done without any "prior notification, information or consultation, legal protection, adequate alternative accommodation or an effective remedy" (Amnesty International, 2008, p.1) which, in the view of the organisation, constitutes a clear violation of human rights. In order to highlight such issues, during the celebrations of the World Habitat Day in 2008 which took place in Luanda, Amnesty International directed an open letter to the Executive Director of the UN-Habitat, condemning the choice of Luanda as the location for the celebrations. The organisation argued that conducting this event in Luanda constituted an "insult to the injury committed against Angola's thousands affected by forced evictions" (Amnesty International, 2008, p.3). Despite criticism, the progress on the construction of houses since the launch of the NUHP has been frequently reported as successful, especially through local and international news agencies.

Article 85º of the revised Constitutional Law of Angola states that "every citizen has the right to appropriate housing and to a decent quality of life". It carries on by declaring that the state has the responsibility to "promote the social and economic conditions to ensure the right to housing and quality of life" (República de Angola, 2010a). As shall be seen in Chapter Three, although apparently the country is heading towards that direction, the literature also points out that further effort is needed in order to sustainably mitigate the housing shortages in Angola.

2.7 - SUMMARY

Chapter Two further explored the main issues associated with the research topic in Angola, particularly in Luanda. It looked at the *musseques'* expansion and explored theories sourced from the literature that attribute this phenomenon to a combination of factors, namely changes in population patterns (growth and migrations) and lack of policies on urban management and planning. In addition to the above, it touched upon issues of urban poverty and housing crisis in Luanda, with the latter giving particular emphasis at low-cost housing and informal settlements. The final section elaborated on responses and measures put in place in order to address the proliferation of informal settlements during the colonial and post-colonial era.

CHAPTER THREE – Informal settlements to low-cost ‘dream-houses’

“Every citizen has the right to appropriate housing and to a decent quality of life’.”

Constitution of the Republic of Angola - Article 85th, 2010

3.1 - INTRODUCTION

Chapter Three builds up on the housing issues in Luanda identified in Chapter Two and elaborates on strategies and measures developed by the government as a response. It begins by framing the overall context of the issues under analysis and examines the role of housing within the development agenda, focusing on the most vulnerable urban settlers. This is done firstly through the lenses of international agreements and development targets (including the MDGs and the newly formed SDGs) and secondly country specific development strategies in Angola. It then follows to explore the concept of housing and the ongoing debate on its significance and reflects on potential implications towards government-led housing programmes in Luanda. The latter part of Chapter Three explores on criticism and concerns directed towards the process and potential outcomes of the NUHP. Combined with chapter two, the present chapter aims to respond to Objective 1.

3.2 – GLOBAL AND LOCAL VISION TOWARDS IMPROVING LIVES OF URBAN VULNERABLE DWELLERS

3.2.1 – *Development agenda: Improving the lives of slum dwellers*

The improvement of slum dwellers' lives has been a priority the agenda of nations worldwide and included in sets of global targets as well as in country specific development since at least the latter part of the 20th century. The MDGs (in effect between 2000 and 2015) and the newly formed SDGs (2015 – 2030) are examples of such international agreements between various member states which aim to address worldwide cross cutting issues such as poverty, health and education, impacts of urbanisation, sustainability and climate change amongst others. However, despite considered by many a benchmark in the development agenda, the MDGs and subsequent SDGs have also been heavily criticised. This is seen for example in Satterthwaite who calls attention to potential inappropriate indicators used to monitor the progress of the MDGs' implementation, as well as to the lack of supporting evidence to claims on successful progress. In relation to the latter he argues that these might result in "claims based on faulty statistics or heroic guesses where there is no data" (Satterthwaite, 2013), thus failing to reflect reality. The same author extends the criticism to the SDGs arguing that these may be in risk of repeating what he considers were the MDGs shortfalls since "as with the MDGs, the document is very good at stating what needs doing but not how and by whom" (Satterthwaite, 2014). Other sources point out the fact that measuring such a long list of indicators might result in a time-consuming and expensive process. Moreover, given that not all countries have statistical information available, potentially also out of reach for some (Garson, 2015). Nevertheless, and despite the criticism aforementioned, for the purpose of this work the MDGs and the SDGs are used as a reference to illustrate the current emphasis given to the agenda on living conditions in slums housing worldwide.

The MDGs emerged in the 1990s as a result of a number of decisive political statements, agendas, goals and targets introduced in various UN conferences during the 1990s. The outcomes of which were later mainstreamed onto the global arena with the adoption of the Millennium Declaration in 2000. The Millennium Declaration raises concerns about world peace, security, development, environment, human rights and governance. Moreover it is composed by a set of inter-connected and mutually reinforcing development goals that were adopted by 147 Heads of State and Governments, and a total of 190 nations at the UN General Assembly, in September 2000. These goals set the background for the MDGs, which incorporate and merge the "International Development Targets" (IDTs) and the Development Goals contained in the aforementioned Millennium Declaration (UN-Habitat, 2003b). In order to achieve each goal of the Millennium Declaration, a set of 18 numerical targets was compiled by the United Nations Systems. Furthermore, the targets are complemented by more than 40 indicators in order to allow

for the effective measurement of progress. It was therefore anticipated that the combination of the two would “ensure a common assessment and appreciation of the status of the MDGs at the global, national and local levels” (UN-Habitat, 2003b, p.14). As shall be seen in section 3.2.2 such principles were also taken on board by Angola - a member state of the United Nations since 1976 - who, together with the other nations, committed to work towards achieving the principles established in the MDGs (dos Santos J. E., 2008; UNDP Angola, 2009).

The efforts towards reducing the prevalence of informal settlements discussed in the previous chapter feature in the MDGs under Goal 7 (“Ensure Environmental Sustainability”), more specifically target 7.D (“By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers” (We can end Poverty 2015 - Millennium Development Goals, 2013)) highlighted below in Table 3.1. Although the remaining Goals and respective targets are also relevant for the slums, for the purpose of this work, particular focus is given to the goal and target aforementioned. The full list of MDGs and targets can be found in Appendix 1.

	GOAL 7 - ENSURE ENVIRONMENTAL SUSTAINABILITY
	Target 7.A:
	Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources;
	Target 7.B:
	Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss;
	Target 7.C:
	Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation;
	<u>Target 7.D:</u>
	<u>Achieve, by 2020, a significant improvement in the lives of at least 100 million slum dwellers.</u>

Table 3.1: MDG 7, target 7.D – Extracted from full MDGs list. Adapted from (We can end Poverty 2015 - Millennium Development Goals, 2013)

According to UN-Habitat, the organisation designated by the United Nations Systems to assist governments of Member States to attain and monitor target 7.D, the fact that the need to improve the life of slum dwellers as a target in the first place, is

“a direct recognition that slums are a development issue which needs to be faced. Slums cannot simply be considered as an unfortunate consequence of urban

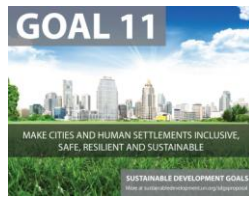
poverty but need to be treated as a major issue and as a *typology* in itself to classify human settlements.”

(UN-Habitat and Global Urban Observatory, 2003, p.2)

In order to monitor Target 7.D, the UN-Habitat and the World Bank developed the framework and action plan 'Cities without Slums'. This was the result of a multi-donor alliance of cities that came together in 1999 as 'Cities Alliance' with the objective of improving the living conditions of those living in urban poverty by developing strategies and slum upgrading programmes at different scales (city and nationwide). The Cities Without Slums framework has been endorsed by the Member States, including Angola as a way to orient work towards meeting the MDGs. The progress in achieving this goal as to be monitored through the following two indicators: (a) the proportion of people with access to improved sanitation; and (b) the proportion of people with access to secure tenure. (World Bank and UN-Habitat, 2013).

Up to 2015 the development agenda was primarily based on the MDGs, however with these coming to an end in 2015 the newly formed SDGs are set to succeed and stand as a new reference for the international development community for the years 2015-2030. The SDGs emerged as a result of a proposal developed by the Open Working Group (OWG) after the Rio+20 conference that took place in June 2012. Following the outcome document (The future we want) the OWG defined a set of goals in line with the UN post-2015 agenda to be later approved in UN's general Assembly (United Nations, 2015b). These goals aim to build upon the foundation laid by the MDGs, complete what was left unfinished as well as address new challenges to international development. Similarly to its predecessor, the report lists goals (17) which are further elaborated into targets (169) based on measurable outcomes (United Nations, 2015a). The SDGs were developed under the premise that "Eradicating poverty is the greatest global challenge facing the world today and an indispensable requirement for sustainable development." (United Nations, 2012) and in line with the aim to stimulate action both in the developed and the developing world in five areas of critical importance for humanity and the planet: People, planet, prosperity, peace and partnership.

The living conditions in slums are also addressed in the SDGs, incorporated under Goal 11 which this time focuses specifically on cities and human settlements ("Make cities and human settlements inclusive, safe, resilient and sustainable"). Slum upgrading is mentioned under target 11.1, combined with provision of adequate, safe and affordable housing and access to basic services. A full list of the SDGs can be found on Appendix 2.



Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable

11.1 by 2030, ensure access for all to adequate, safe and affordable housing and basic services, and upgrade slums
11.2 by 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons
11.3 by 2030 enhance inclusive and sustainable urbanization and capacities for participatory, integrated and sustainable human settlement planning and management in all countries
11.4 strengthen efforts to protect and safeguard the world's cultural and natural heritage
11.5 by 2030 significantly reduce the number of deaths and the number of affected people and decrease by y% the economic losses relative to GDP caused by disasters, including water-related disasters, with the focus on protecting the poor and people in vulnerable situations
11.6 by 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality, municipal and other waste management
11.7 by 2030, provide universal access to safe, inclusive and accessible, green and public spaces, particularly for women and children, older persons and persons with disabilities
11.8 support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning
11.9 by 2020, increase by x% the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, develop and implement in line with the forthcoming Hyogo Framework holistic disaster risk management at all levels
11.10 support least developed countries, including through financial and technical assistance, for sustainable and resilient buildings utilizing local materials

Table 3.2 –SDGs: Goal 11 and respective targets. Full list can be found on Appendix 2. Adapted from (United Nations, 2015b)

It is hoped that the achievement of SDG 11 will be driven by the implementation of a New Urban Agenda to come out of the upcoming United Nations Conference on Housing and Sustainable Urban Development (Habitat III). Habitat III is set to take place from 17 to 20 October 2016 in Quito, Ecuador and builds up on the 2030 Agenda for Sustainable Development from which the SDGs emerged. This consists of another important milestone in the global urban discussions and is set to bring Heads of State and Government and High Representatives to agree on this New Urban Agenda, one that according to the draft document already published will “harnesses the potential of cities and human settlements to help eradicate poverty in all its forms and dimensions, reduce inequalities, promote inclusive growth, and achieve sustainable development.” (United Nations, 2016, p.1).

3.2.2 – Angola within the overall development agenda: Country specific programmes and strategies

The importance of providing social housing as part of Angola's reconstruction has been present in Government's communications since the end of the conflict. Although bringing to light structural problems resulting from many years of war, peace created opportunities to balance the country's economy and with sustained economic growth attained in 2002 (Leigh *et al.*, 2009), substantial investments were made towards infrastructure and housing developments.

As far as Angola's specific programmes within the overall development agenda framed in section 3.2.1, the focus on housing and improvement of living conditions of population in the country is implicit in a wide range of government reports and communications dating back to the same period as the implementation of the MDGs. These highlight the intention to provide adequate/decent housing and basic infrastructure as part of a national development agenda.¹²

Following Angola's official commitment to the MDGs, in 2001 the urban issues and housing crisis were raised in the 'National Report on the Implementation of the Habitat Agenda' (República de Angola, 2001). The report calls attention to the housing deficit in urban areas, estimating it at around 700 thousand in the year 2000 and predicting it would reach 1.4 million in 2015. Moreover, it picks up on the guidelines of the Millennium Declaration and strongly advises that a housing policy oriented towards providing people with adequate habitability conditions urgently developed. Furthermore, it is suggested that the implementation of such housing policy could bring to a halt the uncontrolled development and urban anarchy, as well as the on-going degradation of housing, whilst gradually reducing the housing deficit until its eventual conclusion. Moreover, the report advocates that priority should be given to social housing and that self-construction activities should be encouraged when designing a housing policy for Angola. With regards to work conducted to date, the report states that despite the fact that an initial investment of 26.3 million USD in various government housing projects had already been made towards the construction of low rent or social housing, Angola's housing deficit was still far from being resolved (República de Angola, 2001).

The urgent need to improve the conditions of the *musseques* and degraded buildings in urban areas is reiterated in the document 'Strategy to Combat Poverty' made available in

¹² Key documents published since 2000 which all share focus on social housing and poverty reduction include: National Report on the Implementation of the Habitat Agenda in Angola (2001); Strategy to Combat Poverty (2004); Programme of the Government for 2009-13 (2008), Report on the implementation of the MDGs (2005 and 2010), Long term national strategy of development (Estratégia Nacional de Desenvolvimento de Longo Prazo) "Angola 2025" and National Development Plan (Plano Nacional de Desenvolvimento) (2012).

2004 (República de Angola, 2004). This report accentuates the government's objective to guarantee that all families can have access to housing as well as a dignified and safe life. It also makes a direct association between "dignified and safe life" and the intention to develop initiatives related to the construction of social housing and provision of basic infrastructure. In order to tackle these issues the report recommends that legal framework on housing is revised and that an assessment of housing needs is conducted. The latter is also emphasised in the report on the implementation of the MDGs in Angola in 2005. According to this, Angola had registered no significant improvement as far as the target 7.D ("*By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers*") is concerned. Furthermore, it declares that lack adequate housing and habitability conditions remain a reality present throughout the country (UNDP Angola, 2005). The intention of meeting MDGs' Target 7.D assumes a key role in the Government Programme for 2009-13 (Governo da República de Angola, 2008), where its principles are implicitly included through the intention towards the creation of a just, equal and developed society. This, as expressed in the document, entails achieving a "society that guarantees universal access of families to adequate housing". The document further states the government's intention to focus on emphasising human development through improving the quality of life of the population and the construction of social housing (Governo da República de Angola, 2008).

It was only in 2008 that the built up for the NUHP began to take shape. In October of the same year, during the Habitat Day celebrations in Luanda, dos Santos addressed the Sub-Secretary of the UN for Human Settlements and announced the intention to build an approximate number of one million houses throughout Angolan territory in his subsequent four years of mandate, hence hoping to contribute significantly to the improvement of the quality of lives of those living under slum conditions. The President further declared that in order to achieve this goal approximately 50 billion USD (amount roughly calculated from 50 thousand USD per house) would need to be mobilised towards the Executive Housing Programme 2008-2012 (dos Santos J. E., 2008). Although no mention is made of social housing at this point, it is emphasised that the government shares the UN's concerns towards the central issue of housing as a basic need for the population (dos Santos J. E., 2008). Despite the growth economic trend installed after the war that helped fuelling the enthusiasm towards the development of a housing programme, in the end of 2008 Angola was caught in the middle of the global economic crisis and saw prices of oil and diamonds drop significantly (Leigh *et al.*, 2009). This setback resulted in a readjustment of the state budget and consequently, the goals that had been established for the 2009's Government National Plan. As far as the effects on the NUHP are concerned, dos Santos declared that despite the readjustments, considerable investment in the rehabilitation and construction of infrastructure would continue nevertheless (dos Santos J. E., 2008). Croese (2011) believes that the

'readjustment' had a direct influence in the one million houses goal, arguing that this was the moment when it was decided to bring the 'assisted self-building' strategy to the Programme, thus reducing the overall costs and responsibilities of the government on housing and transferring these to people instead (Croese, 2011).

In relation to the above, the year of 2009 was marked by a loan of 1.4 billion dollars by the IMF with the aim of helping "sub-Saharan Africa's third largest economy combat the adverse effects of the global economic crisis" (Leigh *et al.*, 2009), with the premise that this would also contribute towards infrastructure development in the country (Leigh *et al.*, 2009). It was probably thanks to the injection of these funds as well as access to Chinese and Brazilian credit lines (Croese, 2011) that a renewed confidence was brought to the design and implementation of a housing strategy, hence reviving the goal of the government's 2009-13 plan to guaranteeing the universal right to housing and access of families to decent housing (Governo da República de Angola, 2008). This was further reiterated in 2010 with the revision of the Constitution of Angola, which granted every Angolan citizen with the "right to housing and quality of life" (República de Angola, 2010a), hence matching the Article 25th of the Universal Declaration of Human Rights (United Nations, 1948). The authorities' confidence in the achievement of the Programme was also expressed by the President's many public statements announcing the resume of the NUHP after the period of economic 'crisis' in Angola¹³. A prospect equally emphasised by recent statements made by the IMF pointing to a recovery of the Angolan economy, in which is mentioned that "the outlook for 2012 remains favourable, [...] The pace of economic activity is expected to accelerate, with overall growth close to 7 percent" (IMF, 2012) and that the construction sector is "likely to benefit from a gradual scaling up of public investment programs" (IMF, 2012).

Despite earlier emphasis on the provision of housing found within the Government Programme for 2009-13, the 2010 MDGs progress report gives a more unfavourable view on the progress towards achieving targets in Angola (República de Angola, 2010b). A stance supported by other sources, which although acknowledging that Angola's considerable progress regarding the achievement of more than half of the goals to which had committed in 2000, also points out that the progress towards the MDGs is still being held back since more than 90 percent of its population is living in slum conditions (UN News Centre, 2010). According to the 2010 report above mentioned, the efforts to achieve the MDGs, as well as general objectives of National Planning, were compromised by unpredictable circumstances including the international financial crisis. Nevertheless, it is mentioned that a legal framework was developed in order to assist in the achievement of MDG's Goal 7 and thus contribute to reduce the prevalence of slums in urban areas.

¹³ The topic of readjustments and resume of the National Housing and Urbanism Programme have been raised in all the End of the Year Presidential speech since 2009.

More recently, the commitment towards improving lives of slum dwellers is further reiterated in Angola's Long term national strategy of development (*Estratégia Nacional de Desenvolvimento de Longo Prazo*) - 'Angola 2025' – which also comprises the shorter term National Development Plan – NDP (*Plano Nacional de Desenvolvimento - PND*), in effect between 2013 and 2017. Developed prior to the end of the MDGs, these were meant to reflect and reinforce the government's commitment towards the MDGs and to create conditions to define and follow the post-2015 Agenda and the ongoing the SDGs (República de Angola, 2012; UNDP, 2015b). Angola also intends to be present in the United Nations Conference on Housing and Sustainable Urban Development (Habitat III) in October 2016 to further discussions on housing and urbanisation issues (UN-Habitat, 2016a).

The right to adequate housing as seen in Angola's Constitution is once more emphasised within 'Angola 2025' agenda, which highlights the government's objective to “guarantee the right to an adequate housing to all citizens, especially to the layers of lower purchasing power...” (República de Angola, 2012, p.125). Luanda takes centre stage with more than 120 structural projects allocated, including the creation of social housing units, namely the construction of approximately 87,000 social housing units, incremental houses or low-cost/economic houses (República de Angola, 2012). This falls within the priorities and specific objectives to conclude the implementation of the NUHP.

3.3 – A 'DREAM-HOUSE': FROM TURNER'S CONCEPTUALISATION TO CURRENT EXPECTATIONS TOWARDS HOUSING IN LUANDA

The title 'My dream, My house' attributed to the NUHP shortly after it was launched emerged from a programmatic intention to contribute towards “Angolan families to fulfil the dream of owning a house of their own” (dos Santos, 2010, cited in OJE and Lusa, 2010) and provide people with security of tenure (Mucuta, 2009). The emphasis on 'housing' throughout the literature on global and Angolan development agenda assumes a significance that goes beyond the role of a physical measurable outcome of progress. For the most vulnerable population, it rather seems to entails a means to improved quality of life and development. In order to explore this concept further, this section reflects on the concept of housing, considering in particular the context of Luanda.

3.3.1 – 'Housing'? A question of style and semantics

Johnson states that ours is the “age of the Incredible Shrinking Message”, a time in which “messages of just a word, a phrase, or a short sentence or two lean heavily on every word and live or die by the tiniest stylistic choices” (Johnson, 2011, p.1). A common strategy in

today's politics or marketing spheres, used for example to grab people's attention and communicating something quickly (Johnson, 2011). This approach may also help explain the change from the long and formal title 'National Urbanism and Housing Programme' (NUHP) to a shorter 'My dream, my House' (MDMH) title (Exame Angola, 2011), concise and somewhat informal four word title which implicit associates having access to a house and Angolans' aspirations of a better life. A link that has been ever since picked up as a catch-phrase which has been frequently explored in Angola's media (see for example: ANGOP, 2012b; Exame Angola, 2011; Jornal de Angola, 2012a; Mucuta, 2009; OJE and Lusa, 2010; Rádio Nacional de Angola, 2012) and in official Government statements (MPLA, 2012; OJE and Lusa, 2010).

Although it is not the intention of this work to look into detail at matters of language style or semantics, a brief analysis of both titles given to refer to the Programme reveals that a particular emphasis is placed on 'housing' - the common element between the former and the latter. Nevertheless, considering the choice of the noun 'dream' – defined in the Oxford English Dictionary as "a cherished aspiration, ambition, or ideal" (Oxford Dictionaries, nd) – in 'My dream, my house', raises the question on what the concept of 'house', or 'housing' actually entails, and whether there are any specifications associated with it. The issue around the definition of housing is a question that inevitably falls within a wider ongoing debate on the meaning of housing, featured in the literature since at least the early 1970s, and remains current today.

3.3.2 – The ongoing debate on the significance of 'housing': influences on the 'My dream, My house' Programme

Perhaps more importantly than theoretically deconstructing 'My dream, my house' from a linguistic perspective, the focus of this research touches on wider debates around what constitutes a house and/or a home. From Corbusier's "une maison est une machine à habiter"¹⁴ (Le Corbusier, 1925 p.219), in which housing assumes a technical and purely functional conception, to Turner's holistic perspective, the open-endedness of 'housing' has been mirrored in housing policies through time.

Rapoport attributes the discussion of open-endedness of 'housing' to issues such as the importance of meaning and its variability among groups, the distinction between designers' meanings and users' meanings (Rapoport, 1982). On housing, Turner advocates that the structure of a house as well as its physical appearance is not as important as other factors such as access to employment, services and a variety of social amenities. In fact, he argued that the physical appearance should be the last aspect when defining a

¹⁴ Translation from French: "A house is a machine for living in" (Le Corbusier, 1925 p.219)

house (Turner, 1976). Turner, an architect and in Ward's words "a philosopher of housing, seeking answers to questions which are so fundamental that they seldom get asked" (Ward, 1976) was amongst the pioneers exploring housing as a concept. His work is the result of many years of experience on housing in developing countries (in particular Peru) during which this question was extensively discussed. With respect to housing programmes used to control urban growth, much like what is presently seen in Luanda, he observed that many of the failures of conventional housing actions, or of programmes and projects for the replacement of substandard dwellings were due to a failure to match people's needs with housing supplied by institutions (Turner, 1971). He attributed these and other failures to the fact that 'housing' is seen a noun, rather than as a verb (Turner and Fichter, 1972). A point of view that, he states, lead to the quantification of aspects of housing, which in its turn tend to result in the creation of standards to measure human values. In his words,

A house is not a house if it does not provide the minimum of protection from unbearable climate and unbearable people; if the shelter, however excellent the protection it provides, cannot be occupied with a reasonable guarantee of tenure it will be of little or no use; and if the house does not afford access to a suitable environment if the occupants cannot get to work, to markets, schools and the facilities their lives demand, or if they cannot be with the community to which they belong, the house will be of no practical use whatsoever.

(Turner, 1971, p.115)

The objective of building one million houses as part of the NUHP inevitably raises the question of what 'housing' stands for and how that may differ from residents to authorities/institutions in the context of Luanda. Understanding what 'housing' entails in this context is not only vital to identify what is to be provided as part of the NUHP but also ultimately to assess its success upon the Programme's completion.

3.3.3 –'dream' + 'house'= ?

As a consequence of the title 'My dream, my house' attributed to the NUHP, the term 'dream' is found frequently throughout the literature that informed this work. Moreover, the indiscriminate use of 'dream' associated with the fact that it is often found in text between inverted comas (for example in Exame Angola, 2011), may indicate a lack of clarification with regards to what 'dream' stands for in this particular context. In addition to that, and to reinforce the above, the term 'dream' is frequently used in the literature as an umbrella term whether to refer to the Programme itself, and/or to people's aspirations regarding their housing conditions, often associated to 'decent housing' (Jornal de Angola,

2012b). According to President dos Santos those aspirations have contributed greatly to define the main objective of the NUHP: "to create conditions so that the Angolan families can fulfil the dream of having their own house as well as decent housing conditions" (OJE and Lusa, 2010). On the one hand he identifies the urgent need to provide security of tenure and on the other hand, suggesting that this 'dream' extends beyond the ownership to contemplate the house itself and the conditions it is able to provide to its occupants.

In addition to the challenges raised in section 3.3.2 regarding challenges associated with defining 'housing' within the framework of the NUHP, framing what a 'dream-house' represents for the beneficiaries of the programme is also pertinent. Based on this question, the following briefly explores this concept within the framework of the NUHP. This intends to provide a background for section 3.4 where an analysis on the overall progress of the NUHP is conducted, focusing on the delivery of a 'dream house'. In this respect, a 'dream-house' is approached from the point of view of its significance, based on the literature that addresses expectations towards the outcome of the one million houses of the NUHP, particularly to the vulnerable layers of the population.

3.4– ON DREAM-HOUSES

In 2009 the motto 'My dream, My house' was used by the Ministry of Urbanism and Construction when referring to houses provided under the NUHP (Mucuta, 2009). However, although it is pointed that the MDMH Programme plays a central role in the post-war reconstruction of Angola (dos Santos J. E., 2011), a review through the literature reveals very little about the specifics of the housing component of this Programme. In fact, apart from claims that tend to focus on the general positive contribution of the Programme to combat the acute housing deficit in Angola, and towards the potential improvements on people's quality of life (Exame Angola, 2011), not much is disclosed about what a 'dream house' in this context may entail in practical terms. The same applies to the criteria that reflect such a 'dream house' or even whether or not this will exist. Although this lack of information is observed generally in relation to the social housing sector in Angola, it is particularly evident in the houses to be built under assisted self-building activities. A sector in which, as seen in Croese, many questions remain unanswered. Such questions, according to the same author concern for example the attribution of land and access to building materials (Croese, 2012). A fact that further emphasises the existing public perception of scarce information available on all aspects of the Programme (Novo Jornal, 2010).

3.4.1 – 'Who decides'? Public, private sector and/or people's participation

Appropriating the pertinent question framed by Turner in the 1970s 'who decides?' (Turner, 1976) - in which a particular reference is made to meeting people's requirements through housing -, it is not easy to gather from the literature who is responsible for defining what the 'dream house' consists of. On the one hand the legal framework in place¹⁵ indicates that the Government ultimately has a predominant role in determining the nature of the housing provided under the NUHP. A role that then falls on each municipality, as those are individually responsible for implementing the legislation within their physical political boundaries. However, although the government does bear the responsibility of providing basic infrastructure and services throughout the course of the NUHP, the development of the urban infrastructure is carried out by means of public/private partnerships (MINUC, 2009). This suggests that, despite under the supervision of the State, the decision on the making of housing partially lies with the private sector.

With regards to the latter's input in the making of a 'dream house', the motto 'My dream, my house' has also inspired the construction industry into creating and displaying their view of the 'dream house' in different occasions. An example of this is seen in 2009 during the International Fair of Luanda, in which a Construction exhibit alluding to the theme 'Building Angolans' dreams' displayed a show-room entitled 'Angolan dream house' (Luz e Som, 2009), thus establishing a connection between the 'dream' to which the Programme refers to and the house as an architectural object (see figure 3.3). It is not clear, however, whose dream the 'model house' in the event was meant to fulfil. Other references to the nature of housing provided by the private sector are scarce and tend to be found within press releases featuring the multi-million contracts with foreign investors, from which Israeli and Chinese groups stand out (Exame Angola, 2011). Nevertheless, government communications containing computer generated images picturing ideal examples of urbanisation (MINUC, 2009) such as those pictured in figure 3.4 and news of introduction of urban planning principles imported from across the ocean all contribute to shed light into the idealised outcome and expectations towards the housing of the 'My dream, my house' Programme.

As far as people's involvement is concerned, participation has been promoted and acknowledged by some as an essential tool towards a sustainable development strategy in the country (Daio, 2010; Weber, 2007). According to a press release in 2010, this view is supported by the authorities who recommend participation and inclusion of local knowledge in order to produce plans that are more appropriate to people (Alberto, 2010).

¹⁵ *Lei do Ordenamento do Território e Urbanismo* (LOTU) – Law of Planning of Territory and Urbanism - Decree 3/04 25th June; *Regulamento Geral das Edificações Urbanas* (RGEU) – General Regulations of Urban Buildings - Decree 13/07 of 26th January

A position also observed in current Angola's legislation¹⁶. However, and despite the praise made to the potential positive contribute of participation, no reference was found as to how – or whether - this participation is being implemented. A fact emphasised in other sources that point out lack of people's consultation in the overall development of the NUHP (Croese, 2012).

3.4.2 -Services, nature of dwellings and location

With the main objectives of the NUHP being closely linked to dream of ownership and decent housing, the literature's findings on NUHP's housing can be grouped into two main aspects: a) that of security of tenure and, b) decent housing conditions. The latter tends to mostly focus on provision of services, location, and occasionally layout of new dwellings, although the information available is often vague in detail. Looking specifically to what is attributed to the low-cost sector of the Programme the provision of decent housing conditions follows an overall strategy to move away from the current state of housing, especially towards one that differs from the present precarious conditions in the *musseques*. A stance made clear by the Ministry of Urbanism and Housing, when declaring that the government intends to "eliminate the *musseques*" with the implementation of the NUHP (Bessa, 2010). This strategy also touches upon the provision of services (water, electricity, sanitation and telecommunications), considered as one of the most pressing needs of the existing informal built areas and therefore indicated as a vital feature of any new housing development in the NUHP.

As far as the dwellings are concerned, much of what has been disclosed in the media on social housing is associated with what was defined as "incremental houses" (*casas evolutivas*). These houses, according to the President dos Santos allow for future extensions depending on the residents' requirements and financial possibilities (dos Santos J. E., 2011). The architectural features of the Programme's 'dream houses' do not tend to be given special relevance in the literature, nevertheless press releases mention that the NUHP takes into account the specificities of each province and that any intervention under the Programme intends to consider the population density of each province (Novo Jornal, 2010). However, that in itself does not provide a significant insight onto the nature of the houses. Moreover, the media also makes reference to the use of housing typologies that have been used successfully in Brazil, Israel, Holland and Denmark are being emulated in Angola due to their apparent success (ANGOP, 2012b). A range of different typologies with predetermined layouts are set to be built across the country, comprising a minimum area of 100m², distributed through two or three bedrooms, living

¹⁶ As seen in Article 21st of the Law of Spatial Planning and urbanism (*Lei do Ordenamento do Território e Urbanismo*), Law nr. 3/04 of 25th June, refers specifically to 'participation' and states that people have the right to participation in the making of regional plans and urbanism.

room and bathroom. In order to avoid further expansion of informally built houses, the plot in which these incremental houses are erected ranges from 400 to 600 m², meaning that the house can evolve, or be extended within the legal plot (Novo Jornal, 2010). Examples of these houses can be seen in figure 3.5. According to Kora's¹⁷ general director this was meant to introduce a new construction material, a type of cement of German technology, more durable and of better quality as well as cheaper than traditional solutions (Exame Angola, 2011). The above is nevertheless mentioned with regards to housing projects to the middle class. According to Exame Angola (2011), for Luanda's new satellite city Kilamba Kiaxe a plan was designed in order to emphasise concepts of community in which housing, work and leisure are brought together. A principle that emphasises combination of three storey buildings with internal communal courtyards and detached houses, with commercial areas and green spaces (Exame Angola, 2011). All of the above however, do not apply to the local low-rent housing sector.

With regards to self-building houses, Turner and Fitcher (1972) argue that when dwellers are given the opportunity to contribute and make decisions on the stages of design, construction as well as management of their housing, their individual social and individual wellbeing and needs are more likely to be met. Other sources also advocate that the low-income-groups self-builders, as opposed to inhabit houses built by private or public sector are those who "stand a better chance of providing themselves with housing suited to their personal needs, unlike tenement renters and project buyers who usually have to take what is offered" (Mehlomakulu and Marais, 1999). As far as the implementation of the NUHP in Angola is concerned, such arguments may suggest that the self-builders – i.e., the ones building the 685 thousand of the one million houses - would be the ones closer to achieve their own 'dream-house'. However, other sources highlight a perspective on self-help housing that is not often mentioned, and remind that the obligation to build one's own house can be as oppressive as being forbidden to do so (Grindley, 1972), which means that the association to a 'dream-house' may not be as direct as having complete control over the whole process, but perhaps more to do with having choice to do so.

In either case, the information present in the literature is limited, hence little is known about the specifics of the self-building programme from the beneficiaries' perspective. However, sources state that although people will be able to build houses according to their own taste or needs, a project still needs to be previously approved by the local authorities (Novo Jornal, 2010). This category aims at guaranteeing that the low-income

¹⁷ Kora was a company owned in partnership with the local SONIP and the Israeli group KR, which took on board the construction of six thousands of houses of the NUHP in Luanda. SONIP is a real estate company part of Angola's SONANGOL group (the exclusive licensee for exploration of oil and gas in Angola). Up until 2014 SONIP represented the state in the management, construction and sale of projects that integrated the NUHP. This relationship was terminated by the Angolan President as a result of suspicions of fraud following the detention of seven workers for allegedly belonging to a fraud network involved in illegal sale of apartments from the newly built city of Kilamba Kiaxe - one of the flagships of the NUHP (ANGOP, 2014a; ANGOP, 2014b).

population may have access to what the 'My dream, my house' stands for. With the plot allocated and infrastructure provided by the government, the responsibility of building falls onto the plot owner. Although people take on board of being responsible for building their own houses, they are also provided with examples of houses that can be built on their plot.

Alongside the provision of services comes location and contextual issues. According to the Director of the National Institute of Housing (*Instituto Nacional de Habitação*), the programme contemplates a strategy oriented towards integration of all layers of society. As he explains, the intention is to provide mixed areas rather than repeating what has been done in earlier resettlement projects where the low income population was clustered in the same area (Novo Jornal, 2010). This particular aspect has been a source of intense debate, especially with regards to the provision of housing for low-income population. Although 326 land reserves have been made available for self-building and other housing projects, these tend to be external to the urban and often located kilometres away from people's previous residences (ANGOP, 2015). As illustrated in figure 3.1, in Luanda these are mostly in the periphery of the city (Development Workshop, 2011b). An approach that has been criticised by Allan Cain, the general director of the oldest NGO in Angola (Development Workshop – DW) assisting the government in developing policies and programs for human settlements and self-help housing. Cain expresses concerns towards the method mainly followed by the government which consists of displacement followed by relocation in a distant location. Instead, he argues, a requalification process should rather be based on upgrading in-situ approach thus keeping people in the same locations (Cain, 2011).

Summing up, a review through the literature reveals an absence of an objective understanding of what the expectations for a 'dream house' in the framework of the current NUHP are, which also mirrors the vagueness of the title adopted for the Housing Programme MDMH. Moreover, this also depends on different actors involved in the NUHP, hence the concept of a 'dream house' tends to reflect in different interpretations, depending on who is involved. Furthermore, despite the fact that expectation towards the low-rent sector is often mentioned, the self-building houses tend to be left out and therefore the understanding of what a dream house consists for those who are to get the houses through this scheme is mostly unknown. These issues shall be further discussed in the following section.

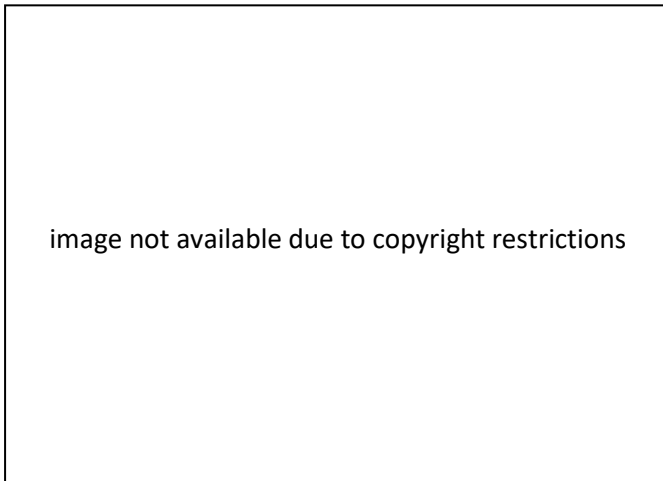


Fig. 3.1 - Map showing reserved land for low-cost housing (in gray hatch), as determined by decree. Source: (Cain, 2013)

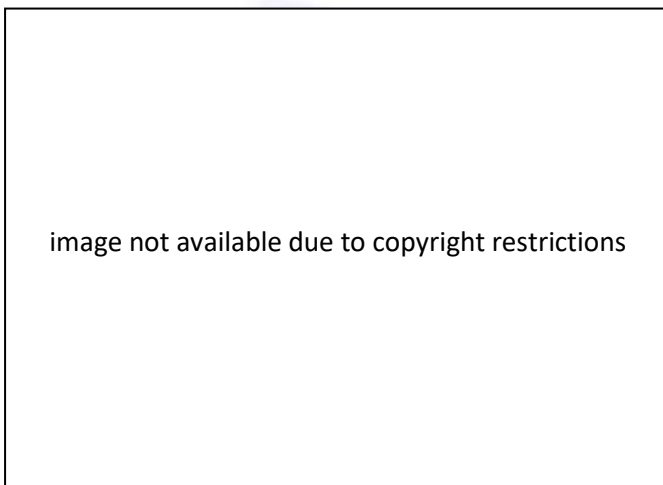


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available due
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restrictions

Fig. 3.2 - (top right) - Logo of 'My dream, My house – National Housing Programme' Source: (MINUC, 2009)
Fig. 3.3 - Model house in exhibition 'Angolan dream house' at event *Feira Constrói Luanda* in 2009



Fig 3.4 - Render of an example of urban fabric to be built in Angola, as included in the power point presentation about the NUHP prepared by the Ministry of Urbanism and Construction Source: (MINUC, 2009)

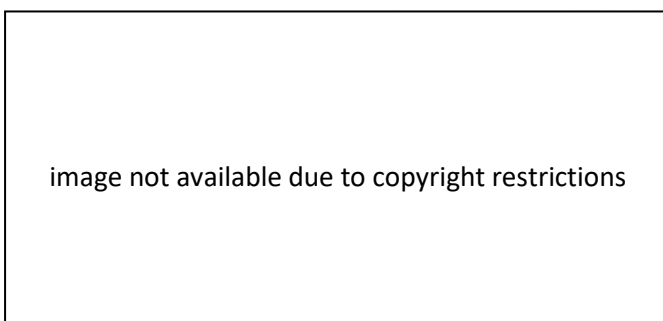


Fig. 3.5 - Example of pre-made low-cost dwelling for assisted self-built houses featured in presentation on National Programme of social housing by government official. Source: (Gameiro, 2015)

3.4.3 – A self-built 'dream-house'

The NUHP - or 'My dream, my house' Programme - is composed by various sub-programmes, including a social housing programme which aims to provide housing at a controlled cost/ social housing and a self-building Programme. The former has been widely promoted as being beneficial for the young Angolan generation, as it paved the way to house ownership and thus provide access to a stable condition and a place to bring up family. Other supportive views point out that it constitutes a positive contribution to the economy as it eliminates distracting concerns with housing thus leaving room for work and creative process of occupants (Jornal de Angola, 2010). The above was emphasised with the creation of programmes such as "Young Angola". However, despite intending to widen the access to housing by Angolan youth, these were limited by criteria of eligibility that stated for example that beneficiaries should be married and between 25 and 35 years old (Ferreira, 2009).

The provision of social housing as stipulated in the NUHP had two distinct lines of action, whereby one is associated with low-cost housing (which started off with a cap of 50 thousand USD (dos Santos J. E., 2008) and was later adjusted to 60 thousand USD per house in large housing developments) and another one with the provision of housing for the displaced from precarious neighbourhoods – *musseques* (Exame Angola, 2011). The latter encompasses the assisted self-building Programme, which as it has been mentioned previously, specifies that 685 thousand self-building houses to be constructed throughout the country in a total of 100 thousand square metres of State land reserves (Bessa, 2010; MINUC, 2009). Although there is no accurate information on the current status of this programme in terms of numbers, the Ministry of Urbanism and Housing stated in a press release in 2011 that the self-building was still far from the desired amplitude and it was taking place gradually. A setback attributed to the scarcity of financial resources (Angop, 2015). Moreover, the exact location of the land has not always been clear, as different sources often report that the self-construction scheme is restricted to rural areas of Angola (MINUC, 2011, p.12) whereas others put it both rural and urban areas (Novo Jornal, 2010). Even so, according to government sources, the majority of the plots for self-construction are to be located in urban areas (Angop, 2011b) 265,000 in rural areas and 420,000 in urban areas (MINUC, 2009). In Luanda these are mainly located in the periphery as can be seen in figure 3.1.

In addition to this, the assisted self-building programme anticipates that the total of land for self-construction is to be divided into plots served by basic technical infrastructure – namely water, energy, sanitation and telecommunications -, said to be set up by the government (MINUC, 2009), therefore leaving the construction of the house to the proprietors of the plot. The NUHP framework also contemplates a series of instruments of financial and technical nature designed to facilitate the access to the 'dream' house. The

former incorporates for example the Housing Development Fund (*Fundo de Fomento Habitacional*), created in 2009 with the aim of supporting people on a low-income buying – directly or phased – and renting of houses (ANGOP, 2011a). Further to this, given that the manufacture of construction materials is still an underdeveloped industry in Angola (Costa, 2009; Instituto Nacional de Habitação, 2008; Manuel, 2009), the Programme specifies the creation of exceptional customs policy measures towards temporary exemption of duties for equipment and construction for social housing, thus claiming to benefit the low-income population by providing building materials at a reduced cost (Diário da República, 2009). This is expected to bring the overall cost of social housing down (MINUC, 2009), and according to the authorities stop the speculation on the prices of building materials and facilitate those on a low-income access to building materials to build a house (Jornal de Angola, 2009a).

In addition to the above, the population embarking on the self-help construction should also be able to resort to technical and logistical support provided by the authorities (MINUC, 2009). Although this sheds some light into why this particular sub-Programme is referred to as 'assisted self-building', apart from provision of technical drawings of housing types that can be made available to the population such as those illustrated in figure 3.5 (Gameiro, 2015), it is not clear what this technical assistance consists of. Other sources mention that self-builders may also acquire 'self-building kits' in order to assist in the construction process of their houses (Bessa, 2010). Although reference is frequently made to these self-building kits, not much is disclosed about what they are composed of. However, according to a press statement published prior to the launch of the NUHP that alludes to the use of self-construction kits for self-building in Angola, the kits included 2 plastic buckets, hammers, nails, 25 zinc sheets, a plastic table and two chairs, a lantern and a wheelbarrow (Kubango, 2008). In February 2010 the Minister of Urbanism and Construction assured that there were 700 thousand construction kits available as part of the National Housing Programme and they would be gradually made available to the population depending on the progress of the Programme (400 thousand kits until the first semester of 2010 and the remaining 300 thousand in the remaining six months of the year) (Bessa, 2010). As far as how to acquire this kit, as stated by the Ministry of Urbanism and Construction in 2009, the materials for the kit could be purchased through PREDILD¹⁸, a retail chain set up by the government to sell construction materials at a low-cost (ANGOP, 2009). According to the same article the price of the construction kits would be accessible to all. With regards to costs, a statement from the Ministry of Urbanism and Housing in 2009 states that the government intended to set the price of self-building kits between 10 to 12 thousand USD (Bengo, 2009), whilst other sources put it at a price of 22

¹⁸ PRESILD - *Programa de Reestruturação do Sistema de Logística e de Distribuição de Produtos Essenciais à População* – Programme of Restructuration of the Logistics System of Distribution of Essential Products to the Population

thousand USD (Macau Hub, 2009). Nevertheless, regardless of the price, in theory those who were not able to afford may resort to credit repayable in a period ranging from 10 to 15 years through the Housing Development Fund mentioned earlier (Amaro, 2010). The latter has raised questions and debate and shall be further elaborated in the next section.

Adding to the ready-made technical drawings of 'model houses' and self-construction kits, according to press releases, the self-building scheme also has the UN-Habitat's technical support (ANGOP, 2013). Nonetheless, much like it has been mentioned before with regards to other aspects of the Programme, the information on the details of this partnership support is limited. There have been however other occasions when the UN-Habitat has provided technical support in Angola. This took place for example in September 1996 when a UN-Habitat Technical Support Unit was involved in the Community Rehabilitation and National Reconciliation Programme (CRNRP). The implementation of this programme has focused on building local capacity based on a policy of support, enablement, training, improving physical infrastructure, creation of job opportunities for the community and promotion of partnerships between the Government, non-governmental organizations and the private sector (UN-Habitat, nd) towards the programme *Luanda Sul*. The Luanda Sul Programme was distinguished by winning a Best Practice Award in 2000 – Dubai International Award for Best Practices to improve living Environment (Dubai International Award, 2000). Given this precedence, it is likely that the support for the 'assisted self-construction' Programme takes place at the policy level, rather than on the ground with self-builders directly. UN-Habitat has supporting the government of Angola with developing national urban policy making since 2009. Since October 2015 the UN-Habitat established its presence with an in-country small team and a Technical advisor, hence reinforcing partnership, with the aim of assisting further with technical assistance towards policy preparation and implementation regarding housing and urbanisation issues (UN-Habitat, 2016a).

As far as the progress of the NUHP is concerned, despite the positive feedback often found in government statements or press releases, other sources point to a less positive perspective towards the fulfilment of the programme. The following section provides an insight into some of the aspects of the programme that have been heavily criticised.

3.5 – DISCORDANT AND SCEPTICAL VIEWS TOWARDS A 'DEAM-HOUSE' PROGRAMME

Although the NUHP's sub programme 'Assisted Self-Building' Programme is regarded by some as an effective way to provide housing for the low-income population in Angola, it is not uncommon to find opposing voices who challenge the statements of success often associated with the programme. This seems to be particularly the case when matters are reported from the potential beneficiaries' perspective. Considering the above, this section

builds upon information released either in the media or by international human rights organisations/NGOs who emphasise pertinent problems that may be preventing people from achieving their part of the 'My house, My dream'.

3.5.1 - Housing the millions across the world

In terms of brief, the Angolan programme "My Dream, My house" (or "One Million Houses Programme") follows the footsteps of other large scale government-led interventions designed and implemented worldwide with the aim of mitigating housing scarcity amongst the lower income population. Much like the case in Angola, such claims and promises of housing built by the millions in a short timeframe, often emerge hand in hand with political campaigns, enhancing the impact of candidates' manifestos whilst reaching a large number of potential voters. These mass housing programmes are mainly found in, but are not limited to, developing countries and although attempting to address the issue of housing deficit, have been often criticised for creating a myriad of new social and urban problems as a consequence of their implementation.

For example, the 'Million Homes Programme' in Sweden (1965-1974), which despite reflecting Sweden's intention to create excellent examples of architecture through spacious and modern buildings, was nevertheless condemned due to its poor architecture and lack of diversity as it was perceived as being excessively uniform (Hall and Vidén, 2005). The emphasis on a quantifiable outcome at the expense of quality and socio-cultural integration is also associated with other mass housing programmes scattered across the globe, for instance in Sri-Lanka, Brazil, Namibia, Mexico or South Africa.

Sri-Lanka's 'Million Houses Programme' (1984-1989), developed and implemented in order to allow people to gain access to affordable housing, was heavily criticised for the lack of people's involvement in the planning process which as a result compromised the ability to meet people's real needs and requirements. This programme was nonetheless awarded with a World Habitat Award in 1988 (Joshi and Sohail, 2009). In the year 2000, the Mexican presidential candidate set himself the task to build two million low-cost houses throughout the country during his six-year term, through a public-private partnership (see figure 3.7). As seen in Benjamin (2014) the physical materialisation of this plan resulted in places characterised by a repetition of ubiquitous grids, where the concept of urbanisation is reduced to the construction of a house and the inclusion of public amenities, namely schools, parks or transport systems is disregarded.

In Brazil in 2009, the government launched the 'Minha Casa, Minha Vida' (My House, My Life), a social housing programme implemented in various phases which in partnership with the private investors, had the goal of providing 3.4 million houses by the end of 2014

(see figure 3.6). Despite putting housing issues on the agenda, this programme has shown to be far from the initial expectations. Instead it highlighted old and new problems in the urban fabric, ranging from low-quality architecture, standardisation of building typologies, limited size in relation to household, lack of flexibility of space, no access to adequate infrastructure and amenities (Bonduki, 2013). In addition to the above this programme also caused social and spatial segregation, a result of the peripheral location preferred by the promoters due to lower costs of land, which ultimately generates other urban problems such as the worsening of the urban mobility and the overextension of urban perimeters (Ministério de Urbanismo e Habitação, 2007). According to Bonduki (2016) houses produced under the 'Minha Casa, Minha Vida' are "far from an adequate solution" and do not meet the real needs of social groups receiving the house and cause socio territorial exclusion of the poorest (Bonduki, 2016).

An issue again seen in the more recent National Housing Programme in Namibia, Angola's neighbouring country (see figure 3.8). This programme, similar to all of the above in terms physical urban language, also aims to "providing solutions for housing shortages in Namibia" (NHE, 2016), but is also the target of criticism pinpointing the disconnection from local socio-cultural context and the production of space, namely the limited space to accommodate the household families (Hartman, 2015).

Although the high demand for housing in Luanda (especially for the low-income layer of the population) is one of the drivers of national policy, examples such as the above suggest that housing strategies and policies should contemplate grounded and integrated solutions. The examples listed above illustrate the potential risk of addressing housing problems from a purely quantitative front, ignoring the complexity and dynamic nature of housing as a system, as well as context-specific requirements from beneficiaries populations. On this Gager and Gaber (2007, p.2) remind that

Professionals now widely recognize that these projects [referring to large scale public housing projects built in the 1950s and 1960s] were a bad idea. However, at the time, quantitative planning research pointed toward high rates of poverty and the high cost of housing. The housing projects were seen as the solution: move thousands of low-income residents into huge, high-density residential facilities that can accommodate thousands of individuals (but which, as we know, show little consideration for basic community life needs).

Gaber and Gaber (2007, p.2)

Even so, the resource to housing schemes that emphasise the repetition of a decontextualised single house and plot onto vast extensions of peripheral locations remain the norm to address housing problems in many rapid growing urban areas of the Global South, including Luanda.

image not available due to copyright restrictions

Fig. 3.6 - Settlement built as part of the 'My house My Life' housing programme in Brazil.
Credit: Ruby Press, 2014

image not available due to copyright restrictions

Fig. 3.7 - Mass housing programme Mexico.
Credit: Benjamin, 2014

image not available due to copyright restrictions

Fig. 3.8 - Mass Housing Project houses, Walvis Bay Municipality in Namibia. Credit: NambianSun203, 2015

image not available due to copyright restrictions

Fig. 3.9 - Mass housing, Gauteng South Africa.
Credit: Getty Images, 2015

3.5.2 – '*Dream-Houses*' for whom?

The scepticism concerning the likelihood of completing one million houses within the initial four year timeframe has been present since the launch of the NUHP. In 2009 a real estate publication in Angola featured a section on the assisted self-building where the real estate developer Correa argues that a project of this scale "can only be developed in a period over 5 to 10 years, supported by a policy of promoting housing and urban development of cities" (Corrêa, 2010, p.5).

In 2010, despite hopeful declarations of confidence on the achievability (and potential surpass) of the one million houses goal before the end of 2012 (Bessa, 2010; Novo Jornal, 2010), the reality of facts suggested otherwise. Subsequently to several readjustments made to the timeline of the NUHP - which dos Santos attributed to "reasons beyond our [the Government's] control" (OJE and Lusa, 2010) - it became clear that the fulfilment of the 'dream' within the initially predicted timeframe would be difficult to accomplish. A stance confirmed by the Government's Programme for 2012-17, released just before the election of September 2012, which declared that "as a result of the international economic and financial crisis, the National Housing program was revised" and the achievement of the one million houses goal, was postponed to the end of 2014 (MPLA, 2012, p.14-15) and yet again what seems to be an undetermined date. The delay and dragging of the process emphasised the questions that have been raised with regards to where the Programme currently stands and whether it will ever be fully executed. In addition to reservations on practicality and feasibility, there have been other issues clouding the successful implementation of the NUHP as a tool to improve Angolans quality of life. Many of which are associated with questions on *what* and *how* exactly this can be achieved. Moreover, others have questioned who actually benefits from this programme, and referring back to the name attributed to the Programme ('My Dream, My House'), who is achieving the 'Dream'.

With relation to this, in 2010 when enquired on the progress of the NUHP the then Ministry of Urbanism and Housing, despite stating that it was the government's intention to disclose information regularly on this matter, was not able to provide an accurate figure on the number of houses built to date under the one million houses programme (Bessa, 2010). Nevertheless, some indication towards these figures has been occasionally mentioned. This was the case in 2011 when the President stated that in Luanda the construction of three thousand incremental dwellings (*casas evolutivas*) was underway. Moreover, he further added that five thousand more houses were expected to be completed until the end of 2012, all in an area with infrastructure prepared for a total of 20 thousand houses (dos Santos, 2011). The fast pace at which the construction of housing was apparently taking place in the country was further emphasised in the Government Programme for 2012-17. According to this document more than 350,000 housing units

had already been built, a number that would be able to house an estimate of 2,100,546 people (MPLA, 2012, p.14-15). With regards to social housing, it further states that the overall goal of the programme, including self-construction and sector private and public partnerships, is to guarantee housing and promote social housing for 564,000 families, the equivalent of roughly 3,3 million people (MPLA, 2012, p.14-15).

Today with the Programme well under way, and Correa's theory confirmed – at least with respect to the failure to meet the initial timeline and targets - the concerns have extended considerably to encompass other issues, the attribution of land being one of them. Despite the land reserves allocated for the assisted self-building programme and references made in press statements to people already building or hiring builders to construct their houses (Bessa, 2010), up until recently other sources pointed to some uncertainty concerning who the beneficiaries of the Programme were, i.e., who would be entitled to a plot of land or a house (O País Online, 2011). Moreover, the media also raised attention for problems with the preparation and delivery of the plots as well as with the process of legalising and issuing of titles and construction licenses (Victor, 2010). As each municipality is responsible for the process within their borders, the reasons for these problems seem to vary from province to province. However, as far as Luanda is concerned, which has been reported as being behind comparing to other provinces (Novo Jornal, 2010), the problems with the getting the plots ready is sometimes attributed to alleged lack of funds to compensate people currently occupying the state land reserves, so that they can free the land for construction (Sérgio, 2011).

Assessing the current status of the NUHP may prove to be a difficult task. Since the programme was first launched, its framework has been adjusted and redesigned various times as a consequence of evolving national and international economic and political circumstances. Moreover, given that the Programme is still ongoing, and as it was observed during the course of this research, getting hold of the most up-to-date and accurate information on its implementation and development is often a challenge. This tends to be restricted to occasional and vague official statements from authorities - that mostly tend to highlight the successes of the NUHP. Despite the fact that the lack of information is generally transversal to all aspects of the NUHP, it becomes particularly evident with regards to the provision of low-cost and/or social housing, possibly due to the complexity of issues involved in this sector. Recent reports state that approximately half of the one million houses goal target has been achieved so far and that the government hopes to increase the number through providing technical support to self-help housing construction mechanisms (UN-Habitat, 2016a).

Despite the vast local media coverage on this subject, details that would be helpful to determine the sound course of the NUHP are still frequently overlooked within press releases, which emphasises the difficulty of gathering information to compile for this

particular section of the thesis. Moreover, despite the media perhaps consisting of the most regular source of information on this matter, facts often need to be filtered through sometimes contradictory and even biased information - especially when local Angolan press is placed side by side with international press releases, news and statements by NGOs and human rights organisations.

Ever since the first announcements of the NUHP were made public in 2008, the Government's plan to deliver one million houses within a four year period (2009-2012) was widely printed in local newspapers and enthusiastically reiterated to the local and international community. Since its inception, and up until now, the NUHP was considered by those involved in its design as "the [...] executive programme of biggest social impact of the mandate" (Jornal de Angola, 2009b), advertised as a success in Africa (Bessa, 2010) and even, according to UN-Habitat (Dinis, 2012) and other African Ministers an example to follow in the continent (ANGOP, 2012a). Many of the compliments made to the programme, namely by the latter, rested on the fact that at least on paper a great deal of attention and investment was being given to social housing (ANGOP, 2012a), thus targeting the most unprivileged population of Angola¹⁹. However, as seen in section 3.4 not all the feedback on the NUHP has been this positive.

As mentioned previously, the post-war reconstruction strategy of Angola comprises the requalification of existing urban fabric, but also planning and construction of new satellite cities around existing urban areas in Angola. These new cities also designated as '*novas centralidades*' (new centralities) intend to alleviate some of the current problems of overpopulation and densification. Kilamba Kiaxe - officially open since July 2011 - is perhaps the flagship for these new urban clusters. Its construction started in 2008 (Exame Angola, 2011) and, although it has been often referred to as an example of good practice it has also been criticised, especially on matters of affordability. In Kilamba Kiaxe potential buyers would be able to choose from typologies ranging from three bedroom to five bedroom houses, being sold in 2011 at 120 thousand USD and 200 thousand USD respectively (see Fig 3.13), prices which some point out were too high for the majority of the Angolan population (Público and Lusa, 2012). This is mentioned in an article by the BBC where it is reported that although the construction of buildings and infrastructure is indeed taking place in Angola under the NUHP, they also state the newly-built cities around Luanda resemble 'ghost-towns', as there people cannot afford to live there, referring specifically to Kilamba Kiaxe (Redvers, 2012). Such statement was nevertheless immediately refuted by local Angolan press, who accused the authors of carrying out journalism by 'correspondence' and not reflecting the reality of today's Luanda, further

¹⁹ the majority considering that, according to the UNDP's Human Development Report, 54.3 per cent of the population has an income of less than 1.25 USD a day (UNDP, 2011, 144)

adding that the Housing Programme has been so far a success (Ribeiro, 2012). These criticisms were subsequently addressed by the President dos Santos who gave orientation towards the adjustments of prices of houses in Kilamba following a visit to the city. On that occasion he stated the city was mostly vacant due to what he believed was excessive bureaucracy in organisation and indiscipline in the process of acquisition of the houses (O País Online, 2012).

Nevertheless, and despite the questions above, given that the larger percentage of the 1 million houses is categorised under 'assisted-self building' it suggests that the NUHP mainly intends to accommodate those on a low-income or, as specified by the Ministry of Urbanism and Construction, with a monthly income below 500USD (MINUC, 2011). The Programme has also been strongly promoted to a young generation of Angolans looking to raise a family in a house of their own (dos Santos J. E., 2011), in order to assist in the achievement of the "dream of owning a house that lives in the hearts of hundreds of young Angolans" (Manuel, 2009).

Dos Santos adds to the criteria and states that in the particular case of the capital Luanda, the 'assisted self-building' and 'incremental building' Programmes target people who fled from rural areas during the war and settled in land located in critical areas, such as those pictures in figure 3.6 of Bairro Samba. Furthermore, he further states, to those occupying land that has been reserved to the development of public projects (dos Santos J. E., 2011).

The latter has been generating an intense debate amongst those who censure the implementation of the Programme, mostly due to the consequences of relocating people to make way to development of public infrastructure (Humans Rights Watch, 2011). In fact, amongst all the criticisms directed to the development and implementation of the NUHP the most common, and by far most serious, is probably that of the displacement and relocation of people – either forcibly or with consent.

3.5.3 – Housing funding strategies

Access to funding to buy land and build a house is another issue frequently raised in association with the success of the programme. As mentioned previously, the Government has created the Housing Development Fund as a tool to allow access to credit. However, other sources state that the Housing Development Fund only covers 80 per cent of the total value of the property (ANGOP, 2011a). In addition to this, and despite having been first set up in 2009, according to Rosado in the beginning of 2012 Angolan Banks had not yet been instructed by the authorities to operate the housing credit under the Housing Development Fund (Angonotícias, 2012). That being so, although press releases attempt to reassure the population stating that the prices charged are not speculative and will be

available to any citizen (Novo Jornal, 2010), there are those who believe that the Housing Development Fund will not benefit everyone (Angonotícias, 2012), and therefore, the access to land or a house may be more difficult than anticipated, although it was repeatedly stated that this would be open to all (ANGOP, 2009). In addition to this, in order for a citizen to benefit or have access to social housing in the programme, they must meet a certain criteria, which includes amongst other requirements to have a permanent work contract (MINUC, 2011, p.11). The latter necessarily raises the question on how people who have an income through the informal economy will fit in this category.

Other voices raising concerns on this issue state that the way the NUHP may have given a wrong impression that the houses built as part of the Programme were going to be built by the government and subsequently offered to people with no cost attached. Nevertheless, other sources challenge this argument and state that people will have to pay for the houses (Novo Jornal, 2010).

The above sheds some light into why the reactions and the general perception of the measures implemented as part of the NUHP have been showing signs of contradiction. The case of Luanda is a clear example of this duality. What for some may be a successful intervention in the city's deteriorated urban fabric, often for others entails an imposed displacement. According to Redvers (2009), there is a perception amongst the displaced people that the Programme is not accommodating their needs but it has rather been designed to benefit the wealthy. The former believe that they are being relocated so that the land that they occupied can have other uses such as large scale and expensive housing developments can be constructed in what used to be their land (Redvers, 2009).

The following section also demonstrates that population displacement is a concern not only expressed by the people directly affected but also shared by several NGOs and/or Human Rights Organisations that have been raising awareness for problems associated with the NUHP in Angola.

3.5.4 – Population displacements

Population displacements in Angola, and particularly forced evictions date back to before the implementation of the NUHP. These have been extensively documented by organisations such as The Human Rights Watch (HRW), who state that "Since the end of the civil war in 2002, the Angolan government has had a history of conducting abusive forced evictions" (Human Rights Watch, 2011). Since then, and up until the time of this research, forced evictions have been continuously flagged and condemned by several local and international NGOs and human rights organisations; namely UN-Habitat (UN-Habitat, 2007), Amnesty International (Amnesty International, 2008; Amnesty International, 2010;

Amnesty International, 2011), Housing and Land Rights Network (2010, 2012), Development Workshop, SOS Habitat, amongst others. Nevertheless, the UN-Habitat, who was amongst the first organisations to call attention for the extent of the problem of forced evictions in Angola, has been also said to have paid complements to the NUHP, especially towards the social housing component of the Programme (ANGOP, 2013).

What follows illustrates that although there is a considerable amount of information scattered throughout the press on various issues involving people's displacement/relocation as a consequence of public infrastructure development promoted by the NUHP in Angola, on the course of research it was noticed that there is a lack of objective and unbiased in-depth studies on this subject. Moreover, this seems to be particularly the case with regards to assessments looking at a period post-relocation. This could potentially represent a key piece of information to determine whether the objectives set for the NUHP are being achieved and therefore determine its degree of success.

The examples below, along with others not mentioned herein, suggest that forced evictions have so far affected the lives of dozens of thousands of people and even have allegedly been responsible for the death of at least seven people due to abusive use of force (Amnesty International, 2011). Human Rights Organisations generally agree on the fact that the way in which such actions have been conducted consist of a violation of people's most basic rights (Amnesty International, 2011; Humans Rights Watch, 2011) and often ended with people having to move into tents for an undetermined period and experience worsening in quality of life.

In recent years there have been various appeals originated both within Angola and from international human rights organisations in order to raise awareness for the problem of forced evictions in Angola. In 2009, following the announcement of the availability of state land reserves as part of the NUHP, ten Angolan Organisations have compiled a report on human rights featuring the demolition of informal settlements and forced evictions. Herein the 'Right to Housing' is highlighted as a problem that urgently requires the UN's attention, and should therefore be addressed in this context. Additionally, the organisations anticipate that the situation will worsen over years to come due to the "current definition of the fund reserves in all the country that will be the only ones where construction will be considered as legal" (Conectas, 2010). Subsequently to the above, in 2010 a grassroots initiative from a local association launched the appeal "Don't break my house!" (*Não partam a minha casa*), advocating the right to housing in Angola. This campaign started a national and international mobilization process of solidarity with the victims of evictions in the city of Benguela (Jimbi, 2011). More recent reports give account of forced evictions of at least 5,000 people in an informal settlement located in one of the peripheral municipalities of Luanda. According to the HRW, much like in previous episodes

of evictions, the "people evicted had access to alternative shelter or sufficient time for everyone to safely evacuate their personal belongings" (Human Rights Watch, 2013).

On the other end of the spectrum one can find the relocations agreed between authorities and population. In this case, although in principle the concerns over the forced eviction may differ significantly from the former, the results are frequently similar. One of the issues emerging is the compensation for land, which according to a press statement is not always carried out in a fair manner for the person set to move out of the land (for example one person was given 1000 USD in exchange for 15,000 metres squares of land). Besides the monetary remunerations, issues associated with the physical relocation of people to government-built houses are also raised frequently. One of which is the waiting time spent in tents in the post-displacement period, whilst the houses or land are not attributed to their new owners. These temporary shelters are described as consisting of precarious plastic and cardboard tents, which according to some of their inhabitants represent a step down in terms of quality of life (Oliveira, 2009) comparing to what they had before. According to 'O País Online' (2011) the houses in one the peri-urban neighbourhoods of Luanda (Zango III) are meant specifically to house the displaced population living in tents. However, whilst ones make their way out of the tents to a new home, the tents they empty are often occupied by other people immediately afterwards (O País Online, 2011). This phenomenon further emphasises the true scale of housing shortage in Luanda and begs the question of whether current housing policies will ever be able to deal with this issue.

The displacement of population has not been only restricted to informal settlements in urban areas, but it is also taking place in the formal built environment. In the case of Luanda, besides intending to "eliminate the *musseques*" (Bessa, 2010), existing tower blocks have been or are set to be demolished, many of which left without maintenance since the colonial period. Similarly to what takes place in the *musseques*, the residents of these buildings are also being relocated to one of the new peripheral neighbourhoods of the capital. However, according to press releases not all of them had access to a new house due to legal problems with some of the tenants (Bambi, 2010). In either case, whether forced or willingly, the outcomes of the displacement/relocation of people seem to entail a reality distant from the vision of a 'dream house' that has been widely promoted in association with the NUHP.



Fig 3.10 - Bairro Samba, built on a risk area where various landslides have already occurred, destroying many houses. Photo by Célia Macedo, 2011.



Fig. 3.11 - Gated housing developments cities being built on the outskirts of Luanda. Photo by Célia Macedo, 2011.



Fig. 3.12 - New city built on the outskirts of Luanda – Kilamba Kiaxe under construction. Photo by Célia Macedo, 2011.



Fig. 3.13 - Banner located at the entrance of Kilamba Kiaxe (at the time of this photo still closed to the public) showing the housing typologies and respective prices. Photo by Célia Macedo, 2011.

It reads:

T3A - 110m²: USD 125 thousand
T3B - 110m²: USD 130 thousand
T3+1C - 120 m²: USD 140 thousand
T5 - 150 m²: USD 200 thousand

3.6 – SUMMARY

Chapter Three followed on the Luanda's housing context specific issues introduced in chapter two and elaborated on strategies and measures developed as a response.

It framed the overall context of the issues under analysis examining the role of housing within the development agenda, focusing on the most vulnerable urban settlers. It firstly approached the lenses of international agreements and development targets (including the MDGs and the newly formed SDGs) and secondly elaborated on country specific development strategies in Angola. It explored the concept of and the potential implications of the ongoing debate on the significance of housing on the government-led housing programmes in Luanda. Finally chapter three also touched upon criticisms and concerns directed towards the process and potential outcomes of the NUHP with regards to the beneficiaries and consequent population displacements.

CHAPTER FOUR – Contribution of POE and PRA to appraise low-cost urban fabric in Luanda

Putting people first, and putting the poorer first of all, is now more than ever a matter of personal and professional choice and commitment.

(Chambers, 1991, p.534)

4.1 - INTRODUCTION

Chapter four examines literature on buildings' post-occupancy monitoring and evaluation and that on PRA as a framework used in the development field to collect information in a development context. It further provides the background for chapter five in which the methodological approach designed for this research is explained in detail. Combined with chapter Five (Methodological Approach) it aims to fulfil Objective 2.

In terms of structure and content, chapter four begins by addressing an existing body of literature on perceptions and acceptability of buildings, which then follows onto exploring current concepts of POE and its role as a currently well-established methodology to assess performance of buildings and occupant satisfaction. Through the literature, the author demonstrates that POE methods emerged as a response to the need of understanding how buildings perform and whether they respond to users' needs. Moreover, further to going into detail into concepts, applications and benefits of implementing POE-like methodologies, this chapter points out barriers identified in the literature emphasising in particular their potential inadequacy to the context of developing countries.

In the sequence of a review on the POE literature, focus is given to research methods commonly used in developing countries, and a connection is establishing between the former and the latter. This intends to build an argument that a combination of PRA with a POE framework could potentially represent the most appropriate and efficient way to evaluate and monitor the performance and occupant satisfaction of buildings produced as part the most recent National Urbanism and Housing Programme in Angola. Chapter Four seeks to elaborate on how existing research methodologies used in PRA may be combined with POE in order to complement it and make it compatible with the context of developing world. This approach informs the research design and methodology structuring this work, which concentrates in Luanda and therefore investigates appropriate methods to collect and analyse data in such context.

4.2 – BUILT ENVIRONMENT ASSESSED THROUGH POST-OCCUPANCY EVALUATION (POE)

Despite the growing awareness of the relationship between building performance and post-occupancy interaction, the body of literature on this subject remains mostly geographically restricted and thus far from covering the extension of built environment in certain areas of the world. This is the case in the context of Africa, whereby post-occupancy studies have spread mainly to South Africa, Nigeria and India. Other assessments of post-occupancy nature also include post-disaster occupancy assessments, which tend to focus on evaluating the success of population resettlement as a consequence of a natural or man-made disaster (see for example: Oliver, 2006; Sanderson *et al.*, 2012). However, post-disaster resettlement is not in the scope of this work and shall not therefore be included in this chapter.

The following is built upon published literature on POE and briefly touches upon the historical considerations, as well as the main concepts and methods behind its application. Moreover it identifies potential barriers to its implementation, finishing with a critical review of the method with regards to its use in the development context. Subsequently, PRA methods are introduced as a research approach that may potentially benefit POE when the latter is to be employed in such context, such as that in which this research takes place.

4.2.1 – POE: definitions and conceptual specifications

Post-occupancy Evaluation is considered by some the most commonly known building appraisal method (Aigbavboa and Thwala, 2012). The origins of POE date back to the 1960s, around the same period that Preiser places the first one-off case-studies evaluations of buildings, which although not yet called POE, represented pioneer attempts at assessing the performance of buildings considering the occupants/users' perspective (Preiser, 2005). It was later in the 1970s that the phrase 'Post-Occupancy Evaluation' as we know it today was employed when referring to "describe the process of assessing buildings in use [...] from the occupants' point of view" (Leaman, 2004, p.491). A decade later, Zimring and Reizenstein defined POE as "examinations of the effectiveness for human users of occupied design environments" (Zimring and Reizenstein, 1980). The occupants' satisfaction is further emphasised in Zimmerman and Martin who describe POE as a process typically focusing on "assessment of client satisfaction and functional 'fit' with a specific space.", to which is added "the criteria for judgement are the fulfilment of the functional programme and the occupants' needs" (Zimmerman and Martin, 2001). Later definitions such as the one seen in Preiser and Vischer ("the act of evaluating buildings in a

systematic and rigorous manner after they have been built and occupied for some time" (Preiser and Vischer, 2006) point towards the shift towards a more building oriented approach, which also developed to encompass energy-efficient evaluation and benchmarking (Stevenson, 2009). Regardless of the evolution that POE as a concept and method has undergone since the 1970s, the main focus remains on the occupants' satisfaction towards the building they use, rather than on matters of aesthetics, evaluation of building systems or materials (Zimmerman and Martin, 2001). It is the emphasis given to the needs and requirements of building occupants on occupants that in Vischer and Preiser's view, what differentiates POE from other appraisal methods (Vischer and Preiser, 2005).

In line with the conceptual developments, the literature also makes reference to different approaches to POE observed throughout the world, namely the USA, UK and New Zealand (Stevenson, 2009). In terms of methods, since its inception POE has been evolving to encompass a number of different methods used to address different building types. Today it combines quantitative (physical monitoring) and qualitative (qualitative evaluation of user perception and behaviour) methods in order to provide a complete picture of the building performance as a whole. According to Stevenson, amongst the most commonly methodological tools used in POE (considering the UK housing context) are technical evaluation/physical monitoring; questionnaires; interviews/focus groups; walk-through/observation; and not so common: video/photographic analysis and mapping (Stevenson, 2009). Although combining qualitative and quantitative data gathering methods, a considerable part of POE in fact relies on the collection of quantitative data, through the extensive use of questionnaire surveys.

4.2.2 – Applications, benefits and barriers of POE

POE is a building performance assessment tool that provides the potential of better understanding buildings and how these perform. Mainstreaming POE and potentially incorporating it in the design and construction process could provide a platform for knowledge exchange and consequently the opportunity to bridge the gap between predicted and actual building performance. According to Zimmerman and Martin (2001), incorporating occupants' feedback on building performance when designing buildings with similar characteristics to those evaluated through POE, will avoid unpredictable outcomes in future projects thus contributing to improvements.

The literature agrees that the main benefits from conducting POEs are associated with knowledge transfer between professionals and projects. The outcomes of POE provide

valuable information concerning how buildings are actually performing, as opposed to how they are expected to perform, and will ultimately put emphasis on continuous improvement in the building sector. On the above, Zimmerman and Martin state that “a proper POE will provide real information on which to base decisions, and real information is key to informing and improving the next project”. (Zimmerman and Martin, 2001, p. 169). More recently, and due to growing concern over Global Climate Change, advocates of POE have been arguing that such building appraisal method can actively contribute to the provision of sustainable design and construction (Meir *et al.*, 2009) and thus to the reduction of greenhouse gases in the building sector (Stevenson, 2009; Zimmerman and Martin, 2001). Zimmerman and Martin explain that this can happen indirectly and directly, whereby the former takes place by contributing to “more efficient design of the next space” and the latter through “potential improvements of system or equipment operation by identifying post-occupancy problems that can be corrected.” (Zimmerman and Martin, 2001, p.169).

Although the potential benefits of POE to the building industry, clients and occupants/users of buildings are widely stated in the literature, it is also true that according to some sources POE is still far from being a common place and its active contribution towards regulations and inclusion in the building process have still not picked up completely (Stevenson, 2009). An achievement that Stevenson believes may become a reality within the next years, anticipating that POE process will be incorporated in the design and construction process and embedded in the next project delivery. A stance supported by more recent examples such as that of RIBA’s recommendation of POE as a stage of the design and construction process (RIBA, 2013).

As seen in Stevenson (2009) some of the reasoning behind the poor adherence of clients, industry and government to a framework like POE might be associated with the fact that POE is still a relative young growing discipline and therefore not regarded as an essential, nor very attractive tool. Furthermore, the same author remarks that although a considerable number of studies on feedback of completed buildings have been carried out, many were commissioned and conducted by private consultancies hence were not published or made available to the general public. As a result, not sharing these contributes may foment the lack of interest from potentially interested parties. To this is added the fear that exposing design or construction defects identified during a POE process may affect the professional indemnity of those involved, may lead to litigation or resisting engaging in a process that may reveal flaws in the construction or management of a building (Leaman, 2004; Stevenson, 2009). Leaman further adds constraints of organisational and operational nature and states that carrying out a POE is harder than

most realise due to complex aspects of data collection and management involved. He also attributes the lack of adhesion to POE²⁰ to under representation of building performance in academia (not regarded as an area of interest) and an ill prepared industry, which perhaps as a consequence of the former, does not offer an adequate skill set nor trained professionals to implement POE (Leaman, 2004). Aspects of culture or business as usual in a construction industry not used to knowledge transfer between those providing buildings and those who run them is also pointed as a barrier. To which is added the fact that usually there are no lessons learned from one project to the next, also due to time and cost pressures (Leaman, 2004).

In addition to above, Leamen (2004) further indicates the existence of many POE techniques available, raising this as a potential problem. He argues that given the wide availability of techniques to choose from, knowing which one is the most appropriate may reveal to be a difficult and somewhat overwhelming task. With regards to this, Stevenson (2009) advises that it is necessary to separate methodologies and allow them to evolve according to different building typologies. Thus, in her view it would be a mistake to find a one size fits all approach for carrying out a POE, given the differences in the building typologies themselves. Instead, she advocates, rather than moving towards a single POE methodology, more standardised approaches should be developed for each sector or typology (Stevenson, 2009), which would increase the accuracy of the outcomes and recommendations

4.2.3 – POE in the housing sector

POE has been a standard practice since the late 2000s in certain building typologies in the UK context. Public funding bodies such as the Scottish Funding Council have been promoting “POE as an essential performance management and continuous improvement tool” and since 2007 made POE mandatory on all SFC funded projects with a total capital cost of over GBP 3 million (SFC, 2007). POE performed in residential buildings on the other hand is still underrepresented. This point was raised following a recent survey in the UK which revealed that revisiting completed residential projects in order to assess performance and occupant satisfaction is still uncommon in the building industry (Clark, 2015). Issues of privacy of occupants’ which can potentially compromise data collection, are often pointed as a reason for the low uptake of POE in housing (Stevenson, 2009). In addition to privacy, the financial aspect of carrying out a POE may also represent a

²⁰ Referring to its application in the UK.

constraint as it perceived as being costly, thus usually entails unwieldiness from the clients' part unless they are owner occupiers (Clark, 2015).

Even so, and despite the challenges of mainstreaming POE into housing, as Stevenson points out, the housing typology accounts for the higher number of buildings, and shouldn't be ignored within the POE practice (Stevenson, 2009). In line with this, the literature points out that addressing the residential sector is important in order to improve confidence and knowledge regarding what to consider when delivering future projects whilst contributing to improve the occupants' wellbeing (Hartman, 2014). Significant steps in the industry towards a wider presence of POE in any new or refurbished building include for example the incorporation of a new stage (7: 'In Use') in RIBA's Plan of Work 2013²¹. Herein POE is recommended in order to "determine whether the Project Outcomes (both subjective and objective) set out in the Final Project Brief have been achieved". Although the latter act solely as guidelines they nevertheless represent a step towards bringing industry and clients closer to actively contributing towards understanding and learning from housing whilst being used by the occupants.

Although the above refers to the UK context and might not necessarily be relevant to the context in which this research takes place, it highlights potential limitations to implementing POE to the housing sector in Angola. Mainstreaming POE in low-cost housing as part of project delivery process in a context lacking a fully functional planning structure and regulatory framework covering the building industry may reveal to be further challenging. Also, it would be difficult to implement as a stage in itself when these are not clearly defined in the first place – and where usually construction carries on after delivery for example. Even if surely relevant, not having a structure in place in order to continuous feedback of information within the industry and occupants could result in one-off POE studies with very little impact on future projects.

4.3 – ASSESSMENT THROUGH PARTICIPATORY METHODOLOGIES – PRA

This section looks at participatory methodologies as a form of assessment. It draws information from an extensive body of literature on Participation and Participatory Methods (PMs), focusing on PRA. Key texts and authors were selected in order to provide a broad understanding of the origins of PRA, its principles, benefits, as well as limitations.

²¹ The RIBA Plan of Work was first developed in 1963 and consists of a conceptual framework that outlines the different key stages of the building design and construction process. It refers to the UK context and it is meant to be used solely as guidance (RIBA, 2013).

Moreover, given that this thesis is based on research carried out in an urban setting, additional sources of literature on Participatory Urban Appraisal - PUA are also examined. Similarly to the previous section 4.4 in combination with the conceptualisation of POE, this section also intends to inform the subsequent methodology chapter.

4.3.1 - Integrating participation in a 'new paradigm of development' - Conceptual specifications

Participatory Methods do not have the technical background that was in the origins of POE, instead this approach emerged from the field of social sciences. Participatory Methods are currently used in most countries of the world (Chambers, 2008) and are considered to have a prominent place in work carried out in the development arena (Kumar, 2002).

According to Clayton *et al.* (1997) the first initiatives integrating the concept of participation in development with the intention of improving people's communities date back to the 1940s and 1950s. However, the widespread promotion of participatory approaches and methodologies is more noticeable in the literature since the 1970s, 1980s. Later in the 1990s and 2000s those methods have been disseminated to almost all countries of the world (Chambers, 2008). Today the idea that participation holds a preeminent place in the thinking and practice of the development arena seems to be firmly embedded in the literature (Kumar, 2002; Mikkelsen, 2005).

The literature generally agrees on the fact that it is not possible to provide a unique and universal definition for the concept of participation. As the World Bank puts it, participation is an "elastic term that can mean different things to different people in different institutions" (World Bank, 1996, p.11). Participation is then defined, conceptualised and understood differently throughout the literature, depending upon variables such as who is applying it, in what context it is being applied and in what background it is being used on (Kumar, 2002). The following is an example of a definition frequently cited in the literature:

Participation is the people's involvement in decision-making process about what to be done and by whom; their involvement in implementing the programme, sharing benefits and monitoring and evaluating the programme. (Cohen and Uphoff, 1977)

Despite different interpretations, any definition of participation tends to incorporate a set of common principles emphasising the involvement and engagement of people in

different processes of work/studies/research. Narayanasamy (2009) summarises the core features of participation in four main points:

- Voluntary involvement of people;
- People participating share control over development initiatives, decisions and resources;
- Process of involvement of people at different stages of the project or programme; and
- With the ultimate aim being the improvement of the well-being of the people who participate.

Models of participation which include the 'participation ladder' (Arnstein, 1969) (figure 4.2) and the 'typology of participation' (Pretty et al., 1995) emphasise the gradations and levels of people participation and ultimately the different interpretations of participation as a concept. A stance supported by Kumar (2002) who explains that although it is true that participation is generally perceived as a process in which local people are empowered, this empowerment – which is vital to define participation - depends on a set parameters that include location, traditions and cultural references, political environment, existing power structures amongst others. Figure 4.1 and 4.2 below illustrate the variable degrees of participation and people's involvement in participatory processes, or as Arnstein (1969) puts it, different gradations of 'citizen power'.

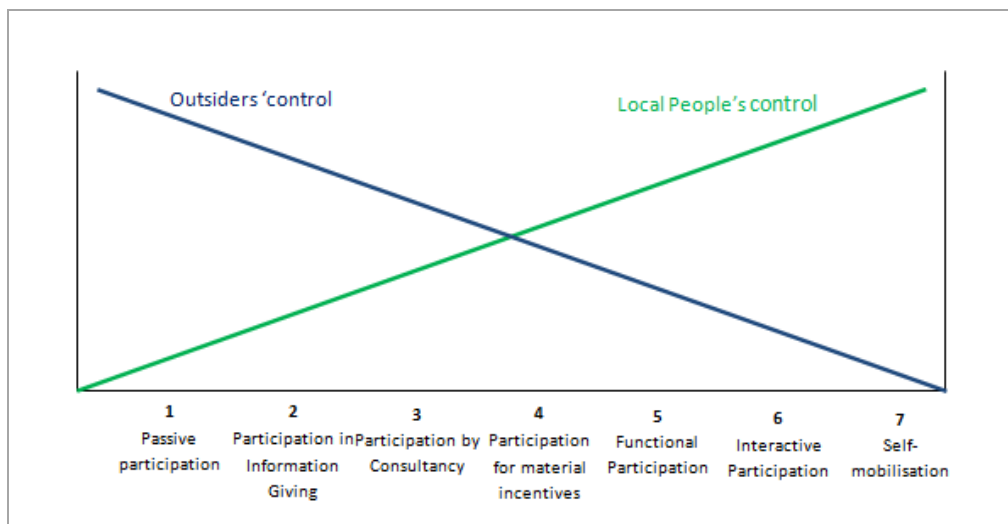


Fig 4.1 – Spectrum of participation Source (Kumar, 2002)

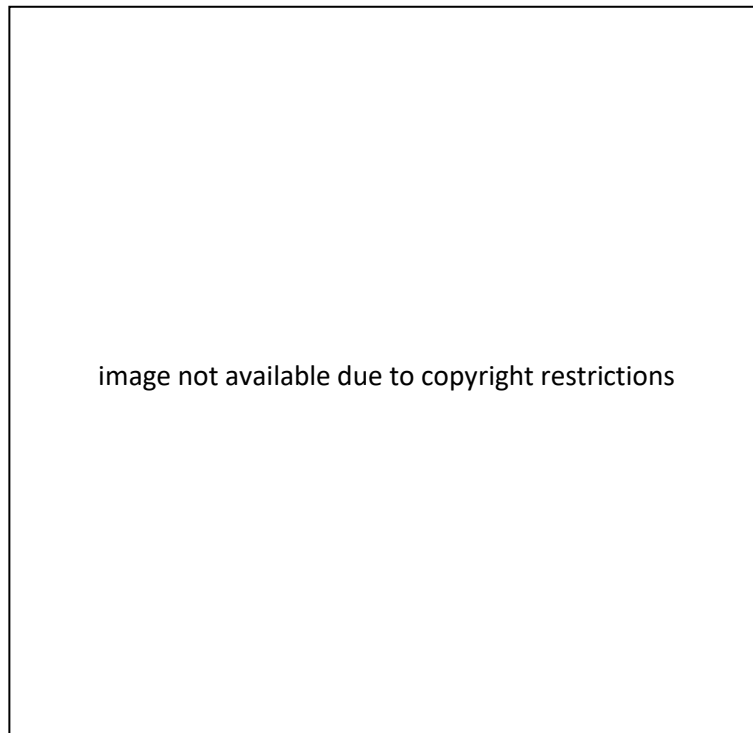


Fig 4.2 – Ladder of participation. Source (Israel, 1969)

Although the discussions around the conceptualisation of participation extend beyond the methodologies that emerged as a consequence of a participatory system, this thesis mainly explores the methodological aspects. For this reason, analysing in further detail past and ongoing debate around the concept and distinct levels of participation in the literature it is out of the scope of this thesis.

4.3.2 – Conventional research methods: criticism and constraints

Conducting research in a developing context inevitably touches upon issues of appropriateness of methodologies used for data collection and analysis, usually a parallel discussion to that of participation mentioned in the section above. Criticism towards “normal professionalism” (Chambers, 1986) or “conventional Northern practice” (Simon, 2006) contributed to a shift towards a new paradigm of research in the field of development studies and helped shaping approaches used today.

This discussion mainly revolves around issues of implementation of well-established methods used in social research, usually of quantitative nature, in contexts where these could potentially fail to capture fundamental aspects of local reality. Chambers (1986) for example, is of the opinion that methods of normal science have limitations when applied to development studies and throughout his work he is especially critical towards quantitative data collection methods. These, according to him, promote a paradigm of things rather than one of people and are therefore incompatible with a participatory

approach to data collection and analysis (see for example Chambers, 1986; Chambers, 1991; Chambers, 2008). On the appropriateness of more quantitative approaches in such contexts, other sources remark that although these may be strong when describing 'what' they do fall short when it comes to provide explanations for the 'why' and might also not be effective in contexts where there is very little concept of certain aspects in numerical sense (Overton and Diermen, 2003).

Quantitative approaches are commonly associated with questionnaire surveys. This is of the oldest social research methods and is used across a wide variety of disciplines, probably for that reason this is also one of the most criticised methods of so-called conventional practices. Questionnaires are considered an invaluable tool that can provide access to a extensive range of factual information, the views and perceptions of representative sample of a particular situation (Simon, 2006), and are particularly useful when the objective of a given investigation is to provide average pictures, trends or characteristics (Mukherjee, 1993). Moreover, questionnaires tend to follow a fixed structure which does not often accommodate change according to how the respondents answer questions (Walliman and Baiche, 2005) and are designed around closed rather than open ended questions (Bryman, 2012). It is this strict structure and lack of flexibility that is often regarded in the literature as a limitation, alongside the typical top-down approach of the method in terms of design and representativeness. The latter is often raised in relation to the lack of involvement of people in the making of questionnaires, turning them into passive entities (Mukherjee, 1993). On the other hand, those who design questionnaires assume a predominant role in the process, transporting their meanings and concepts onto a given local social reality (Chambers, 1991; Chambers, 2008) and their perception of the world they are investigating (Mukherjee, 1993). A stance supported by Mukherjee (1993) who, as a result of the above, considers questionnaire surveys a naive, elementary and simplistic tool, unlikely to be able to capture "variables determining the complex relationships, their nature and intensity and their process of interactions" (Mukherjee, 1993, p.23).

Examples like table 4.1 (Gill, 1993 cited in Chambers, 2008) below illustrate the issues raised above and highlights potential barriers to the implementation of questionnaires in developing countries.

Developed country	Developing country
1. Questionnaires usually designed by specialist with appropriate training	1. Questionnaire often designed by persons with no specialist training in questionnaire design
2. Questionnaires written in language in which will be administrated	2. Questionnaire normally written in another language and translated, either beforehand or during the interview
3. Respondents normally familiar with the general purpose of surveys	3. Respondents unfamiliar with rationale behind surveys; often apprehensive as to use of data
4. Restricted scope, simple issues addressed, short questions; usually 'opinion type' surveys	4. Complex issues; information often sensitive; long questionnaires; wide scope; need for many 'open minded' questions
5. Built-in reliability checks	5. Often little scope to check reliability of findings
6. Repeat surveys routine if trend information required	6. One-shot, cross-sectional; trend estimation very difficult
7. Respondents tend either to give a flat refusal or else cooperate fully	7. 'Conspiracy of courtesy'; tendency to give answers respondent thinks are wanted
8. Little if any systematic gender bias	8. Enumerators usually men; often severe problems in interviewing woman respondents
9. Literate respondents	9. Respondents either non-literate or unrepresentative
10. Enumerators from roughly the same socio-economic background as respondents	10. Enumerators often from very different socio-economic background from respondents
11. Respondents can understand what enumerator is writing; can correct errors	11. Non-literate respondents cannot correct any mistakes or misunderstandings

Table 4.1 – Difference between applying questionnaires in the context of developed and developing countries. Source Gill, 1993; cited in Chambers, 2008

Other views however, rather than rejecting traditional methods and allocating methodologies to static opposite ends, argue that the so called 'traditional disciplinary divides' (Mayoux, 2006) now tend to blend into a more nuanced approach. This refers to views that advocate the use of integrated methodologies, arguing that "strengths and weaknesses are not always absolute, but depend on how particular methods are used and whether they are used 'well' or 'badly' (Mayoux, 2006). In relation to this Overton and Diermen (2003) support that doing social science research in the context of developing countries, quantitative data analysis is usually best used in conjunction with other qualitative techniques, as the use of complementary methods allows researchers to combine strengths from different methodologies, as well as cross-check and triangulate data. According to Simon (2006) this is becoming a more common approach in development research, whereby questionnaire surveys are used with more recent - and increasingly more popular - methodological innovations such as focus group discussions

and participatory appraisals. These new solutions are also contributing to overcome the short-comings of 'old tools' once criticised (Mayoux, 2006).

The latter extends this discussion beyond the purely quantitative or qualitative realm and reflects on the pros and cons of these two in addition to the use of participatory methods in development research (reproduced in table 4.2). The latter, according to the same author, can bring "many advantages in terms of rapidity and reliability of collecting many times of qualitative as well as quantitative information, manageability in terms of time and resources, and also its potential for contributing to the development process" (Mayoux, 2006, p.126).

The present research reflects on the discussion on "conventional Northern practice of undertaking most development-related research in the Global South" (Simon, 2006, p.164) and seeks to implement a research strategy able to successfully respond to context specific issues of Luanda.

	Quantitative methods		Qualitative methods		Participatory methods	
	Pros	Cons	Pros	Cons	Pros	Cons
Relevance	Clear focus on specific questions and hypotheses	External and apriori focus may miss relevant questions and issues. Not everything can be measured meaningfully	Holistic understanding of complex issues and processes. Flexibility and cumulative understanding. Captures underlying meanings, the unexpected and sensitive issues.	May lack focus. Still filtered by subjective external analysis	Based on local perceptions and priorities	May be too context-specific. May be influenced by power relations
Representation and freedom from bias	Random samples decrease the likelihood of bias	In practice the sample actually interviewed is often non-random. Choice of control group presumes the relevant variables are already known. May under-represent minorities in aggregate conclusions	Captures different local perceptions. Purpose sampling enables close focus on cases and issues of interest	Small scale, open to bias. Generalizability of findings often difficult to prove.	Can rapidly collect large amounts of data. Captures diversity. Careful targeting and collective discussion increases the voice of the most vulnerable.	May be over-influenced by power relations. Difficult to control who attends. Participation in discussion depends on the skill of the facilitator
Reliability of information	Objectivity of measurement	Objectivity may be only apparent. Depends on precisely which questions are asked, how and by whom. Problems of respondent motivation and falsification.	Captures subjectivity. In-depth longitudinal investigation decreases likelihood of falsification.	May be over-influenced by the bias of the researcher.	Collective discussion enables more reasoned responses and immediate cross-checking of different accounts. Diagram captures non-linear complexity	Depends on who participates. Depends on the skill and understanding of the facilitator. Difficult to sift all the information and record it at the time of the exercise.
Credibility of analysis	Objectivity of analysis	Difficult to 'prove' causality. Depends very much on the relevance of the questions and hypotheses and the reliability of the information.	Cumulative 'jigsaw'. Good at uncovering processes and causality	Difficult to 'prove anything' beyond anecdotes. May be over-influenced by the bias of the researcher	Collective and immediate analysis of information enables immediate cross-checking of different accounts. Diagrams can represent a clear analysis of complex issues.	Difficult to aggregate. May be over-influenced by power relations and expectations. Diagrams may be difficult to interpret. It is often the process rather than the diagram product which is the key.

Table 4.2 – Summary of Pros and Cons of different methods (quantitative, qualitative and participatory methods) (Source Mayoux, 2006)

4.3.3 – PRA: concepts and practical applications

In the late 1980s and early 1990s there was a noticeable growth on participatory training throughout NGOs and other associations/organisations/institutions (Chambers, 2002). Amongst the methodologies and tools that emerged from the theoretical conceptualisation of participation one can find RRA (Rapid Rural Appraisal), RRA (Relaxed Rural Appraisal), PRA (Participatory Rural Appraisal) and more recently PLA (Participatory Learning and Action). Despite the different acronyms, all of the above are complementary and frequently overlap. Therefore, it is common to find this family of methodologies being referred to in the literature as PRA/PLA, or even with all the acronyms combined (RRA/PRA/PLA) (Chambers, 2008). There are nevertheless distinctions between these. Chambers argues that PRA is an evolution of RRA, with the latter mainly consisting of an extractive tool (Chambers, 1986). According to him, the extraction of information using RRA is mainly carried out by outsiders rather than by local people (Chambers, 1992, p.1). PRA on the other hand takes a different approach and gets closer to the concept of participation. It accomplished that by adapting and further developing the same RRA methods, however in a participatory mode, thus increasingly enabling people themselves to use them and conduct their own analysis, to plan and take action. (Chambers, 1991, p.527) (Chambers, 1992, p.13). Today the label 'PRA' encompasses an array of definitions and practices in research, and is used almost interchangeably used with all of the above. For the purpose of this work only PRA will be used.

As seen in Narayanasamy (2009), although the concept of PRA has evolved and changed over time the core ideal remains immutable. That core ideal is, much like what has been mentioned in section 4.4.1 with regards to participation: "putting people first". As Chambers states, PRA "describes a growing family of approaches and methods to enable local people to share, enhance and analyse their knowledge of life and conditions, to plan and to act" (Chambers, 1992, p.1). The making of PRA tends to be characterised by the use of various visualisation methods, namely maps, calendars, diagrams, matrices, etc.. In many occasions, these methods are accompanied by the use of local materials on the ground, and writing is replaced by symbols (Cornwall and Pratt, 2003). However common the use visual representations as methods may be, PRA does not exclusively use those. Cornwall and Pratt (2003) explain that some practitioners use other methods such as focus groups, community meetings, semi-structured interviews or short questionnaires, and still describing them as participatory.

With the increasing popularity of participation in research PRA tools and resources have become available to the public (various manuals, guides, and online open source documents). Much of this information can be found online on websites of worldwide

international organisations who have been using PRA tools as part of their work. This is for example the case with the World Bank²², UNDP²³ Institute of Development Studies²⁴ and the International HIV/AIDS Alliance²⁵, and ASF-UK²⁶. In other formats, in 1993 Mukherjee published the first book on PRA, to which many others have followed. Amongst those are for example the work of Kumar (2002), Chambers (2005) and Narayanasamy (2009). All of them provide a very detailed description of a vast array of PRA methods, thus constituting a useful source of information and guidance to those wishing to engage on, or include participatory approach in their research. However, rather than prescribing methods the literature provides ideas that can be applied or adapted to different contexts. In this respect Narayanasamy reminds us that one of the features of PRA is that it provides practitioners with liberty to adapt existing and/or invent their own methods, just as long as they remain faithful to the principles of PRA (Narayanasamy, 2009).

According to Mukherjee (1993) PRA methods can be broadly sub-divided into two categories 1) methods directly or indirectly supportive of PRA, and 2) methods that involve the direct participation of people. The former mainly concerns review of primary and/or secondary data to gain knowledge of the situation being investigated. As far as the latter is concerned the literature on PRA lists many methods that involve direct participation. Kumar (2002) further divides these into three categories 1) space-related; 2) time-related; and 3) relation related.

Considering the above, the following lists and briefly describes some of the tools commonly used in PRA practice to collect data during research. This does not however intend to exhaustively describe in detail all methods presented in the literature, but rather provide a sample of what is a nearly endless array of tools available. The tools used specifically for this research shall be looked at in detail in further ahead in Chapter Five (Methodological Approach).

²² World Bank (1996) The World Bank Participation sourcebook

²³ UNDP (1997) Empowering People – A guide for participation

²⁴ IDS - Institute for development studies (nd). *IDS - Open docs; browsing by subject: 'participation'* [online]. Available from: <<http://opendocs.ids.ac.uk/opendocs/browse?value=Participation>>. [Accessed 5/06/2012].

²⁵ International HIV/AIDS Alliance (2006) Tools Together Now! 100 participatory tools to mobilise communities for HIV/AIDS. International HIV/AIDS Alliance. Brighton, UK. Available at <http://www.aidsalliance.org/publicationsdetails.aspx?id=229>

²⁶ Architecture sans Frontières United Kingdom: ASF-UK (2014) Participate website. Available at <http://www.asfparticipate.org/>

- **Semi-structured interviews**

Unlike fixed structured interviews, the semi-structured interviews carried out as part of PRA is characterised by its informal nature. Although being partly structured they are mostly unstructured, thus evolving as a consequence of interviews' responses. The interviewer tends to follow a mental checklist posing open-ended questions may frame subsequent questions depending on the flow of the answers. Semi-structured interviews may be combined or sequenced with other PRA methods such as visual methods. This, according to Mukherjee, will "help in filling gaps, refreshing memories and communication one's point of view" (Mukherjee, 1993, p.47).

- **'Do-it-Yourself'**

According to Mukherjee (1993) 'Do-it-Yourself' method consists of a way for the outsider to appreciate and gain knowledge of a given reality by carrying out local activities himself. The same author believes that "such participation of outsiders in rural activities can often constitute a first step in rapport building" (Mukherjee, 1993, p.48). These activities may include for example transplanting, weeding, ploughing, field-levelling, mudding huts, drawing water, collecting wood, washing clothes, stitching, and thatching (Chambers, 1994).

- **Participatory Mapping and Modelling**

This tool, according to Mukherjee (1993) Participatory Mapping and Modelling has an enormous potential and is crucial to PRA. Participants express their views on different aspects of their life using whatever material they have on hand and with which they feel comfortable with (chalks, colours, etc.) on the ground, floor, paper etc. (Chambers, 1994). These maps can portray for example images of dwellings, farms and fields, water collections, forests, soils, or many other aspects, depending on what is being discussed (Mukherjee, 1993).

- **Transect walks**

The tool 'transect walk' involve walking with local people through an area, whilst simultaneously observing, asking, listening, discussing about different aspects observed during the walk. Moreover, transects walks tend to be complemented with maps and

diagrams that illustrate the issues discussed. Mukherjee (1993) states that the advantages of transect walks lies on the fact that enables the observer to get an in-depth account from the participant perspective.

- **Seasonal Diagrams**

Season diagrams or calendars can be made by major season or monthly, in order to reveal seasonal changes of different aspects such as distribution of rain, amount of rain or soil moisture, diet, food consumption, prices, expenditure, migration, etc. (Chambers, 1994). According to The World Bank season calendars are put together from interviews with local people, and are created during meetings of several households. Moreover, they're created on the spot – and in front of the group – so that data can be checked simultaneously (World Bank, 1996).

- **Ranking and Scoring exercises**

Ranking and scoring methods are used to “identify, analyse and compare various resources (e.g., public services) and development options (e.g., latrine design, water supplies), and identify priorities” (Mitlin and Thompson, 1995). These methods are normally used to explore participants' perceptions as well as to understand their choices with regards to a variety of subjects. Ranking and scoring exercises include for example preference or pair wise ranking, matrix scoring, and wealth ranking and wellbeing analysis. Such exercises are considered by some as some of the most powerful participatory methods and provide a solid understanding of the main issues in place (Pretty *et al.*, 1995).

- **Photovoice**

Photovoice is a data collection method based on a qualitative approach that has been primarily used in research on health related studies with a focus on communities (Wang and Burris, 1997). Other applications include the assessment and analyse the preferences of the elderly in relation to urban built environment (Baldwin *et al.*, 2012). Moreover, photovoice is a form of PEP (Participant Employed Photography) and was founded on concepts arising from feminist theory, the work of Paulo Freire and others (LaDonna and Venance, 2011). According to Baldwin *et al.*, PhotoVoice “involves participants taking

photos according to a theme and discussing and reaching a consensus in a group about the message they wish to convey to decision-makers, using their photos and storyline or captions” (Baldwin *et al.*, 2012). The authors further state that this method allows researchers to have access to data that may otherwise be omitted, as participants are put in control of the responses (Baldwin *et al.*, 2012). Other sources also state that the goal of this method is to provide “those outside of the traditional power structure the ability to capture their experiences and share them with policy makers” (LaDonna and Venance, 2011), thus creating a dialogue oriented towards social change .



Fig. 4.3 - Example of participatory mapping exercise with community in Tierra Baja, Colombia. Group analysis of photos taken by participants. Photo by Célia Macedo, 2014



Fig. 4.4 - Ranking and scoring exercise carried out with community in Tierra Baja to identify liked and disliked places in the village and why. Photo by Sarah Ernst, 2014



Fig. 4.5 -Example of photovoice exercise with community in Tierra Baja, Colombia. Group analysis of photos taken by participants. Photo by Célia Macedo, 2014

4.3.4 – Participatory methods in urban Areas: Participatory Urban Appraisal (PUA)

Although for the purpose of this work focus is given to PRA, given the urban component of this research the following also briefly elaborates on Participatory Urban Appraisal (PUA) as a more recent development of participation applied methods across urban contexts.

PUA emerged in the early 1990s, as a consequence of questions raised on to the applicability of RRA methods to urban areas. As a result, in 1994 IIED considered a priority to publish a special issue of RRA Notes solely dedicated to Participatory Methods in Urban Areas. In this set of papers the authors explore whether PRA *can* become PUA “simply by applying the approach in urban contexts - or is there something more that we need to understand about the nature of low-income urban communities and urban community development interventions?” (IIED, 1994, p.1). According to the issue above, despite the clear economic, social, spatial, political and environmental differences between low-income rural and urban communities, they share many aspects in common and are in fact frequently connected. This is the case for instance with regards to livelihoods, as often the livelihoods of low-income people in urban areas depend on resources both in rural and urban spheres.

Both urban and rural communities are inseparably connected, given that frequently the livelihoods of many of low-income subjects of research depend on resources both in rural and urban spheres. A special emphasis is also given to the importance of methodologies used, advocating in favour of use of participatory methods in urban areas, as they have contributed towards a sound and effective work organisations in urban communities. Mitlin and Thomson (1995), who carried out an extensive review on the subject on the use of participatory methods in urban contexts, further concludes that the implementation of participatory approaches in urban areas is increasing in frequency, although with varying degrees of success. The same author anticipates that given “their widespread acceptance in rural development suggests that their application will continue to grow in urban areas” (Mitlin and Thompson, 1995, p.250).

4.4 – DEVELOPING APPROPRIATE TOOLS TO ASSESS LOW-COST HOUSING IN DEVELOPING COUNTRIES

The following sections explore how a PRA approach can potentially inform and complement POE as a framework when implemented in development studies. The

combination of both would thus contribute towards overcoming limitations resulting from a direct implementation of the latter in the developing world.

Despite the growing featuring of POE in the literature as a successful building appraisal tool, the impact of its implementation in the construction industry is mostly confined to more developed areas of the world. In fact, and even though the benefits of having access to information during the post-occupancy stage of buildings are frequently highlighted in the literature, most POE studies have been so far carried out in countries such as the UK, USA or New Zealand (Stevenson, 2009). Such geographical confinement indicates room for progress regarding the broadening of the use of POE worldwide as well as a potential positive impact on construction practice and housing policies that may result from its implementation. Recent literature demonstrates nevertheless that POE studies have been gradually permeating into African countries - namely South Africa and Nigeria²⁷ - and used as a tool to assess resident satisfaction on various aspects of housing. Such studies tend to rely on the collection of data from a large sample of residents in a particular area and interpret the statistical results on various aspects under enquiry and in other cases to focus on issues of personal perceptions and aspirations, leaving matters of building performance, as well as recommendations for improvement, out of their scope. Furthermore, these tend to use methods that are often pointed in the literature as inappropriate, namely quantitative based questionnaire-surveys. These are nonetheless academic-led initiatives and there is no evidence of the impacts on the industry or policy making resulting from the outcomes of such studies, nor that integrating such approaches features in the authorities or construction industry's agenda.

Reflecting on Turner argument that attributed the failure of mass housing developments in the developing world to mismatches between people's requirements and houses provided to them (Turner, 1971) the researcher suggests that a post-occupancy study focused on low-cost housing could potentially contribute towards tackling these and other problems in a stage where mass housing schemes are an increasingly growing reality in Angola. Herein having access to such information acquires particular relevance when considering recent government-led initiatives with emphasis on providing a large number of houses in order to meet increasing demand resulting from rapid urban expansion and population increase. These initiatives consist of an opportune moment to carry out assessments to housing, not only to determine the quality of the buildings, but also the occupants' responses to the buildings and context they inhabit. Perhaps more

²⁷ See for example: (Ibem et al., 2013, Jiboye, 2012, Aigbavboa and Thwala, 2013, Darkwa, 2006, Fatoye, 2009)

importantly, if implemented, studies of this nature could generate knowledge transfer to inform and thus improve future projects.

4.4.1 - Tailoring methodologies to development studies requirements

In addition to relying on trained staff and a framework set up to collect and analyse feedback generated through this process (Leaman, 2004, p.491), POE assumes the existence of a functional planning structure and a regulated building industry. As a result, although not being a sine qua non condition, the criteria of evaluation in POEs are often informed by building regulations and standards – which is also why it is possible to envisage the integration of POEs as a stage in the design process of buildings, hence implying a clear definition of what those stages are. In a scenario where these relationships are not always evident, implementing a tool of such nature may prove to be a challenge.

Although POE has been gradually permeating into the developing world, the literature discourages the widespread of a one size fits all approach when it comes to applying POE, particularly due to differences found in the subjects of study - for example between building typologies. This argument is seen in Stevenson, who advocates that the way forward should therefore consist of developing more standardised approaches for each sector or building typology, rather than moving towards a single and universal POE methodology that would fit all of them (Stevenson, 2009). POE combines quantitative (physical monitoring) and qualitative (qualitative evaluation of user perception and behaviour) methods in order to provide a complete picture of the building performance as a whole. Even so, POE heavily relies on the collection of quantitative data through the extensive use of questionnaire surveys.

Transferring methodologies and approaches such as POE into developing studies based on arguments of successes found elsewhere also touches upon issues of appropriateness of research methods applied in distinct environments or contexts. The concern towards representing inaccurately local realities due to failing to consider context specific factors, whether resulting from distinct geographical or socio-cultural contexts, has been raised in development literature since the early 1980s and remains an active discussion today. In line with this, Bulmer stresses the importance of critically examining and questioning research methods used in the developing world. He further calls attention to a myriad of factors that may create obstacles to social enquiry in this context, including for example the challenging conditions during data collections which he believes do not feature in 'western' textbooks. Other issues include potential "intercultural and intracultural

problems of linguistic equivalence" (Simon, 2006, p.164), that can lead to various problems during surveys and/or translations (Simon, 2006). This debate is also picked up in the literature on participatory methods in which supports a shift to a participatory approach when conducting research in the development scene.

Such transition is often attributed to a growing dissatisfaction towards well established 'conventional' social research methods, as the latter were perceived as being top-down driven, imposed by external stakeholders, and expert-oriented (Chambers, 2008; Cooke and Kothari, 2001), hence considered incompatible with a participatory ideology. On this matter, the literature widely agrees on the fact that the shortcomings of conventional methods tend to be mostly associated with two issues, which are respectively: (a) **who** is proving data, and (b) **how** the data is being acquired/analysed. Whilst the latter refers to the way data is acquired and subsequently analysed, and whether these strategies are the most adequate to reflect real needs of people and their reality, the former refers to potential exclusion of people's active input in the process of research.

On participant's role in the process, the literature calls attention to the fact that the input of people seems to commonly be disregarded throughout most - or the whole - course of development projects, despite the fact that these may be direct or indirect subjects of investigation themselves. Moreover, not only this is the case with people in general, but it is particularly evident when dealing with poorer population (Chambers, 1991). Much of the argument against this practice was founded on the belief that ignoring people's perceptions and views would eventually contribute to an inaccurate assessment of reality and therefore to potentially misleading outputs. In line with this, Chambers questions "whose reality counts?" and advocates for the empowerment of poor people and their direct involvement in the analysis and expression of their own reality (Chambers, 1995). Using participatory methods on the other hand provides a window to "the voices of those most affected by a project in a ways not possible using more conventional methods and can make the realities and experiences of poor people count more" (Chambers, 2009, p.4). Earlier studies, such as Paulo Freire's 'Pedagogy of the Oppressed' also pick up on this point. Freire emphasised the importance of contemplating opinions and views of the unprivileged and stated that it was vital to provide them with the opportunity to express them freely, since as he puts it, freedom is "the indispensable condition for the quest for human completion" (Freire, 1970, p.47).

Both arguments above implicitly touch upon power relations and on how those may influence the outcomes of projects in general and ultimately of people's lives. With regards to development projects, various voices are raised in favour of a new paradigm, advocating a reverse in power relations where people could come first, rather than last. A

stance made clear in Cernea's 'Putting people first' (2006), where a series of essays explore the conceptualisation and practical applications of a people-based approach in all stages of development projects. Kottak, one of the contributors, emphasises that only through adopting such practice people's needs will be met according to the way they perceive them and context and socially specific interventions will be achieved (Kottak, 1991). Chambers, a strong supporter of this position has been advocating for a need to adequate professional practices to a new paradigm of development since the 1980s (Chambers, 1986). The same author states for example that "large-scale multidisciplinary surveys must be one of the most inefficient industries in the world" (Chambers, 1991, p.520) and adds that conventional social research methods or 'normal practice' basically consisting of a top-down approach, may lead to ineffective, useless and/or misleading results.

Nevertheless, conventional social research methods are not completely rejected but rather seen as a potential complement to participatory approaches. Chambers, despite openly condemning questionnaires as a data collection method, also states that these have proven to provide useful insights and contributions to knowledge (Chambers, 1991). The same author further declares that participatory methods can be used instead of conventional methods, but also as a complement (Chambers, 2009). A position seen in other sources that suggest that place participatory methods not as the only possible approach but a "complement to common, globally practiced social science methods for development studies" (Mikkelsen, 2005, p.28).

The debate on appropriateness of methods, especially when applied in development studies, emphasises the need to define strategies that are able to capture the diversity and complex nature of context-specific requirements whilst also being inclusive of people and place. In this respect, although POE assessments generate useful insight into buildings' performance and occupant's satisfaction, the body of literature discouraging the implementation of conventional research methods in development research suggests a methodological challenge with regards to its application in the context of this research.

The following chapter addresses this issue and introduces an alternative approach based on participation which is currently used in development research to assess various aspects.

4.5 – LUANDA’S LOW-COST URBAN FABRIC IN THE LITERATURE

The literature available on the socio-cultural and physical aspects of the low-cost residential sector and housing conditions within Luanda’s urban fabric is scarce and can be found dispersed through various sources and mediums. This includes online news statements, reports and other publications, all usually conducted with different degrees of detail and supportive factual information. Moreover this subject tends to be part of wider multidisciplinary studies carried out by NGOs and/or researchers in which amongst other aspects also address housing. Although these may collectively contribute to an overall broad understanding of the state of low-cost housing in Luanda, they often reflect the outcomes of investigation or studies using a range of distinct methodologies as well as research and analytical processes, all of which in its turn developed in order to respond to different objectives.

DW, possibly the oldest NGO in Angola with extensive in-country experience in human settlements, has been playing a major role in this respect, providing a rich insight into issues of land and poverty in Luanda, hence necessarily touching upon low-cost housing and informal settlements. The outcomes of DW’s intervention in this subject include for example the publication of the book *Terra* which focused on the nature of informal land settlement as a basis for recognising land rights and responsibilities in appropriate and practical ways (Development Workshop, 2005). In terms of settlements within Luanda, this study identified six distinct typologies of settlements²⁸. These were not necessarily based on special characteristics of buildings but rather on social and economic patterns of residents, as well as type of tenure and perceptions towards particular aspects of the area. These typologies were subsequently revised for DW’s 2011 final report on poverty and environmental vulnerability in slums in three cities of Angola, including Luanda (Development Workshop, 2011a). The latter report builds up on ongoing research initiated in 2002 (which also informed the book *Terra*) on aspects of land in post-war Angola. It used a combination of mapping techniques (satellite imagery and GIS) and small sample surveys to map out spatial aspects of social conditions and collect baseline information. This was then analysed against the five indicators that define slums as found in the MDGs (security of tenure, access to improved water, adequate sanitation, overcrowding and housing quality). Not including rural and industrial areas, the report now identifies nine

²⁸ 1) ‘Township’ (*bairro popular*); 2) old musseque (*musseque antigo*); 3) organised musseque (*musseque ordenado*), 4) transitional musseque (*musseque em transição*); 5) peripheral musseque (*musseque periférico*); 6) condominium (*novo assentamento*) (Development Workshop, 2005)

typologies of settlements²⁹ based not only on type of housing but also on factors such as history, the distance from the city centre, service levels, and street patterns. The indicators above - including housing quality - are measured and rated (1, 2, 3 with 1 being the best and 3 the worst) within each settlement type in order to determine its overall contribution to poor living conditions. The results are then compared, added up and weighted on the basis of the importance given by residents in focus groups discussions (Development Workshop, 2011a).

Housing quality in this case was rated according to durability of building materials used in the dwellings' envelope (for example, ceramic bricks scored high whereas wattle and daub or corrugated iron score low in walling materials). According to this study, the poorest housing quality can be found in the peripheral *musseques*, whereas the best housing quality is found in the old urban centre and the new suburbs and condominiums. These settlements types are also in the opposite ends of the spectrum in terms of the overall weighted score (including all the five indicators) (Development Workshop, 2011a).

In a previous comparative study, Raposo and Salvador (2007) looked at three informal bairros in the peripheral areas of Luanda and Maputo in order to assess their urbanity levels, assuming the "meaning of "quality of urban" in line with the Chicago School" (Raposo and Salvador, 2007). According to the authors, the urbanity is observed through a combination of subjective and (more measurable) objective conditions, using a variety of indicators from various disciplines and categories taken from urban lexicon and incursions in the field of social sciences. In terms of methods, the authors resorted to statistical information (censuses, surveys) and existing literature, as well as cartographic and photographic survey of selected neighbourhoods, accompanied by interviews with leaders and households. This study ascertained that the type of housing and construction methodology used in each bairro was a clear indicator of the level of urbanity. For example, a house with a concrete block wall finished with plaster and paint was considered of higher urbanity than an exposed concrete block wall. The latter, on the other hand would be ranked with a higher urbanity than a wood or corrugated iron house.

Other conditions used to defining urbanity proximity to the urban centre, the proximity to industry and other work opportunities, the initial date of urban occupation, residents' urban experience, characteristics of land, type and characteristics of the urban occupation, local organisation and interventions from which these have benefited from.

²⁹ 1) old urban centre, 2) new suburbs; 3) bairro popular, 4) social housing zones; 5) owner built-on planned sites, 6) musseques in transition, 7) organised musseques; 8) old musseques, 9) peripheral musseques, 10) rural settlements; 11) industrial zones (DW, 2011a)

The most frequent type of housing in each bairro demonstrated the level of urbanity of the bairro.

Although this study seemed to indicate that the level of urbanity was associated with housing conditions and poverty in the settlements observed, the process and methods in order to measure such concepts is not entirely clear. Nor it is how measuring an African capital in relation to a western concept of urban reality contributes towards the understanding of context specific issues or feed into to local policy making.

Whilst the examples above cover a wide area of Luanda, others less comprehensive in terms of geographical area look at pockets of settlements or particular bairros within Luanda. Moreira's work focuses on the socio-spatial structures of the urban fabric in a central musseque (Chicala). Instead of creating measurable indicators, he builds up a narrative around how residents live in their domestic space and how their daily life unfolds in the house. In his words, he hopes to "contribute to a gradual re-evaluation of the musseques' actual character" (Moreira, 2012, p.17). The nature of the housing is captured through visual records (photographs, sketches and drawings) and interaction with residents (Moreira, 2012)

4.6 - SUMMARY

Chapter Four provided background information on methodologies currently used to appraise buildings - namely POE – and on Participation Methods used to collect information in development research, with focus on PRA.

In terms of structure it commences by introducing concepts and specifications of POE and explains that it consists of a building appraisal tool used to generate an understanding of the actual performance of buildings, in which the role of the occupants is fundamental to determine their behaviour and performance. Moreover, it argues that despite its growing success, the features that compose and characterise POE today may point to the reason why it is still somewhat restricted to the developed world. However, believing that the core concept behind POEs - of creating a feedback loop of information concerning the performance of buildings - can also benefit the developing world, the researcher provides an insight into existing methodologies of participatory nature (PRA) that are currently used to assess different aspects of people's reality in development research. Therefore it suggests that the latter may potentially be combined with POE (to collect, analyse and provide feedback of data), complementing it and make it compatible with the context in which this research takes place.

Finally, a short section provides an overview onto the main literature on socio-cultural and physical aspects of the low-cost residential sector and housing conditions within Luanda's urban fabric. It further emphasises the fact that existing studies, although useful, use a range of distinct methodologies as well as research and analytical processes, all of which in its turn developed in order to respond to different objectives, making comparison a challenge.

The information herein informs the subsequent methodology chapter, which describes in detail how (and which) PRA tools were selected to integrate the strategy that structures the makings of this work.

Section C – Research Approach and Methods

CHAPTER FIVE – Methodological approach

“...environmental evaluation (...) is more a matter of overall affective response than a detailed analysis of specific aspects, it is more a matter of latent than of manifest function, and it is largely affected by images and ideals”

Rapoport, A. (1982). The meaning of the built environment: a nonverbal communication approach. Beverly Hills, California; London: Sage. p. 13

5.1 - INTRODUCTION

Chapter Five describes in detail the methodological approach used during the course of this research. The methodological strategy has been designed to collect and subsequently analyse data in order to meet the aim of the research outlined in Chapter One and reiterated below:

Aim: Develop and test a framework of analysis based on the combination of the tools POE and PRA. Using such a framework, and in light of the recently established National Urbanism and Housing Programme, assess occupancy satisfaction of inhabitants of an informal settlement and in a low-cost mass housing project in Luanda.

Moreover, three objectives were defined in order to meet the aim stated above. These are achieved through the use of appropriate research tools, which shall be described further ahead in this chapter. The objectives are the following:

1. Examine solutions implemented to address and mitigate housing problems arising from Luanda's urban growth and clearance of informal settlements - focusing on the NUHP - and place these within the wider context of international guidelines such as the MDGs and the newly formed SDGs;
2. With regards to appraisal methodologies available, critically analyse POE as built environment assessment tool. Moreover, investigate how PRA is used to assess people's views and aspirations in development research; explore the potential tailoring of both to the context of this research.
3. Through the application of the framework PPOA, identify problems and/or good practices and identify lessons and principles to take forward and inform housing programmes in Luanda - and beyond.

This chapter is structured into three sections. The first part introduces the conceptual framework and outlines the methodological strategy developed for the purpose of this work. Moreover, it also reflects on the theoretical background that led to the development of the research design implemented. Throughout the second part elaborates on aspects of data collection, including a description of all the participants who officially contributed to the process of data gathering (residents and stakeholders), and sources of secondary and primary data. In relation to this it also provides a detailed overview of the PPOA process and respective stages along with data collection methods used. The latter part reflects on limitations and ethical considerations associated with the research.

5.2 –METHODOLOGICAL STRATEGY AND CONCEPTUAL FRAMEWORK

5.2.1 – Conceptual framework

The conceptual framework (diagram 5.1) developed for this research was informed by POE and PRA disciplines previously explored in Chapter Four. As discussed previously, POE is regarded as a valuable tool that provides an insight into how buildings perform after occupation, and thus the opportunity to generate a feedback loop that can inform, and consequently improve, future projects of similar nature. The development of the framework for this research took into consideration the literature on appropriateness of research methods in developing countries and raises the question on the applicability of a POE-like approach in the particular context of Angola. As a result, and reflecting on Chambers' question "Whose reality counts?" (Chambers, 2005), the researcher proposes that a framework based on the concept of POE is created, which used in conjunction with PRA principles emphasis people/residents as active participants in reflecting and transmitting their own account of the dwellings they inhabit. This framework designated as Participatory Post-Occupancy Assessment (PPOA) and the methodology of work emerging from it shall be further detailed in section 5.5.

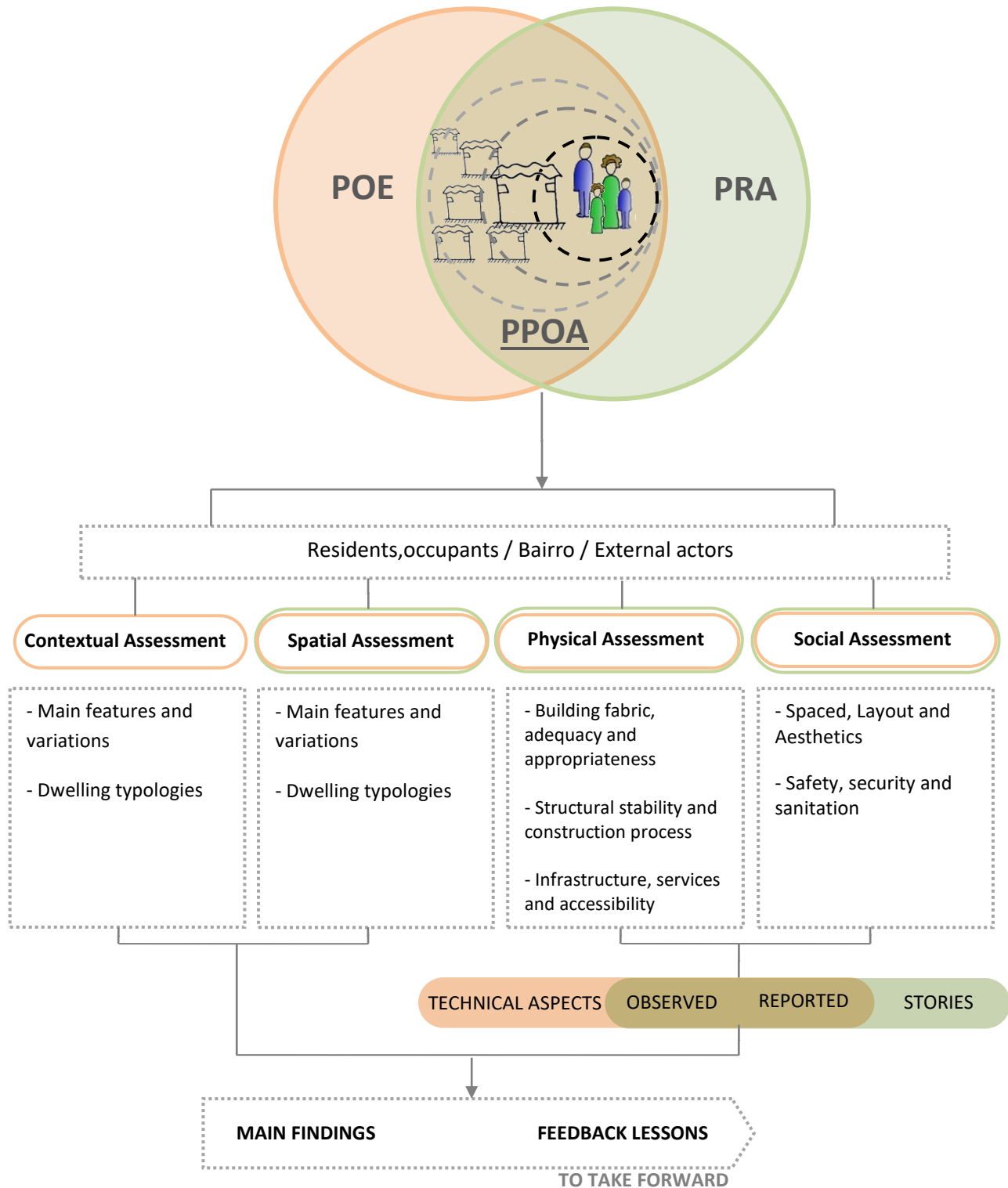
CONCEPTUAL FRAMEWORK

Fig 5.1—Schematic representation of conceptual framework illustrating PPOA as a synergy of two different disciplines, combining two realities which intersect on the common variable 'people'.

5.2.2 – Overall research strategy and process

The overall strategy that guided this research emerged from the conceptual framework shown above. It was designed to achieve the aim and objectives set for this research and unfolds in three main stages: **1)** Literature review, **2)** Fieldwork [data collection with preliminary analysis], and **3)** Analysis. The overall process is illustrated in the diagram below (Fig. 5.2), which also links to the structure of the thesis document by representing the correspondent section which deals with each of the stages. The diagram further includes a summary of the process of each stage on the right hand side. In terms of structure, chapters one to four respond to objectives one and two. These explore and elaborate on key concepts regarding the housing context in Luanda and building assessment tools used in the built environment. Objective three is covered in Chapters Five to Ten, where the data collection strategy is devised and applied through fieldwork. The same objective is then fulfilled by analysing and discussing the data collected.

AIM	OBJECTIVES	STAGE	CHAPTERS	PROCESS SUMMARISED
Develop and test a framework of analysis based on the combination of the tools POE and PRA. Using such a framework, and in light of the recently established National Urbanism and Housing Programme, assess occupancy satisfaction of inhabitants of an informal settlement and in a low-cost mass housing project in Luanda.	1 - Examine solutions implemented to address and mitigate housing problems arising from clearance of Luanda's informal settlements - focusing on the National Urbanism and Housing Programme (NUHP) - and place these within the wider context of international guidelines such as the Millennium Development Goals (MDGs);	Literature Review	1	• <u>Literature review:</u> - Angola and local context: Desk-based research, documents, archives - On data collection methods: Published literature, studies
	2 - With regards to appraisal methodologies available, critically analyse Post Occupancy Evaluation (POE) as built environment assessment tool. Moreover, investigate how Participatory Rural Appraisal (PRA) is used to assess people's views and aspirations in development research; Explore the potential tailoring of both to the context of this research.		2	• <u>Preliminary preparation of fieldwork carried out:</u> - Contacts with locals prior to fieldwork to identify potential case study areas - Informal visits to cases study areas - Framework reviewed and adapted
	3 - Through the application of the methodology named Participatory Post-Occupancy Assessment (PPOA), identify problems and/or good practices and make recommendations towards the improvement of future low-cost housing projects of the same nature of the one analysed.		3	
			4	
		Fieldwork, data analysis and discussion	5	• <u>Fieldwork (data collection) conducted:</u> - Implementation of framework and data collection tools with participants - Visual data collected – still and moving images - Sketches and transect walks
			6	
			7	
			8	
			9	
			10	
				• Data analysed • Writing up thesis

Fig 5.2 – Summary of research process and structural organisation of sections within the thesis

5.3 – RESEARCH DESIGN

This research adopts a combination of qualitative and quantitative data collection strategy, although with a prevalence of the former. Along with issues of appropriateness of research methods to the context of developing countries looked at in Chapter Four, the preference towards a more qualitative approach in this research is also in line with Silverman's argument that qualitative approach may be considered appropriate in research when a small number of case studies are contemplated (Silverman, 2013). Moreover he adds that this is also the case when information is gathered from people's understandings and interactions rather than from correlation between variables, also compatible with what is intended for this research. For the purpose of this work, the data gathering stage was conducted in two case study areas within Luanda.

In terms of core research theory, despite having considered different theoretical options, especially grounded theory and ethnographic research - both approaches commonly used in qualitative research - the core research methodology adopted for the purpose of the present research is case-study research methodology with an inductive approach to analysis, thus intending to generate new theory as it emerges from data, rather than intending to test a given theory during the process (Bryman, 2012).

In light of this, the following explores the theoretical background of the case study research and the methodological approach selected to achieve the aim and objectives of this research. The rationale for the selection of the case study areas shall be explained in section 5.3.2.

5.3.1 – Case study research: general characteristics

Case-study methodology has been widely used as a tool in various sciences of knowledge, such as psychology, sociology, political science, anthropology, social work, business, education, nursing and community planning either to generate or to test theories (Bryman, 2004). In terms of definitions, Gerry (2007) states that a "case denotes a spatially delimited phenomenon (a unit) observed at a single point in time or over some period of time." Moreover, he explains that "a case may be created out of any phenomenon so long as it has identifiable boundaries and comprises the primary object of an inference" (Gerring, 2007, p.19), thus highlighting the main focus on the spatial boundaries, rather than on temporal boundaries, given the complexity on defining accurately the latter (Gerring, 2007). The application of a case study method involves the in-depth analysis of one single case (Bryman, 2004; Gerring, 2007), with the intention of understanding a larger class of cases (a population) i.e., the study of the "whole through intensive focus study on one (or several) of its parts" (Gerring, 2007, p.87). Furthermore, this method

tends to be associated with a community or organisation within a community (Bryman, 2004). Yin further states that the case study method "allows investigators to retain the holistic and meaningful characteristics of real-life events – such as individual life cycles, small group behaviour" (Yin, 2009, p.4) amongst others aspects.

The literature often reveals contradictions in the definition of case study methodology, particularly in what concerns the generalisation of outcomes generated. Hence, despite a wide agreement that this method allows for the creation of an intensive knowledge of a particular case, it is also often stated that the findings arising from this are not to be generalized to other cases or population outside the case (Bryman, 2004; Zeisel, 2006). While some regard the above as an advantage, others argue that this is a limitation of the method, since it may compromise the representativeness of a broader population (Bryman, 2004). In terms of number of case studies, it is possible to look at either a single or several cases, i.e. multiple case studies, the latter occurring whenever the number of cases examined exceeds one. Comparing the multi-case with the single case study approach, different authors identify both advantages and limitations. Yin (Yin, 2009, pag 2), argues that looking at multiple case studies has the main advantage of improving theory building, while others advocate that the inclusion of more than one case study may entail some limitations, particularly in what concerns the in-depth study of each one of the cases. Gerring (2007), for example, argues that when there is a shift from a single case study to various, the extent to which each case is intensively analysed may be compromised.

The debate on the generalisation of outcomes does not necessarily however apply to this research, as the intention is to carry out an in depth analysis of context-specific issues of particular locations, rather than generalising to other cases or populations.

As far the analysis post data gathering is concerned, this research adopts the approach which Gerring (2007) considers to be first principle of data collection: a corroboratory strategy. This entails a deliberate accumulation of different types of information from multiple sources of evidence in order to support the same events of facts. It is therefore anticipated that by providing multiple measures of the same phenomenon the understanding of facts will be more valid and objective (Yin, 2009).

5.3.2 - Case study areas - selection criteria

The following lists and describes how the study areas meet the requisites set as selection criteria for cases used during the course of fieldwork and data gathering stage.

- Luanda, capital of developing country: Angola ranks 149 in the Human Development Index (HDI) ³⁰ (based on a panel of 188 countries and territories) and is included in the group of 44 countries classified of being ‘Low-Human Development’ category (UNDP, 2015a). As reported by the UNSD (UNSD, 2010) within the United Nations system, there is no established designation or definition for ‘Developed’ and ‘Developing’ countries. Nevertheless, according to the World Bank (2003) a developing country consists of “Low- and middle-income countries in which most people have a lower standard of living with access to fewer goods and services than do most people in high-income countries” (World Bank, 2003).

- High rate of population growth and rapid urban expansion: Since the 1950s, a combination of factors has contributed to an increase of urban population in Angola. This was particularly evident during the many years of civil war due to massive rural-urban population movements and immigration. Official figures point to more than 60 per cent of the total population in Angola residing in urban areas (INE, 2014), and according to the most recent available estimates (2005) more than 86.5 per cent 3million are considered to live under slum conditions (UN-Habitat, 2014). The capital of Angola was from an early stage considered as a potential focus for this work, since it is in Luanda that are located the most paramount problems of urban growth and the largest area of informal settlements in Angola, despite being placed amongst the fast developing cities in Sub-Saharan Africa (UN-Habitat, 2010, p.63). Further information on the demographic profile of Luanda in general, as well on the impact of population growth and increased urbanisation on Luanda's fabric in particular, can be found on chapter two, section 2.2.

- Low-cost mass housing development under implementation: A large scale mass housing programme (NUHP) expected to contribute towards the mitigation of housing scarcity, is being implemented in Angola. It first aimed at building one million houses throughout the country - 115,000 will be provided by the government, 120,000 by the private sector, 80,000 by cooperatives and 685 thousand will be constructed through self-help building activities (MINUC, 2009). With regards to the 685 thousand to be built under assisted self-building, although the distribution of state land reserves for self-construction covers the Angolan territory - as well as in rural and urban areas - Luanda was attributed with the larger number of plots, given that it is also where the most prominent housing deficit was identified. Although the initial deadline for the competition of the programme was 2012, it was moved various times and as a consequence it is still underway.

³⁰ **Human Development Index (HDI)**: Consists of “a composite index measuring average achievement in three basic dimensions of human development—a long and healthy life, knowledge and a decent standard of living.” (UNDP, 2015a)

- Commitment to meet international development agenda's goals such as MDGs and the newly formed SDGs:

Angola is a member state of the United Nations since 1976 and, together with the other nations, committed to work towards achieving the principles established in the MDGs (UNDP Angola, 2009), therefore intended to reduce the prevalence of slums and improve people's quality of life by 2020 (UN-Habitat, 2003b). More recently, the commitment towards improving lives of slum dwellers is further reiterated in Angola's 'Long term national strategy of development - Angola 2025'– which also comprises the shorter term National Development Plan – NDP, in effect between 2013 and 2017. Developed prior to the end of the MDGs, these were meant to reflect and reinforce the government's commitment towards the MDGs and to create conditions to define and follow the post-2015 Agenda and the ongoing the SDGs (República de Angola, 2012; United Nations, 2015b). Angola's focus on improvement of living conditions of population and intention to provide adequate/decent housing including basic infrastructure within a national development agenda is further developed in chapter three, section 3.2.

- Fluency in local language of the country: Although this factor was not a fundamental prerequisite, the language spoken in Angola is Portuguese, also the mother language of the researcher. Hence, all communications dispensed translator or interpreter. This proves to be quite relevant when conducting interviews and general interaction with participants. Moreover, the fact that the researcher masters the Portuguese language was crucial in the literature review stage, given that a significant amount of the literature available on the subject was in Portuguese.

- Contact with local people and organisations: The researcher was in contact with local Angolan NGOs (Development Workshop (DW) and SOS Habitat) as well as lecturers in local universities in order to request for support and advice during the fieldwork period. The overall feedback was positive and played a fundamental role in the final decision in choosing the city as a research focus.

- Existing informal settlements and newly built low-cost housing areas

Upon visiting various informal settlements within Luanda it was observed that these shared similar patterns in terms spatial characteristics of urban fabric and dwellings

typologies. For this reason, the selection of a particular bairro was based on the feedback from local residents following an initial approach, combined with safety and location in relation to transports and the city centre where interviews with particular stakeholders were to take place.

In addition to the bairros composed of informal settlements, Zango was selected as an example of government-built low-cost housing project in the outskirts of Luanda. Although there are other projects of similar nature, this was the most frequently mentioned in press releases and by stakeholders. Given the scale of Zango, participants were approached in different parts of Zango. Although the sample is not representative of the whole of Zango it covers different areas and raises issues from different areas, thus providing a wider range of issues. Further and more detailed information on the case study areas, including maps and other visual records can be found on Chapters Six, Seven and Eight.

Considering the above, carrying out this research in Luanda at this particular moment benefits from an opportune combination of time and location to witness and assess the unfolding of a nationwide strategy to house millions of people in a short period of time. These case study areas will provide an insight into people's views on these from a resident perspective.

5.4 – ON PARTICIPANTS

The present section introduces the groups of participants who officially took part in this research and have actively contributed towards the data gathering process. It encompasses not only the residents of both case study areas, but also the group of stakeholders who have been interviewed during fieldwork and have therefore contributed to develop a better and richer understanding of the issue under investigation.

5.4.1 –Residents (case study Area One – Chicala, and Two - Zango)

The participants who took part in this research and contributed to data collection in both case study areas consisted of a sample of 25 people residing in bairro Chicala, Case Area One (11 female and 14 male respondents) and 23 people residing in Zango, Case Area Two (11 female, 12 male respondents). In addition to the participants who were formerly involved in the data gathering, a number of other residents also contributed to develop a better understanding of the context and issues under investigation. However, these have not been included herein due to the informal nature of interaction. In order to make the reader familiar with the participants, table 6.1 and 6.2 below contain basic information on

both groups of participants including gender and age group. In order to keep participants' identities anonymous, codes were attributed instead of real names and will be used henceforth throughout the text. Moreover, age groups were devised as follows: under 12; 12-18; 18-24; 25-34; 35-44; 45-54; 55-64; 65 or older. An extended version of both tables can be found in Appendix 3, and Appendix 4 also includes a summary of each participant's profile which intends to capture relevant aspects of their lives in relation to their home.

Code	Gender	Age group
CHIC -1	F	45-54
CHIC -2	F	35-44
CHIC -3	M	45-54
CHIC -4	M	25-34
CHIC -5	F	45-54
CHIC -6	F	25-34
CHIC -7	F	45-54
CHIC -8	M	45-54
CHIC -9	F	55-64
CHIC -10	F	35-44
CHIC -11	M	45-54
CHIC -12	M	35-44
CHIC -13	M	45-54
CHIC -14	F	35-44
CHIC -15	F	35-44
CHIC -16	M	35-44
CHIC -17	F	25-34
CHIC -18	M	35-44
CHIC -19	M	25-34
CHIC -20	M	55-64
CHIC -21	M	18-24
CHIC -22	M	55-64
CHIC -23	M	25-34
CHIC -24	F	35-44
CHIC -25	M	55-64

Code	Gender	Age group
ZNG-1	F	55-64
ZNG -2	M	25-34
ZNG -3	M	55-64
ZNG -4	M	35-44
ZNG -5	M	25-34
ZNG -6	M	45-54
ZNG -7	M	35-44
ZNG -8	F	45-54
ZNG -9 (x2)	M	45-54
ZNG -10 (x6)	F	various (25-64)
ZNG -11 (x3)	M	Various (35-54)
ZNG -12	M	35-44
ZNG -13	F	55-64
ZNG -14	F	25-34
ZNG -15	F	55-64

Table 5.1 (left) – Profile information on participants from Chicala / Table 5.2 (right) – Demographic information on participants from Zango. For more information please refer to Appendices 3 and 4

5.4.2 –Stakeholders/ External actors (case studies One and Two)

In addition to the contribution of residents of the case studies, the researcher also approached a number of external actors (not residents of the case study areas) actively involved in the field of the built environment at a national and local level. These range from architecture students to highly ranked government officials who collectively provided an insight into their perspective on implementation of strategies to house Luanda's low-income population. Table 6.3 below lists the stakeholders approached and interviewed. For anonymity purposes, the tables include a general reference to their

position or occupation at the time of the interviews. Similarly to what has been mentioned in the section above, in order to maintain anonymity, codes were attributed instead of real names. These codes shall be used henceforth throughout the text.

Code	Position/ Occupation
STK-1	Director local NGO
STK-2	Government Official, National Assembly
STK-3	Economist and Government Official, National Housing Institute
STK-4	High ranked official in IPGUL - Institute of Planning and Urban Administration of Luanda
STK-5	Anthropologist and university lecturer
STK-6	CEO in local real estate agency
STK-7	Government Official, Provincial Government of Luanda
STK-8	Lawyer and Government Official, Ministry of Urbanism and Construction
STK-9	Architect and Government Official, Ministry of Urbanism and Construction
STK-10	Architect and university lecturer, <i>Universidade Lusíada, Luanda</i>
STK-11 (FG-1)	Architecture students (various years), <i>Universidade Lusíada, Luanda</i>
STK-12 (FG-2)	Architecture students (various years), <i>Universidade Agostinho Neto, Luanda</i>

Table 5.3 – Profile information on stakeholders interviewed

5.5 – PROCEDURES OF DATA COLLECTION

5.5.1 –Secondary data sources

As seen in Yin, any data collection plan should incorporate systematic searches for documents relevant to the topic being studied. The same author states that these documents should then complement and corroborate information gathered from other sources (Yin, 2009, p.103). In line with the above, the research strategy adopted during the course of this work encompassed collection of secondary data in order to develop a strong background and consistent evidence base. These were sourced through documentation research with the objective of gaining an insight into background information relevant to the topic under investigation as well as the case study areas. Although more relevant during the literature review stage, documentation research was extended to all stages of this work in order to provide a continuous support to data obtained through different sources/data collection instruments.

Documentation can consist, for example, of letters, memoranda, e-mail correspondence, agendas, announcements, administrative documents, previous formal studies or evaluations of the case being studied and, information from the mass media, such as news clippings or community newspapers (Yin, 2009). Table 5.4 below illustrates the sources of secondary data from which information during this research was gathered. These included for example books, academic and non-academic journals (e.g. Environment and Urbanisation, Habitat International, Architectural Science Review, Building Research &

Information), conference and symposium proceedings, previous research projects, PhD thesis, Masters Dissertations, and student's essays. Moreover, a wide range of press statements and news articles from various sources (including local online newspapers such as Jornal de Angola, Novo Jornal, ANGOP, Angonoticias) were analysed as well as documentation from local and International NGOs (such as DW Angola, SOS Habitat, Amnesty International, Humans Rights watch, REALL, IIED, UNDP, UNDESA, UNHCHR, UN-Habitat, etc.). Further sources included official Government communications and reports - mostly from the ministry of Urbanism and Construction -, statistical data and online databases in order to have access to demographic and country profile data, namely United Nations Population Division (UNDESA-Population Division), National Institute of Statistics Angola (INE).

In addition to the above, historical information on various aspects of Luanda was gathered from historical archives located in Portugal, including *Arquivo Ultramarino* and special collections in the National Library. From these sources the researcher had access to government documents on urban planning prior to 1975, reports, maps, photographs, surveys and studies on various aspects of housing. Online archives compiled by former military personnel living in Angola before the independence were also a source especially in terms of visual records and photographs of colonial Luanda (and Angola generally) between the 1960s and 1970s.

As far as the collection of primary data is concerned, it intended to provide novel information and was gathered through various data collection instruments during fieldwork, either implemented by the researcher alone or through interaction with participants. The tools used in the latter are explained further in the subsequent section of this chapter.

5.5.2 – Primary data sources

With regards to primary data, these emerge from the implementation of PPOA during the fieldwork stage. PPOA draws from the POE structure and process whilst being informed by PRA instruments, widely tried and tested in the context of development research. Thus, it anticipates the collection of relevant information both through the researcher's technical assessment and through the active engagement of participants (residents/occupants/stakeholders) in various stages of the assessment process using participatory methods.

Moreover, PPOA contemplates the various participants' involvement not only when data is being collected, but also when findings are processed and analysed. Further to this, the dissemination stage is an especially important point, as in a context where people are also in many cases self-builders, having access to these results can have a direct impact on

projects they may undertake throughout the life of the building they inhabit. The final stage (*feedback loop to inform future projects*) is inspired by its homonymous stage in a common POE process – consisting of a report comprising recommendations divided into no cost, low-cost and high cost measures. However, In POE such recommendations tend to be more oriented towards the client and are rarely delivered to the occupants. In the case of PPOA it is proposed that such recommendations take the form of a document accessible and prepared so that it can also be distributed to current and future occupants of the area. This report would emphasise problems encountered by residents but also good practices and potential solutions or recommendations. As a resident, knowing what problems were encountered by others may help to improve the quality of the construction of their houses as well as contribute to a more efficient solution of problems throughout the lifespan of a house. As a decision-maker the awareness of what problems are raised by occupants may potentially contribute towards reducing a number of issues.

The objective of carrying out PPOA is not to engage in a quantitative and statistical analysis of all buildings/ households and to process occupant satisfaction as a numerical table, but rather looking at every case as a way to provide useful qualitative information for future projects, regardless of scale.

Table 5.4 below comprises the sources of secondary and primary data used for the purpose of this work, whilst providing an overview of the thesis including a detailed list of key literature that informed the various sections.

THESIS - CONTENT		DATA SOURCES - TYPE (secondary/primary)
Objs.	Structure	
1	Chapter 1 Introduction, setting the scene context	SECONDARY Documentation research which included the following sources: - <u>Books</u> on topics relevant to investigation - <u>Published and unpublished academic work</u> (Conference and symposium proceedings, previous research projects, PhD thesis, masters dissertations, and student's essays) - <u>Journal articles</u> (e.g. of journals: Environment and Urbanisation, Habitat International, Architectural Science Review) - <u>Statistical data and population databases</u> (United Nations/ UN-Habitat United Nation Population Division; National Institute of Statistics, Angola) - <u>Press statements</u> (including local online newspapers such as Jornal de Angola, Novo Jornal, ANGOP, Angonoticias) - <u>Information from historical archives</u> (<i>Arquivo ultramarino</i> , Portugal; National Library, Lisbon; online archives from former colonial soldiers) - <u>Documentation from local and INGOs</u> (such as DW Angola, SOS Habitat, Amnesty International, Humans Rights watch, REALL, IIED, UNDP, UNDESA, UNHCHR, UN-Habitat, etc.) - <u>Official local Government communications and reports</u> (mostly from the ministry of Urbanism and Construction)
	Chapter 2 Overview of housing crisis in Luanda	
	Chapter 3 From informal settlements to low-cost dream house	
2	Chapter 4 Building appraisal methods	SECONDARY Documentation research: - <u>Books and Journal articles</u> (e.g. of journals: Building Research & Information; Advances In Building Energy Research; International Journal of Low-Carbon Technologies) - <u>Online PRA information, handbooks and tools</u> (e.g. ASF-UK, The World Bank, United Nations, OXFAM, FAO) - <u>Existing POE studies</u>
	Chapter 5 Methodological approach	
3	Chapter 6 Empirical Chapter (Data)	PRIMARY Outcomes from data collection tools applied during fieldwork (<i>PPOA framework</i>) Observation Collection of visual data (still and moving pictures) Semi-structured interviews Focus groups Interviews
	Chapter 7 Empirical Chapter (Data)	
	Chapter 8 Empirical Chapter (Data)	

Table 5.4 – Thesis structure and content and respective data sources by type (secondary and primary)

5.6 – PPOA: Overview of process

Figure 5.3 below outlines the PPOA process and illustrates the overall method supporting data collection and analysis developed for this research. The following sub-sections list and specify in detail the various aspects involved in each of the six stages of PPOA process as implemented. This includes data collection tools which when applicable are also further elaborated. For coherence purposes, each stage is organised according to: a) objectives, b) actors, c) tasks, d) methods and e) timeframe.

PARTICIPATORY POST-OCCUPANCY ASSESSMENT (PPOA) METHOD

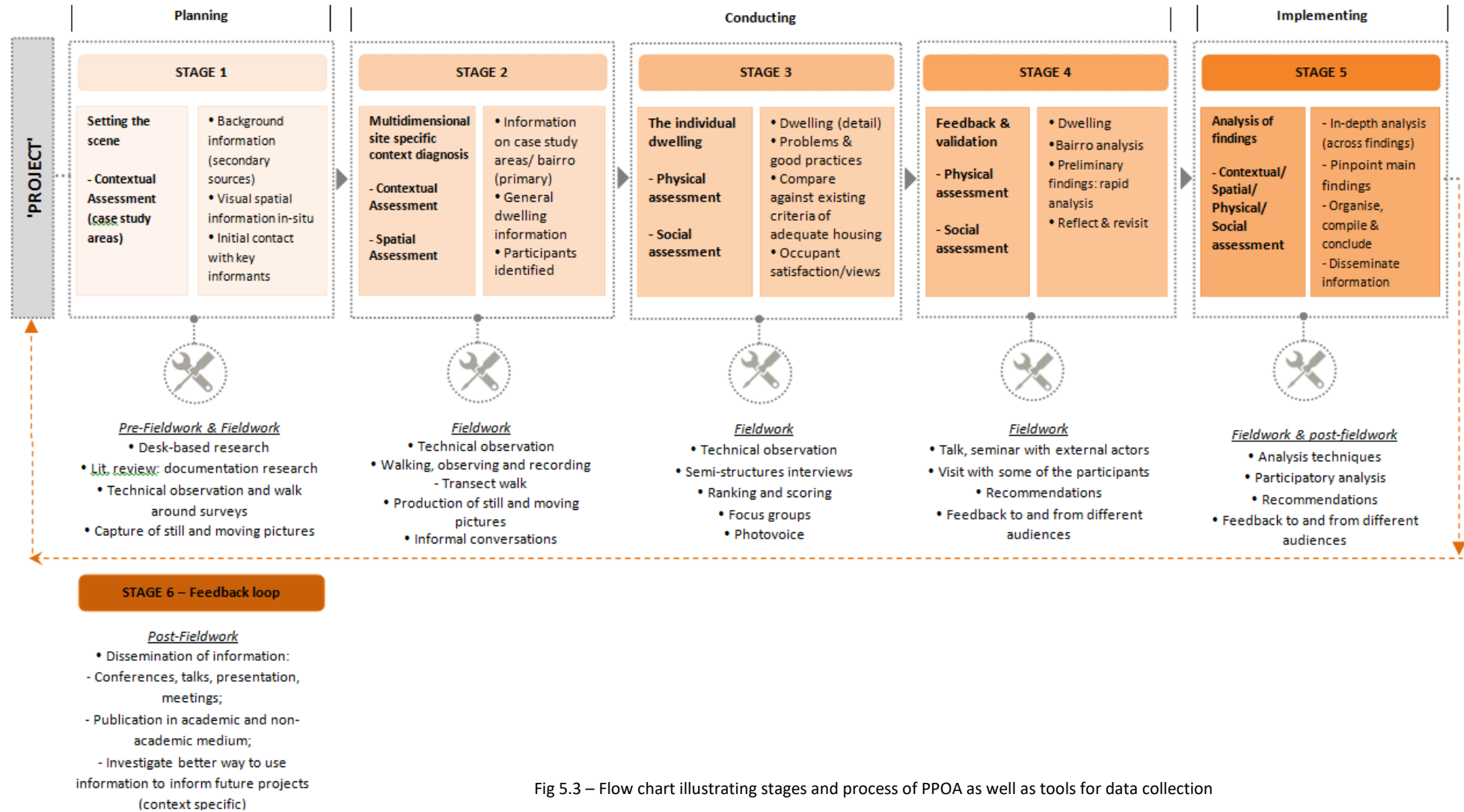


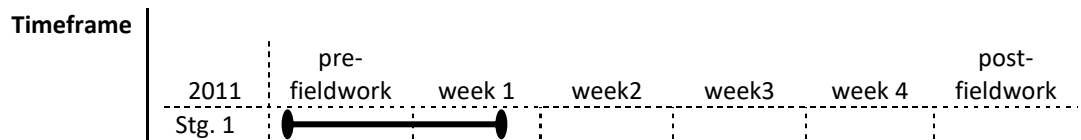
Fig 5.3 – Flow chart illustrating stages and process of PPOA as well as tools for data collection

5.6.1 – STAGE 1: Setting the scene, planning and overall strategy

PPOA's first stage encompasses the planning and development of the overall PPOA process as well as the setting of the parameters and criteria to assess the objects of study. Although initial visits to the field/case study areas were conducted during Stage 1, this stage preceded data collection involving participants. For the purpose of this work, planning PPOA also included collection of secondary data through literature review and documentation research prior to fieldwork. This contributed towards case study selection, overall understanding of context and getting familiarised with the area and locals prior to carrying out the PPOA in situ.

STAGE 1

Objectives	<u>Planning PPOA:</u> - Familiarization with area and locals before undertaking field study - Identify case studies - Plan timeframe of overall work and define timetable for each task - Establish realistic parameters regarding the expectations of the evaluation - Determine overall scope and activities of assessment - Establish initial contacts with relevant key contacts
Actors	- Researcher - Key contacts (Local NGOs, relevant stakeholders)
Tasks	- Make participants familiar with the nature of research - Arrange appointments with people involved and key contacts - Identify what issues the evaluation will address - Organise the necessary resources for conducting the evaluation - Develop cooperation and support network with local organisations/ relevant contacts - Coordinate timing and location of PPOA activities in order to minimise disruption of the routine functions - Assure collection of appropriate and reliable data
Methods (tools)	Pre-fieldwork - Prep work, desk based research (documentation research) Fieldwork - Observation in situ - Walk-around survey, transect walks - Informal conversations with residents - Note taking, visual records, etc.



5.6.2 - STAGE 2: Multidimensional site specific context diagnosis

Subsequently to the planning process described above, the conduction of PPOA on-site started with Stage 2 - and continued during Stage 3. The main objective during this stage was to gain a broad understanding of pressing issues found within the fabric of the case study areas (considering development agenda's criteria for adequate housing) without going into detail to specific buildings. This initial stage of diagnosis was done both at the technical level and through active engagement and informal interaction with local residents, leaving enough flexibility for participants to raise other issues which were not necessarily visible at this stage. The interaction with the participants added a new layer of understanding to the context gained from stage one.

Despite not focusing on a particular case or dwelling at this stage, as the focus remains at the wider scale of the bairro, this provided an insight into the case study area as well as initial pressing issues raised by residents. As a result, potential participants to engage with during subsequent stages were also identified. Stage 2 introduces data collection in the field with information gathered through participatory methods and observation (as described below).

In terms of time frame, stage 2 was initiated with the overall preparation of fieldwork, which in both cases preceded the actual on-site work by an approximate period of four months.

Objectives	<u>Conducting PPOA:</u> - Identify pressing issues both in buildings and in surrounding areas (considering development agenda's criteria for adequate housing) - Experience through people's experiences what their problems are and compare against criteria - Identify important aspects to revisit during stage 3
Actors	Residents of the neighbourhood/ Participants Researcher
Tasks	Collect relevant data Identify participants for following stage
Methods (tools)	Conduction of fieldwork: Walking, observing and audio recording Informal conversations following mental structure Production of still and moving pictures Based upon (indicative): - Space-related PRA/POE: Transect walks (to record services and general state of buildings) - POE PROBE Process (Cohen et al, 2001); POE toolkit (HEDQF, 2006) Walk-around survey
Timeframe	

5.6.2.1 – Notes on methods

Walking, observing and interacting

This tool is the correspondent in POE literature as 'walk-around survey', a tool included in the first site visit and used to gather initial information about buildings being assessed, its operation and problems (Cohen *et al.*, 2001; HEFCE, 2006). In PRA literature it can be the

equivalent to 'Walking and Talking' whereby an overall understanding the context is achieved through engagements with residents and recording of relevant features and aspects found (ASF-UK, 2014c). This tool is used in the context of this research as a way to have a first impression of living conditions of inhabitants, general spatial arrangements of the neighbourhood, general state of buildings, land use, availability of services and infrastructure. When residents accompanied the researcher the tool was also used to probe for potential problems regarding occupant satisfaction. During the application of the tool, the researcher recorded information through caption of visual records (still and moving pictures) as well as through sketches and note taking. Although at a first stage the information begins at a wider scale, the process progressed into a more focused observation of individual dwellings, which was combined with informal conversations with residents and passers-by.

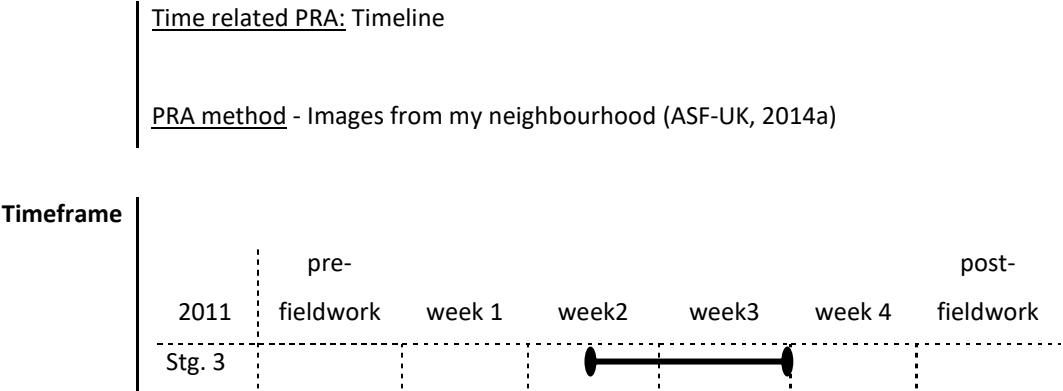
Transect walks

The tool above was also often complemented with *transect walks* through specific areas, carried out only by the researcher or together with locals through an area. The latter provided an account from the participant perspective. Transect walks were conducted whilst simultaneously observing, asking, listening, discussing about different aspects observed during the walk.

5.6.3 - STAGE 3: The individual dwelling

Conduction of PPOA process continued in Stage 3 with the data collection process narrowing down to the scale of the individual household. Data gathering on this stage is focused on technical audit combined with participants' accounts and occupant satisfaction with regards to their houses and context specific issues. In terms of methods used to collect information, a mix of participatory tools (listed below) and researcher technical audit were used. Participants approached for this stage were identified based on interest shown previously in the study during Stage 2, whom in their turn also assisted in sampling further participants through a snowball sampling strategy.

Objectives	<u>Conducting PPOA:</u> Identify good practices and problems from participants' perspective Identify good practices and problems through technical observation Feed in information from previous stage
Participants	Residents of each dwelling Stakeholders interviews running in parallel
Tasks	Compare information gathered against criteria below Add to criteria according to issues raised by participants Existing criteria: Definitions of acceptable urban conditions (MDGs and SDGs) (UN-Habitat, 2003b; United Nations, 2015b) Access to improved water Access to improved sanitation Sufficient living area, not overcrowded Structure quality/durability of dwellings Security of tenure Adequate Housing (UNHCR and UN-Habitat, 2009) Security of tenure Availability of services, materials, facilities and infrastructure Affordability Accessibility Location Cultural adequacy
Methods	Observation
(tools)	Semi-structures interviews (SSIs) Introduce Photovoice to residents (Baldwin <i>et al.</i> , 2012) Based upon <u>PRA relation methods</u> – Cause-effect diagram of building issues, including ranking



5.6.3.1 – Notes on methods

Selection of participants

Following the initial contact with site and the implementation of the tools during Stages 1 and 2, participants were identified for interviews at the household level. The selection of participants in the case study areas occurred in two main phases, whereby firstly the researcher had into consideration participants’ interest in taking part of the study as well as willingness to be interviewed for that purpose. Potential candidates were made aware of the purpose of the study and were invited to take part in it.

The interaction with the first group of subjects subsequently generated a chain of participants’ identification through the use of a snowball sampling strategy. The latter consists of a method in which subjects/participants refer other potential actors relevant to the investigation thus extending the web of enquiry. As seen in Lewis-Beck *et al.* (2004) snowball sampling is often associated with qualitative research and has been particularly useful when assessing deprived or socially stigmatised populations, acting as an entry point where conventional methods frequently fail to succeed. Moreover, this method is also regarded as appropriate in cases where higher levels of trust are required to initiate contact and conduct research (Lewis-Beck *et al.*, 2004). Gaining trust from participants was crucial in the case of this research, as people were generally very suspicious of outsiders asking questions fearing it could lead to losing their houses. Bias was addressed through approaching various unrelated gatekeepers or referrals in order to broaden the web of contacts to as many non-related participants as possible. Furthermore, there was also an attempt to interview and gather views from a gender and age balanced sample of householders, of people living in the case-study areas.

As far as stakeholders are concerned, although some potential participants had already been identified during the literature review stage, more were pointed out as relevant stakeholders also through snowballing effect. Potential candidates were contacted by phone, email or directly and, similarly to the former group, were made aware of the

purpose of the study and were asked to contribute by accepting to be interviewed. The interviews usually took place in their place of work. Stakeholders interviewed included key figures in government (local and national level, provincial government of Luanda, National Housing Institute, National Assembly and from the Ministry of Urbanism and Construction), a real estate developer (investor) deeply involved in mass housing development programmes taking place in Luanda, lecturers in the course of Architecture in one of the local Universities (Lusíada), the general director of an NGO with more than 20 years' experience in slum upgrading programmes in Luanda and elsewhere in Angolan territory; a high ranked official of IPGUL, a government body created to oversee the development of Luanda (involved in Luanda's master plan for example); architecture students in Luanda and others. With regards to topic, they were enquired for example on the current condition of the low-rent sector of housing in Luanda. Furthermore, and given that this section focuses on the 'before' or 'prior to occupation', it elaborates on expected outcomes of measures currently put in place to meet housing demand.

A table listing active participants (residents and stakeholders/key informants) is provided in section 5.4.

Semi-structured interviews (SSIs)

Interviews are commonly used as method to collect data in qualitative research and generally considered an essential source of case study evidence. This instrument can provide a very useful insight into events of behaviours being investigated, as well as point to other relevant sources of evidence (Yin, 2009). Interviews are also employed in quantitative research, although quantitative and qualitative interviewing tend to be very different from each other, especially in what concerns the general approach to the interview and the kind of data that the interviewer is looking for to obtain. Moreover, the qualitative interviews aim at generating rich and detailed information; are usually more flexible both in terms of guidelines or designed structured allowing for adjustments throughout the interviews, as significant issues emerge; the focus is given to the interviewee's perspective rather than the interviewer concern and; people may be interviewed more than once. The approach adopted in quantitative interviews, on the other hand, is more structured in order to maximize the reliability and validity of key concepts. Additionally, given the need to standardise the way each interviewee is dealt with, structured interviews tend to very inflexible, which results in answers that can be easily and quickly coded and processed (Bryman, 2004).

There are two main types of interview in qualitative research: 1) unstructured interview (UI) and 2) semi-structured interview (SSI). The former can be compared in character to a conversation whereby the interviewee answers freely to a question posed by the

interviewer. In this case, the input of the interviewer is restricted to simple responding to points that he/she feels that are worthy to elaborate. The latter type of interviews on the other hand, follow a script until a certain extent (Bryman, 2004). The method is nevertheless relatively flexible, since the schedule or programmed questions may or not be followed, depending on the course of the interview. SSIs are hence more appropriate for cases when the investigation begins with a clear focus.

SSIs are also a common tool used in PRA approaches. These can be conducted individually or in group (ASF-UK, 2014b) and as explained previously in section 4.4.4, tend to be characterised by an informal nature and flexibility, although addressing the issues being investigated through a mental checklist/structure. This tool was selected for the present research, rather than questionnaires, as it was considered appropriate to the context and the participants, as it would accommodate in equal manner illiterate and non-illiterate participants. Moreover, it is also more in line with the intention of incorporating participatory methods in the data collection strategy. SSIs were consistently used throughout the course of data collection in both stages of fieldwork. With residents, whenever possible the SSIs were complemented by photographs and sketches when participants allowed photos taken and access to the interior of their dwelling.

As pointed out in Yin (2009), data gathered from interviews should be corroborated with information obtained from other sources as these consist of verbal reports, thus potentially being subject to "bias, poor recall, poor or inaccurate articulation" (Yin, 2009, p.108-109). In order to address this issue, in addition to be implemented as an individual tool SSIs were also used in combination with other methods such as timeline, mapping, and focus groups, amongst others. The same method was also used to gather information from other key informants and stakeholders.

The structure of enquiry followed in the SSIs followed a general to particular strategy and intended first to 1) get information on the participant (name, age, occupation, years as resident, number of occupants in household); 2) acquire information on the broader scale of the bairro (distance to work, distance to amenities, transports available, services and infrastructure, safety, security, other issues raises); and 3) information on the dwelling & participant together, where participants are asked to elaborate on their perception on various aspects related to the dwelling (according to 'Existing Criteria' line in section 5.4.3.2 above), elaborate on their aspirations regarding their house (dream-house) and raise any other issues relevant for the discussions.

Timeline

This exercise was used with some of the participants during the SSIs as a tool to better understand how and what changes have been made by the occupant in their house towards increasing occupant satisfaction. This was represented as a diagram whereby participants populated an horizontal line with particular moments in time, describing what construction works had been done up until the present in order to achieve occupant satisfaction day as well as intention of future modifications in the house. In addition to provide factual information, this exercise also reflected upon the impact of those changes, whether or not they are positive, what is the attitude of residents towards the changes; What is the impact of changes in people's livelihoods; what has improved or worsen since they moved to the new house (in the case of Zango).

Participatory Mapping and Modelling

This tool was used during the SSIs in order to gather contextual information based on occupant perception of location of their house in relation to amenities, services, friends and other information/points of interest found relevant to include on the map.

Photovoice

Photovoice tool was applied in the second case study area only (Zango) in two occasions (one in Zango 1 and another in Zango 4). The photographers were children who were asked to collect photos on what places were most liked and disliked in the area where they lived. Although children were not included as participants in the remaining activities of fieldwork, this contributed to identify problems, vulnerabilities and opportunities within the areas of their neighbourhood.

5.6.4 - STAGE 4 – Feedback and validation

In Stage 4 findings from the previous two stages were shared and discussed with the stakeholders and some of the participants who engaged in previous stages. This process of preliminary analysis follows a participatory approach and consists of a rapid analysis of the situation enquired and intends to take place in conjunction with participants. The objective was to confirm data collected previously as well as to gather further details that might have been missed during the previous stages of interaction with participants. Interviews with stakeholders are also included in this stage as they provided an extra

source and an external view on topics discussed with residents of case study areas as well as contextual information to complement what had been provided beforehand.

STAGE 4

Objectives	<u>Conducting PPOA:</u> Initiate rapid analysis of data with people involved in the data collection Provide an initial immediate (post discussion) feedback
Actors	Preferably the residents who were involved in previous stages (Other residents who may wish to join in the discussions) External actors- Stakeholders, professionals of the built environment, members of the public who attended the talk at local NGO
Tasks	Organise group sessions with previous participants Coordinate sessions Prepare talk to local architecture university and local NGO Collate all information generated through this process Triangulate data obtained
Methods	Analyse results of semi-structured interview conducted in previous stage Participatory validation feedback) Ranking to find most important aspects of housing unit, housing context
Timeframe	

5.6.4.1 – Notes on methods

Preliminary analysis

In order to ascertain the validity of information gathered, various sources and different methods were used during the data collection process, including the participatory validation feedback. Following a multi-method strategy rather than one that relies on a single method, as Narayanasamy (2009) points out, allows for the use of triangulation in order to validate information (Narayanasamy, 2009). PRA approaches commonly make use of triangulation as a form of cross-checking information, and according to Chambers it can be instant and immediately observed in some cases. Moreover, the same author adds that for example in groups, in addition to mutual checking provided by number of participants, the use of visual methods such as mapping or modelling "participants often

build up collective and creative enthusiasm, fill in gaps left by others, and add, crosscheck and correct detail." (Chambers, 1994, p.11). This, Chambers concludes, results in instant and observable triangulation (Chambers, 1994). In line with the above, the design of the PPOA framework anticipated an overlap between the process of data collection and that of analysis, as interpretation begins to surface during the process of data collection further feeding it. The intention was to potentially improve the quality of the data gathered as well as its understanding and analysis (Mikkelsen, 2005).

Focus groups

The data collection instrument designated as 'focus group' is summarised by Brynman as "an interview with several people on a specific topic or issue" (Bryman, 2004, p.345), who also claims that this instrument is less artificial than others used to collect data (Bryman, 2004, p.358). Further to this, the direct interaction between the researcher and the participants, the capacity to retrieve information from a group quicker than if it were done by interviewing each person separately, or even the possibility of reaching groups that would otherwise be difficult to be approached, such as children are also advantages associated with focus groups (Brownill, 2010). This is probably why its use has become so popular amongst researchers today. Nonetheless, the literature also identifies drawbacks when it comes to the use of focus group as part of one's research. Barbour and Schostak (2005), for example, declare that one of the negative aspects of focus groups is the following:

Focus groups are not an effective way of measuring attitudes or, even, of eliciting people's "real views". This is because they are, fundamentally, a social process through which participants co-produce an account of themselves and their ideas which is specific to that time and place.

(Barbour and Schostak, 2005, p.43)

The same author argues that there are differences between simple surveys and focus groups, one of which being the sampling method. Sampling for focus groups usually involves convenience or purpose reasons, which eliminates the production of a representative sample. Moreover, they argue that this method can present various challenges and difficulties, not only at the design stage but also during the meetings and following analysis of the information collected (Barbour and Schostak, 2005). Hence, potential problems such as the identification of appropriate people to participate, small number of respondents, bias which may be associated with the use of incentives given to the participants (Brownill, 2010), dominance by one person or vocal minorities (Chambers, 1994) have to be balanced with the positive aspects of using focus groups as a strategy for acquiring data.

As far as the present research is concerned, it was anticipated that focus groups would be used towards the final stage of the fieldwork – end of each period spent in each case study area- in order to corroborate the information gathered from previous data collections, thus meeting the mixed methods strategy adopted throughout this research. Besides being a ‘confirmation’ tool, focus groups would also provide an opportunity to obtain information that would have not been picked up from the observation or interviews. The shift from the one-to-one environment, characteristic of interviews, to the interactive environment of focus group sessions could potentially bring extra information to add to what had been collected before. However, focus groups with residents were used only in the second location of study (Zango) in the latter stage of fieldwork as it was not possible to gather participants for focus groups in the first location. This was applied earlier on but also towards the end of fieldwork and was used as a feedback/participant analysis session, whereby participants and researcher looked at preliminary findings together using ranking and scoring tool (described below). Focus groups were also used in two occasions with groups of key informants (architecture students).

Ranking and scoring

This tool was used whilst carrying out focus groups and allowed for participants to engage in discussion of preferences and actions. The findings provided an insight into what participants perceived as the most positive and negative aspects in the neighbourhood and their houses, thus complemented information that had been gathered previously individually during interviews. In this case, ranking was made with sticky-notes on walls, or by writing in a flexible white board provided by the researcher, but could also have been made with other objects available on site (rocks, beans, writing in the floor, etc.) (Chambers, 1994).

5.6.5 - STAGE 5: Analysis

Stage 5 refers to the Implementation of PPOA and incorporates the analysis of main findings that emerged from data collected. Hence, the objective at this stage was to compile and organise information gathered during fieldwork, carry out analysis and prepare it so that it could be disseminated in the next stage (as preliminary findings whilst still in Luanda as well as in the post-fieldwork stage).

The data analysis process was divided into two main moments: during and post-fieldwork. The former intends to provide a preliminary overview of general issues identified by the participants, whereas the latter refers to a more in-depth analysis of all data collected and was carried out by the researcher. In terms of timeframe, preparing preliminary findings

for the purpose of integrating the presentations took place during the latter stage of the staying in Luanda and it extended to an approximate period of four days. The comprehensive data analysis process extended to the post-fieldwork stage and was conducted over a period of approximately one year.

STAGE 5

Objectives	<u>Implementing PPOA:</u> Collate information from previous stages Incorporate information by collective feedback analysis Data analysis
Actors	Researcher
Tasks	Define structure Target audience: people (building users, policy makers, professionals of construction industry) Categorise and analyse graphic information and convert it into data to go into documents/presentations Writing up on analysis process and findings Prepare distinct documents tailored to target audience (one more tailored for stakeholders, government officials and NGO personnel and other for architecture students and lecturers)
Methods	Data analysed through quantitative/qualitative processes
Timeframe	2011 pre- week 1 week 2 week 3 week 4 post- Stg. 5 fieldwork fieldwork

5.6.5.1 – Notes on methods

Data analysis

As far as analysis is concerned, the researcher acknowledged the challenge often raised in association with analysis of qualitative data, which unlike quantitative does not draw conclusions through patterns in numerical data or statistical information. Nevertheless, qualitative analysis can also follow a systematic and organised method of analysis, as

proven by the extensive literature on qualitative research containing guidelines and examples of systematic and objectives methods of analysis. Qualitative data can take many forms, ranging from numbers, to text, images, sounds or context and needs to be organised and categorised in order to be prepared for analysis (Mikkelsen, 2005). Coding is commonly used in qualitative research as a means to organise and interpret data, by grouping unprocessed data into categories on the basis of themes, concepts, patterns, differences or similarities. This leads to smaller and manageable analysable units and facilitates the interpretation of relevant information from which findings are retrieved (Lockyer, 2004; Mikkelsen, 2005; Walliman and Baiche, 2005). Despite the frequent overlapping between data collection and analysis mentioned in section 5.5.4.1 (Chambers, 1994), codes are inductively developed subsequently to data collection, during the stage of analysis (Bourque, 2004).

In this case, data collected was transferred to digital format and organised accordingly. Audio was transcribed, sketches scanned, photographs and videos organised into digital folders. All participants were attributed a code (keywords and colours in the spreadsheets) which was consistently used throughout Microsoft Excel spreadsheets and all respective digital records associated with them (photographs, fieldwork notes, sketches).

5.5.6 - STAGE 6: Feedback loop - dissemination and knowledge transfer

PPOA's stage 6 refers to disseminating the findings which emerged from the process of analysis, thus replicating the final stage of a POE process which in create a feedback loop of information regarding buildings' performance and occupancy satisfaction. Similarly to the above, PPOA also anticipates that the results from the assessment carried out in previous stages can be shared and injected into future projects of similar nature.

As a result, the objectives on this stage are associated with initiating a feedback loop in order to inform and improve future projects of the same nature.

In terms of timeframe, stage 6 overlaps with stage 5 in the sense that preliminary findings were delivered during the latter part of the final week in Luanda. Upon completion of this thesis, further information will be disseminated through a network of contacts in Luanda.

Objectives	<u>Implementing PPOA:</u> Feedback of findings Disseminate information into public and authorities Make recommendations in order to implement feedback and feedforward Stimulate action based on the findings and conclusions of PPOA process
Participants	Residents Stakeholders Authorities, members of municipality bodies
Tasks	Collating information in a consistent and accurate way considering the following: Accessibility of information to others Who will use this information How to make it available and create feedback loop information Investigate what is the best way to disseminate knowledge acquired Provide training to local NGOs (?)
Methods	Presentations Meetings
Timeframe	

5.6.6.1 – Notes on methods

As seen in Mayoux (2006), the use of participatory methods contributes towards early stages of dissemination amongst participants. This concept of dissemination was applied throughout the previous stages whilst collecting information and contributed to a first layer of awareness and knowledge transfer. Moreover, the preliminary findings were shared with the public on various occasions to date. Firstly in 2013, the author gave two public talks in one of the local universities (*Universidade Agostinho Neto*, Faculty of Architecture) and another one in the head office of the NGO Development Workshop.

The former was attended by 70 people, including architecture students from years 1 to 5 and department lecturers and researchers. The latter had the attendance of key stakeholders and general members of the public.

Although the initial objective was to prepare and distribute initial findings through a hard copy of a document before the end of the fieldwork, the researcher adopted a different strategy and decided to disseminate these through public presentations to the audience aforementioned. The presentations consisted of a way to share preliminary findings with participants and stakeholders and an audio and digital copy and was later published online on DW's website. This document provides an insight into a range of factors relating to people's perceptions associated to their dwellings, ranging from aesthetics, structural problems, proximity to work and services, comfort, etc. In addition to the talks above, the dissemination process also contemplated a presentation and paper submission at the conference Low/No Cost Housing in Zurich in June 2016, which was attended by international figures and organisations in the field of urban development and housing, including the UN-Habitat. This paper focused on the methodological approach and the findings of this research. The researcher also aims to publish in peer reviewed journals to enhance the dissemination amongst the academic community.



Fig . 5.4 - Application of SSI. Case One:
Chicala 2011.

Photo by Célia Macedo, 2011



Fig . 5.5 - Application of SSI. Case Two:
Zango 2013.

Photo by Célia Macedo, 2013



Fig. 5.6 - Application of timeline tool
during SSI. Case Two: Zango 2013.

Photo by Célia Macedo, 2013



Fig. 5.7 - Application of mapping and
modelling tool during SSI. Case Two:
Zango 2013.

Photo by Célia Macedo, 2013



Fig. 5.8 - Informal conversation with residents. Case Two: Zango 2013.
Photo by Célia Macedo, 2013



Fig. 5.9 - Application of ranking and scoring tool during focus group. Case Two: Zango 2013.
Photo by Célia Macedo,, 2013



Fig. 5.10 - Participants during preliminary findings feedback session.
Case Two: Zango 2013.
Photo by Célia Macedo, 2013



Fig. 5.11 - Presentation at local architecture university. Feedback session on preliminary findings. 2013.
Photo by Célia Macedo, 2013

5.7 – LIMITATIONS AND PROBLEMS ENCOUNTERED

Whilst undertaking fieldwork the researcher encountered a number of limitations and problems that at times had an impact on the implementation of the methodological strategy and therefore on the data collection as a whole. As a result, the research was adjusted whilst the fieldwork was taking place in order to accommodate changes and still collect as much relevant data as possible in order to achieve the objectives. These limitations can be categorised under the following: 1) organisation and logistics; and 2) data collection and participant engagement and interaction.

With regards to item 1 (organisation and logistics), given the distant location of the case study areas, physical access was limited and entailed a high financial effort for travelling, accommodation. Carrying out fieldwork was also dependent on obtaining a Visa, which had a validity period of one month for each time it was requested. Due to a combination of the factors above, the researcher decided to undertake two visits - of one month each - to Luanda in order to carry out data collection in situ. These took place in 2011 and 2013 respectively. A more extended period of time could have resulted in reaching more respondents and thus collecting more data, as well as a refinement of the methodology.

In addition to the above, guaranteeing the necessary conditions to carry out fieldwork was at times challenging and ultimately also had an impact on the data collection process. This was due to the environment conditions in the case study areas which in comparison with the normal conditions found where the researcher is based were extreme. During the first stage of the fieldwork the researcher had accommodation within the informal settlement where data collection took place. In the researcher's accommodation in addition to lack of running, the electricity supply was unreliable and mostly inexistent (half of the total time there was no electricity from the grid). The latter was a result of the energy strategy in Luanda which contemplated supply to different sectors alternating in different days of the week, a result of insufficient production of electricity to meet current demand in Luanda.

Furthermore, as per safety advice from The UK Foreign and Commonwealth Office (FCO) - which calls attention to the high level of crime in Luanda - as well as feedback given by local residents, the researcher did not carry out fieldwork and data collection activities after dark.

There were also health issues experienced in both visits, the most significant being the effects of extreme heat and humidity. Moreover, towards the final days of the first visit the researcher developed symptoms of parasite infection in one leg, which caused extreme pain and discomfort throughout the period spent in Angola, especially when carrying out fieldwork. The condition was then diagnosed and treated in Churchill Hospital's Centre for Tropical Medicine upon return to the UK.

As far as the item 2 (participant interaction) is concerned, the main limitations encountered were associated with poor or complete lack of willingness of some residents of the case study areas to contribute as participant. Moreover, and also in relation to the ethical issues explored in the next section, there was an overall sense of suspicion from the participants' side, especially experienced in the informal settlement. Some residents questioned whether the researcher was conducting the work on behalf of the government, and refused to take part fearing that it could lead to losing their houses. An understandable situation considering the ongoing population displacements taking place in some of the informal settlements of Luanda, including Chicala. As a consequence, even amongst those who did agree to take part access was not always granted to the inside of the houses, nor authorisation was given to take photographs.

5.8 – ETHICAL CONSIDERATIONS

Throughout the course of this research, especially during the data collection process in-situ, there were various potential ethical problems to consider. These were addressed through careful selection of the most appropriate and adequate methods considering context and participants.

Due to the cultural background differences between the researcher and case study it was particularly important to plan the fieldwork stage in advance, thus anticipating potential ethical issues arising from the cross cultural study - including the aforementioned cases of suspicion from the participants towards the researcher. It was expected these could involve several factors ranging from the relationships between foreign researchers and the local collaborators and/or participants to the potential harm from publishing. In relation to the latter, aspects such as consent, problems of anonymity, confidentiality and involvement of research subjects in general were also considered throughout the research and data collection (Devereux and Hoddinott, 1992).

During all interaction with participants they were made aware of the purpose of the study, and made assure of confidentiality and anonymity. Once this was made clear by the researcher, participants were free to refuse to take part in the study. In the absence of literacy skills, a verbal consent was provided, which was recorded in the audio recorder used to record engagement with participants (SSIs, focus groups).

Although prior to fieldwork it was anticipated that there might be problems associated with gender and data collection, this was not the case during fieldwork. Engagement with women and men was not purposely done separately but it was often the case that this happened as it was common to find groups of women or men socialising. Nevertheless, when interaction was done with mixed groups there was a balance input from either side.

5.9 – SUMMARY

Chapter Five described in detail the conceptual framework and methodological approach developed and implemented throughout the course of this research. The methodological strategy was designed to collect and subsequently analyse data in order to meet the aim and objectives outlined in chapter one and reiterated in section 5.1 of the present chapter.

The first section of Chapter Five introduced the conceptual framework and outlined the methodological strategy, including the theoretical background that led to the development of the research design. The second part elaborated on aspects of data collection, including a description of all the participants who officially contributed to the process of data gathering (residents and stakeholders), and sources of secondary and primary data. In relation to this it also provided a detailed overview of PPOA process and respective stages along with data collection methods. Finally, the chapter closed with a reflection on limitations and ethical considerations associated with the research.

Section D – **Fieldwork outcomes**

CHAPTER SIX – PPOA: Contextual and Spatial Assessments

"The people who live in the city will have to abandon their houses because the tendency is that they will want to get something they own... If it is to have your own corner, it doesn't matter that it is 100 Km away, as long as it is yours!"

ZNG-12:M, resident in Zango (case Area Two)

6.1 – INTRODUCTION

Chapter Six begins the process of unpacking the conceptual framework that guided this research (introduced previously in chapter five and reiterated below). It utilises this framework to present the findings emerging from fieldwork in both case study areas. These are compartmentalised according to different sectors of enquiry (Contextual, Spatial) in association to the case study areas' context. The remaining physical and social (human) assessments, also part of the PPOA process, are addressed in the subsequent chapter.

Chapter Six focuses on the more technical aspects of PPOA and covers the scales of enquiry of bairro and external actors. It is informed principally by the POE background of the framework and relates mostly to findings that emerged prior to extensive interaction with residents in both case study areas. It provides the first layer of information on the context and issues in place. In terms structure, it starts with the outcomes of the contextual assessment, which includes a description of each case study focusing on historical aspects of their development. It then follows to the spatial assessment which comprehends a technical oriented characterisation of built space, including a descriptive analysis of the areas' building fabric, identifying the main features and variations between dwellings in the case study areas. Moreover, the dwellings are further grouped into different typologies devised according to main construction material and use of space.

In terms of objectives, this chapter - along with the following two chapters - responds to Objective 3:

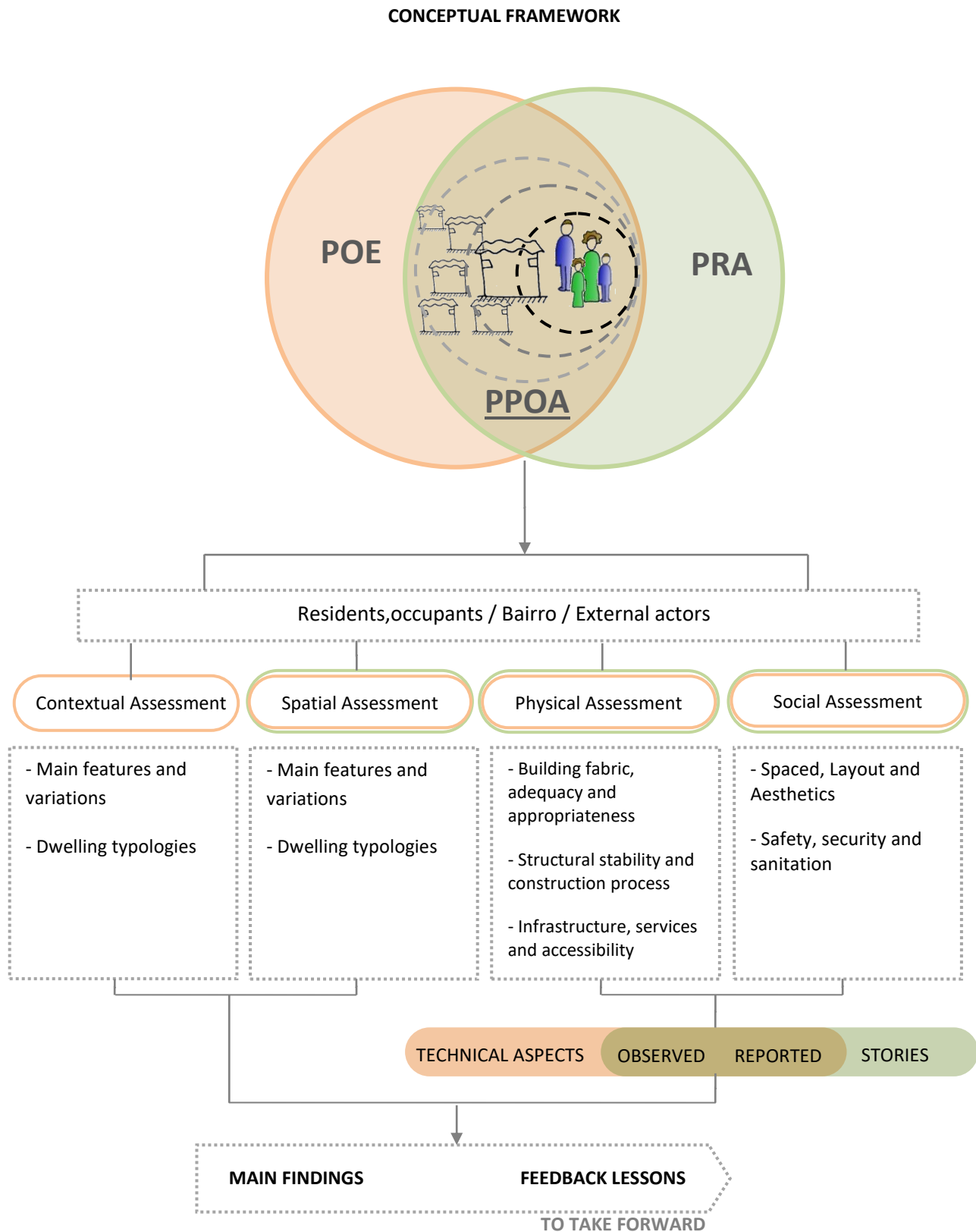


Fig 6.1–Schematic representation of PPOA conceptual framework and research strategy and process structuring this research

6.2 – STATE OF URBAN FABRIC AND KEY ISSUES DEBATED BY EXTERNAL ACTORS

Despite different and often conflicting views on the current state of housing in Luanda, SSIs carried out amongst a group of external actors and stakeholders reveal a common thread pointing to an ongoing housing issue in Luanda. An issue that seems to have had its inception during the many years of civil war in Angola and is mainly attributed to the authorities' inability to cope with an armed conflict and the consequences of massive population movements towards urban areas, especially Luanda. As a result, these participants generally express a concern towards the housing sector in Luanda - particularly the low-cost housing sector - and further call attention to a myriad of challenges, amongst which are for example insufficient number of houses for a growing population; lack of infrastructure to serve the existing population and building stock as well as the lack of means to provide infrastructure to new buildings. To the above the participants also add the poor conditions and lack of adequate/appropriate housing in both vertical and spread out informal settlements throughout Luanda.

6.2.1 - *Existing urban fabric and state of dwellings*

With regards to Luanda's urban fabric and dwellings, the main concerns expressed in the interviews are associated with the continuous construction and consequent expansion of poor quality informal buildings. Moreover the participants have also expressed concern towards the state of deterioration observed in existing buildings. In line with the above, STK-7, a Government official in the Provincial Government of Luanda, state that as far as housing is concerned the urban fabric in Luanda is currently divided into two opposing realities. It is her view that on the one hand there is the "positive side of the houses built properly" and on the opposite end what she considers part of what "has to disappear" or as she further clarifies: the "chaos" that resulted from the many years of population migration from rural areas into Luanda during the war.

STK-5, an anthropologist and university lecturer with many years of experience working in Luanda's context, points out that the absence of government orientation, or as he puts it the "many years of neglect", during the war eventually resulted in a gradual deterioration of the existing building stock. Moreover, he states that this deterioration applies to both the multi-storey buildings and detached houses which had been left empty after the colonial period and were later occupied by population left behind. He claims however that the latter are now generally in better conditions. STK-5 also associates the deterioration of the building stock with lack of infrastructure and illustrates how the scarce provision of

electricity and water can impact on people's lives as well as contribute to deterioration of buildings:

"In order for people to have water in their house, they must have their own pump and tank, otherwise they will have no piped water. (...) And electricity there is still some in the urban areas, but in the periphery is very difficult. Angola must be the country in the world with more generators." (STK-5 - anthropologist and university lecturer)

With regards specifically to multi-storey buildings he states that:

"it may be the case that the apartments may be in good condition, but the building itself rarely have these conditions. The staircase will be broken, there are no handrails... (...) So all of this leads to the degradation of the housing stock. One needs to carry the water up the stairs, one needs to have a generator to work, find a place to put the tank [to store water] and the pump. All of this entails a lot of wear and tear for the houses." (STK-5 - anthropologist and university lecturer)

STK-8, a lawyer and government official in the Ministry of Urbanism and Construction, calls attention to a similar phenomenon of deterioration taking place in neighbourhoods that had been built as social housing during the colonial period. She reminds that although these were built in unpaved areas, they had been provided with some conditions, namely access to water or sanitation. Nevertheless, as she notes, "that situation has degraded with time due to lack of maintenance of many of them". In addition to the deterioration of existing building stock, the interviewees raise questions regarding what and how the construction of dwellings is taking place in the informal settlements. STK-7 states that an absence of organisation and anarchic construction of houses in these areas has led to overly dense fabric, thus hindering access ("you cannot pass with a coffin"). In relation to the anarchy of space STK-4, a high ranked official in IPGUL (Institute of Planning and Urban Administration of Luanda) describes the musseques as "the biggest expression of individualism", as he believes the residents do not consider the needs of others when building their homes. He calls attention for the way dwellings are continuously built and extended to accommodate for example members of a growing family.

"If you go to one of those historic musseques, you will see some houses with two storeys (...). Well, but that tendency needs to be controlled, because if we keep this natural growth, the space is mine, then someday the musseque will have 20 storey buildings, isn't it?" (STK-4, a high ranked official in IPGUL - Institute of Planning and Urban Administration of Luanda)

STK-4 also calls attention to the poor quality of life people experience in these areas and advocates that the need to intervene is eminent. He believes an intervention is necessary in order provide quality of life, which in his view entails "changing the way we live today in those places, those spaces that do not have quality of life". In relation to this, STK-1, the director of an influential local NGO refers to the large number of sub-standard houses found both in urban and peri-urban areas of Luanda. Comparing against UN-Habitat's benchmarks that establish what consists an adequate house, he states that "probably certainly over 80% of the housing [in Luanda] is sub-standard". He further states that:

"We are doing a study connected to Global Observatory, using Human Habitat's indicators for urban poverty and that is based on adequate water, adequate sanitation, security of land tenure, housing quality in terms of materials, overcrowding and environmental considerations. And we would confirm that in the detail study we are doing that, (...) that well over 80 %, probably certainly over 80% of the housing is sub-standard." (STK-1, director of local NGO)

6.2.2 - Views on availability of housing and provision of infrastructure

STK-6, a CEO working in real estate locally advocates that "Luanda lacks a large amount of housing" to accommodate the entirety of its population. A view, which considering the response from the government officials interviewed, seems to be shared by the private and public sectors alike. Stakeholders in Ministry of Urbanism and Construction, National Institute of Housing and National Assembly support the above and further add that this "enormous scale problem" (STK-3, economist and high ranked government official in National Housing Institute) is not restricted to Luanda but is rather a country-wide problem. Moreover, according to STK-9 (architect and government official in Ministry of Urbanism and Planning), although the housing shortage up to some extent was already felt during the colonial period it has become more evident after the war due to scarce construction activities throughout that period, during which according to him "no houses were being built". STK-4 however, mentions an exception of a housing programme oriented towards mass housing undertaken during the war as a result of political relationship between Angola and Cuba. This was carried out in various cities of Angola, and in the case of Luanda consisted of a set of four storey buildings, but was not significant to face the demands.

The absence of construction activity in the mentioned timeframe, and as a consequence a failure to deliver housing, was attributed to a shift in the government focus towards the defence of the country during the war. At the time, according to STK-9 the government's concerns were focused on issues "associated with the war itself and as it is

understandable the efforts were turned to the defence of the country". Reinforcing the same idea, STK-3 adds that "during the war (...) there was no availability from the government to pay particular attention to the social side, but especially to housing".

Although the group of architecture students (FG-1) also express concern towards housing shortage in Luanda, they offer a different perspective from that of the participants mentioned above. It is their opinion that housing shortage is not only a consequence of lack of houses but also associated to issues of affordability. That being so, although they acknowledge that social housing is being built throughout Luanda it is often the case that those are bought and subsequently sold at a higher price, thus making it out of range of those who were meant to benefit from the social housing. According to some of the students, the lack of housing felt today can therefore also be explained by speculation practiced towards the newly built houses:

"Many times what happens is that a company comes makes the proposal for construction of a certain number of houses and they say these houses will be for low-income people and can therefore be cheaper. This is the project as launched by the company, but what happens is that the houses end up going to people who already have money and house. (...) The rich goes there and buys three houses, another wealthy person goes and buys ten houses, although the process had been intended for low-income people. (...) That is why people are saying that the houses are very expensive, but the houses on the project were not meant to be expensive." (FG-1- group of architect students of University Lusíada)

With regards to finding solutions, despite emphasising the private sector's potential contribution to address the housing shortage in Luanda, STK-6 stresses the importance of the government's role in providing infrastructure beforehand, as this in his opinion will attract developers to invest in Luanda. He explains that at the moment the main effort seems to be more oriented towards the provision of infrastructure to the existing built areas, which he considers as still largely inadequate or absent. Similarly to what was mentioned earlier regarding the lack of houses, the poor or inexistent infrastructure tends to be attributed to the many years of war lived in Angola, as well as to the absence of urban planning strategies during the same period. With regards to the latter, STK-2, a government official in the National Assembly justifies the lack of planning and provision of infrastructures: "There was no planning (...) because then it was not possible to think of such a thing".

This is the context in which STK-9 pinpoints the inception of the NHUP emerged from. He explains that when the housing situation "reached a point that we could no longer endure (...) That was when the Executive thought "let's stop the country and implement a

programme". This Programme would, according to STK-4 resume the process of construction of houses for the population.

6.3 – CONTEXTUAL ASSESSMENT: CASE STUDY AREA ONE (CHICALA)

Bairro Chicala is one of Luanda's various informal settlements. Despite being located in the heart of the city's urban fabric, due to its particular contained setting - on one side it is bordered by the Atlantic Ocean and on the other side by Luanda's historical centre - the physical expansion of the neighbourhood's footprint has always been restricted. Although it is a smaller neighbourhood considering the wider context of informal settlements in Luanda, in terms of urban fabric, Chicala shares spatial features with other settlements of the same nature located elsewhere in the capital. This is particularly the case either in terms of general arrangement of urban space or dwellings typologies (see Figs. 6.2, 6.3 and 6.4 below). The different building typologies as devised for the purpose of this work shall be explained further ahead in this chapter in section 6.6.

SPATIAL FEATURES - LUANDA'S BAIRROS



Photos taken in different informal Bairros illustrate similar features in built environment

Fig. 6.2 - Typical street in Bairro Chicala Photo by Célia Macedo, 2011



Fig. 6.3 - Typical street in Bairro Sambizanga Photo by Célia Macedo, 2011



Fig. 6.4 - Typical street in Bairro Rangel Photo by Célia Macedo, 2011

6.3.1 – Historical background and future of Chicala

Historical records such as the maps shown in figures 6.5, 6.6, 6.7 illustrate the bairro's growth until the latter years of the 20th century. The maps further indicate that whilst there was a tendency to gradually push the informal settlements (highlighted in red) from the centre to the periphery as Luanda grew - which eventually resulted in the formation of a ring of heavily populated and absent of urban planning settlements surrounding the city (Amaral, 1968) - the settlement that is today Bairro Chicala emerged from within Luanda and there remains until today (highlighted in green in Fig. 6.7).

Bairro Chicala spreads over a part of the coastal strip of Luanda which has been gradually cleared out of informal constructions as a consequence of government-led interventions towards reducing the prevalence of informal constructions in Luanda - including the "My

dream, my house Programme" mentioned in the introductory chapters of this thesis. The spatial metamorphosis resulting from such interventions was noted by the researcher between the period of 2011 and 2013 (during the first and second visits to field) whereby it was observed that a significant part of the neighbourhood too had been affected by such interventions and been cleared out between visits. Where before where houses, at the time of the last visit, there was a vast portion of empty land in which, according to a press release, a "mega real-estate project" (Amorim, 2013) is set to emerge. Considering the above, any reference made to Chicala's location should not leave out the fact that at present it remains an isolated pocket of informality amongst the ever-changing Luanda's seaside (see figures 6.7, 6.8), however it is likely that this situation will change in a still undetermined future.

For the residents the close contact with the ongoing clearing out operations in the bairro is often associated with a sense of instability regarding their future housing situation. One that according to CHIC-16:M who has lived in the neighbourhood for more than 20 years, is not new. In fact, as can be gathered from his words, in relation to this he claims to have always been aware of rumours that the residents would have to move out sooner or later: "Ever since we first came here we were thinking of leaving". A comment further supported by CHIC-15:F, who anticipates that the bairro may be demolished soon because, as she states, the government has now taken an interest in the coastal area where currently it is located.

Despite the scarcity of official information regarding plans for that particular area, impressive computer generated 3d images depicting virtual cityscapes populated by skyscrapers and free of any trace of the existing informal settlements are commonly featured in the media. Images that fall within Watson's "urban fantasies" in relation to the urban plans for Africa's largest cities (Watson, 2013). An example of this is seen in the news article *Luanda do futuro* (Luanda of the future), published in 2013 in a Portuguese online newspaper, where news of an 800 million dollars investment for Luanda's bay are accompanied by a futuristic vision of the city, as portrayed below in figure 6.11. Nevertheless, this sense of instability associated with Chicala's attractive location is not necessarily reflected on the construction dynamics of the neighbourhood. In fact, despite the fact that large areas of the bairro have been cleared out, throughout the areas that remain standing it was observed a predominance of ongoing construction works due to residents extending or refurbishing their dwellings, building new dwellings from scratch and even piling up debris over water to form new plots of land and thus increase the area in which is possible to build.

The process of change in this particular bairro of Luanda has been often pointed out in the international research community and used as a flagship to represent what is taking place

throughout other informal settlements of Luanda. With the eminent threat of disappearance hovering over many of the informal settlements of Luanda, this bairro has also been recently used as a case study in a series of joined local and international initiatives involving the community and academia. These aim to document various aspects of everyday life in an informal neighbourhood of Luanda and resulted in a series of events and documentation highlighting the "Chicala Observatory" (Moreira, 2012).

LUANDA 1862 – 1983:

image not available due to copyright restrictions

Maps of Luanda in different years. Highlighted areas represent location of informal settlements

Fig. 6.5 - Map of Luanda 1862.
Adapted from Amaral, 1968

image not available due to copyright restrictions

Fig. 6.6 - Map of Luanda 1964.
Adapted from Amaral, 1968

image not available due to copyright restrictions

Fig. 6.7 - Map of Luanda 1983.
Adapted from Amaral, 1983
(green highlight shows Bairro Chicala's location)

CENTRAL LUANDA TODAY



Fig. 6.8 - Map of Luanda. Red square marks approximate location of Chicala. Source Google Maps, 2016

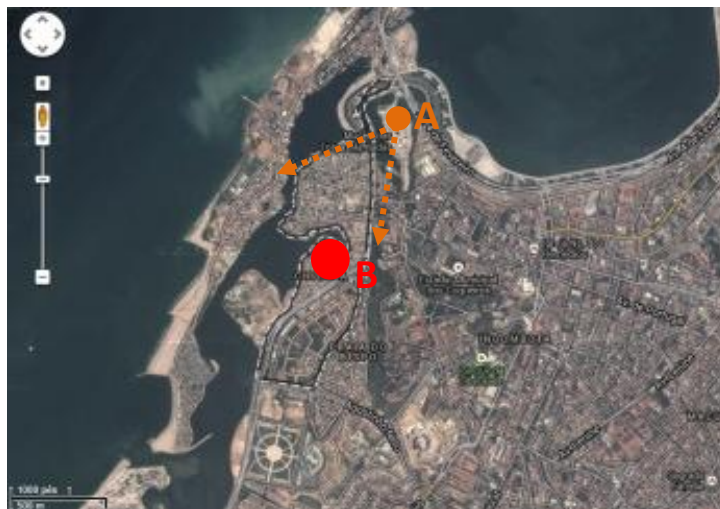


Fig. 6.9 - Aerial satellite view of Chicala. A: Fort S. Miguel (Picture below taken from here); B: Area of bairro where fieldwork was carried out. (Adapted from Google Earth, 2015)



Fig. 6.10 - View from the Fort (A) to Chicala (B). Photo by Célia Macedo, 2013

image not available due to copyright restrictions

Fig. 6.11 - Computer generated 3d render from proposal to area currently occupied by Chicala's bairro. Fort is represented in the distance on the left (red rectangle).

Source: Expresso 2013

6.4 – CONTEXTUAL ASSESSMENT: CASE STUDY TWO (ZANGO)

Zango emerged in parallel with a government-led requalification and development strategy which also encompasses for example the planning of new Luanda's satellite cities. Amongst these cities is Kilamba Kiaxe, brought to the world's attention in 2012 when characterised as "ghost-town" and criticised for not being affordable to most Angolans (Redvers, 2012). Moreover, Zango is a result of a resettlement process which entailed displacement of population residing in areas where "projects of social impact" were to be developed (ANGOP, 2007) or to house those living in informal settlements located in risk areas within Luanda.

6.4.1 – Historical background and legal framework

In terms of legal context, in 2007 the centrally administered Population Resettlement Programme (PRP) (*Programa de Realojamento das Populações*) was validated by Presidential Decree, thus providing the legal framework for the resettlement of population residing in areas where government-led projects such as construction of new buildings, roads and motorways, improved sanitation and rehabilitation of drainage ditches were set to be carried out (ANGOP, 2007). A programme absorbed by the NHUP framework approved in 2009, which contemplated the sub Programme for Social Housing (República de Angola, 2009). Further to this, in 2012, subsequently to a revision of the aforementioned PRP's "philosophy", the Social Housing Provincial Programme - SHPP (*Programa Provincial de Habitação Social*) was approved by Presidential Decree. Amongst the fundamental changes made it shifted the responsibility of implementing resettlement programmes from a central administration to local authorities. This meant that all actions of resettlement taking place in Luanda were to be carried out by the local administration - Provincial Government of Luanda (*Governo da Província de Luanda*). The SHPP includes the Sub-Programme of Resettlement and sub Programme of Assisted Self-building (República de Angola, 2012), both present in Zango.

The area in the periphery of Luanda where Zango is located was previously used for agriculture purposes and had no history of urban occupation (Neto, 2012). Although it started with modest numbers (20 houses in 1999, built in order to house population displaced from Boavista, an informal neighbourhood built in a risk area (Videira, 2012), today it comprises thousands of dwellings spread over a large extension of land. The earlier houses of project Zango can be found approximately 25 kms away from the centre of Luanda, in what is now the area designated as Zango 1. Currently Zango Project spreads out on either sides of *Estrada do Zango* (Zango road) through a linear extension of roughly 10 km towards South, as delimited in the map below (Fig. 6.12). With regards to spatial

organisation, although usually the denomination 'Zango' covers a vast area it is numbered in delimited areas ranging from 1 to 5, where the former represents the first constructions and the latter the latest. Given its ongoing expansion it is anticipated that subsequent numbers will be attributed as the built area expands. In relation to this figures 6.14 demonstrate the physical expansion of Zango from 2002 to 2013. It is not clear how many houses have been built since the early 2000s in Zango or how many families currently reside in this area. It is known however that in 2014 the construction of 5 thousand 'economical houses' in Zango was approved by Presidential Decree (Diário da República, 2014). A result of a contract worth 158.5 million USD celebrated between the government and the company Odebrecht. Furthermore, according to a 2015 press statement, the Angolan government celebrated an 85.5 million Euros contract with the company Alfermetal SA, in order to build four thousand "incremental houses" (low-cost houses delivered partially complete) in the area of Zango 4. These would be targeted to accommodate people displaced from so called "risk-areas" (usually referring to informal settlements) within Luanda (OJE, 2015).

Zango is also commonly associated with another housing development often unofficially designated as Zango 0 (zero). However, apart from the geographical proximity to Zango 1, Zango 0 does not share other features with the former. Zango 0 rather refers to a middle/high-rent housing development characterised by several storey buildings, closed up in blocks resembling condominiums or gated communities also seen elsewhere in Luanda.

ZANGO IN CONTEXT



Fig. 6.12 - Red square marks location of Zango in relation to centre of Luanda (Blue circle marks Luanda city centre). The orange line indicates Approximate location of Zango's main road (*Estrada do Zango*). Credit: Google Maps, 2016



Fig 6.13: Detail - aerial view of part of Zango neighbourhood representing typical urban fabric: a regular grid of houses, crossed by primary, secondary and tertiary streets. Credit: Google Maps, 2016

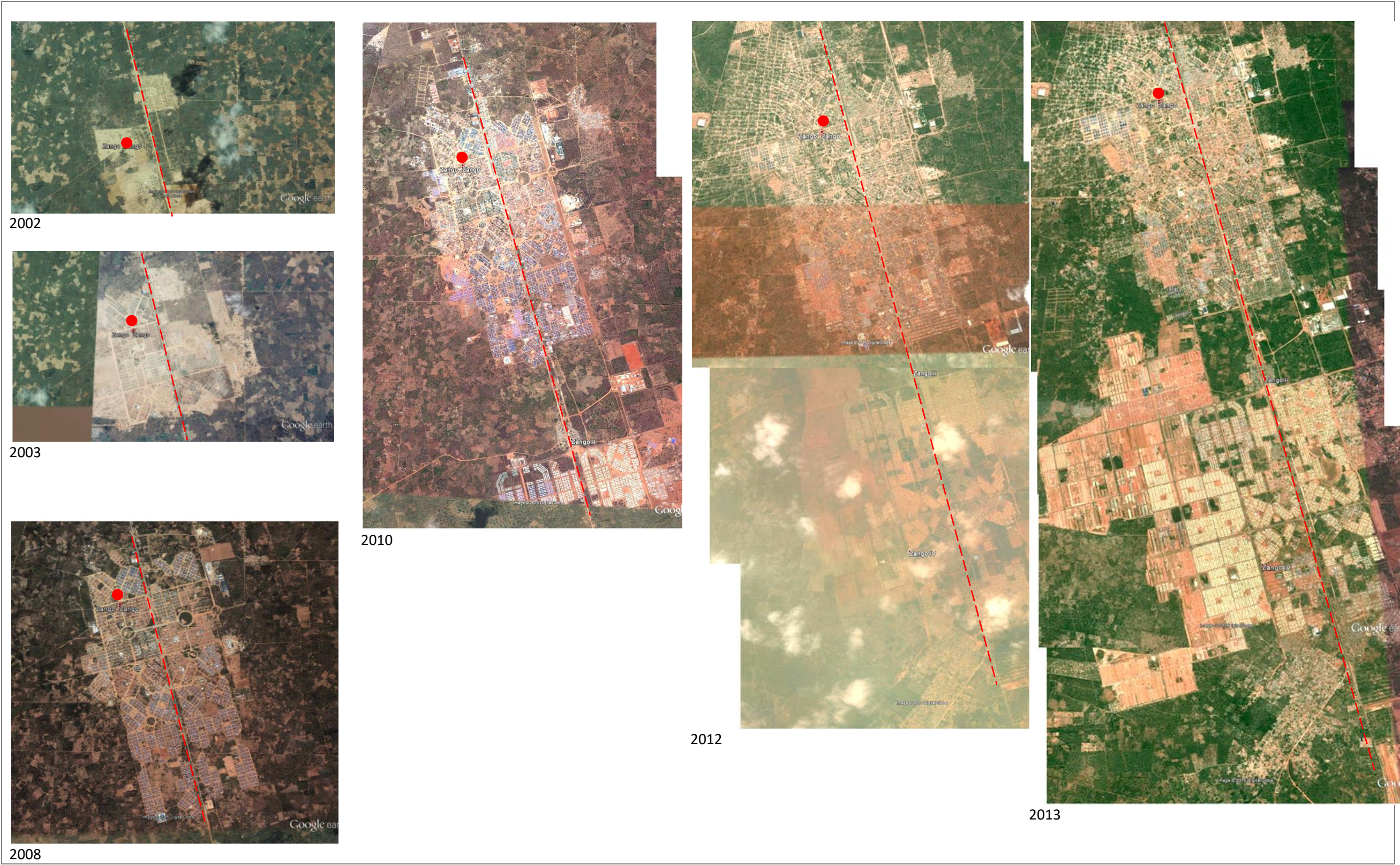


Fig. 6.14 - Collage of aerial pictures illustrating the expansion of Zango between 2002 and 2013. Red circle used for reference representing the same location in different years. Dotted line marks Estrada do Zango (Source Google Earth, 2015)

6.5 –SPATIAL ASSESSMENT CASE STUDY ONE (CHICALA)

6.5.1 –*Dwelling variations and typologies: technical survey*

This section deals with aspects related to the dwellings' building fabric in case Area One. It firstly looks at main features and respective variations observed between the dwellings. It then follows to group the buildings into three main typologies. This information is then used to identify and describe the housing type of each participant and looks at participant's contribution on aspects of satisfaction towards building fabric. This process corresponds to Stage 1 of data collection, as identified in the methodology chapter, and aims at providing an overall understanding of the physical context and background of cases study area two.

6.5.1.1 - *The dwelling: main features and variations*

Table 6.1 below captures the outcomes of a transect-walk carried out by the researcher prior to interaction with the residents of bairro Chicala. The information collected at this stage was restricted to what was gathered from observation, note and picture taking, hence focusing mostly on the physical aspects of dwellings. The information included in the table aims to provide an overall understanding of the case study area's building fabric, identify the dwellings' key features as well as the most common variations found within each feature. These include the number of storeys, layout/arrangement, construction methodology, existence or not of an external area within the plot, visibility of the main house from the street level, type of roof and type of openings (windows). In addition to listing the features and variations table 6.1 also includes a column with a code that refers to one - or more than one - photo selected in order to illustrate the respective feature(s). These photos can be found on tables 6.2 and 6.3.

FEATURES	VARIATIONS	Ref. PHOTO (tables 6.2 and 6.3)
Nr. of storeys	- 1	6.a)
	- 2 or more	6.b)
Layout/Arrangement	- Compound	6.c), 6.r)
	- Single house	6.d)
Main construction methodology	- Concrete block	6.e)
	- Burnt hollow brick	6.f)
	- Timber	6.g)
External area (patio, courtyard, garden)	- Yes - covered	6.h)
	- Yes - open	6.i)
	- No	6.a)
Visibility from the street	- No wall (no visual obstruction)	6.a)
	- Low-level wall (visible from the street)	6.j)
	- High wall (not visible from the street)	6.k)
Roof	- Mainly zinc or corrugated iron	6.l)
	- Mainly fibre cement	6.m)
	- Fired clay tiles	6.b)
Windows (openings)	- Metal bars	6.n)
	- Shutters	6.o)
	- Glass framed window	6.p)
	- Other	6.q)

Table 6.1 - Key features and variations of dwellings in bairro Chicala

CODE AND PHOTO					
6.a)		6.b)		6.c)	
6.d)		6.e)		6.f)	
6.g)		6.h)		6.i)	

Table 6.2 - Photos illustrating examples of features and variations of dwellings listed in table 6.4

CODE AND PHOTO					
6.j)		6.k)		6.l)	
6.m)		6.n)		6.o)	
6.p)		6.q)		6.r)	

Table 6.3 - Photos illustrating examples of features and variations of dwellings listed in table 6.1.

6.5.1.2 - Dwelling typologies

In addition to grouping key features and patterns observed generally in this bairro, dwellings were further categorised into three building typologies. These were devised in order to associate the participants to a specific type of building and thus promptly identify its overall physical characteristics. Therefore, as indicated in table 6.4 below, the codes attributed to different typologies have been attributed according to main construction methodology (concrete block, hollow brick, and timber) as well as the degree of exposure (visibility) from street level, grading from no external area (front door facing the street directly), low level enclosure of external area, and lastly view blocked by a high level solid wall.

Although observed, due to limitations experienced during fieldwork it was not possible to interview and gather detailed information on one of person of each dwelling type. Therefore, left out of this research were dwellings Type 2a, Type 3b and 3c, shown in lighter colour font.

CONSTRUCTION METHODOLOGY		EXPOSURE TO THE STREET	
Dwelling typology	1 Concrete	a	No external area
		b	Low wall enclosing external area (house visible from street)
		c	High wall enclosing external area (house not visible from street)
	2 Hollow Brick	a	No external area
		b	Low wall enclosing external area (house visible from street)
		c	High wall enclosing external area (house not visible from street)
	3 Timber	a	No (enclosed) external area
		b	Low wall enclosing external area (house visible from street)
		c	High wall enclosing external area (house not visible from street)

Table 6.4 - Dwelling typologies in case study one

6.5.1.3 - Participants' dwellings

Following the general characterisation of the most common building typologies found in Chicala, table 6.5 below provides a brief description of the dwellings in which participants reside, including typology (refer back to table 6.4). Furthermore, the table also includes a brief description of elements particular to each dwelling. An extended version of this table containing further information on the participants, such as age and time as residents of bairro Chicala, can be found in Appendix 3.

Code	Dwelling typology - Brief description	
CHIC -1	3a	Good access; One room, built during the colonial period; Toilet area outside; Very advanced state of deterioration.
CHIC -2	1b	Wide access; Enclosed patio in the front - high wall; Rendered walls; Zinc roof; Good condition.
CHIC -3	1a	Narrow access; Zinc roof; No patio but access to the house paved with tiles; rendered and painted walls; Plants on main façade.
CHIC -4	1a	Narrow access; one room house, rendered on the outside. Extension of the main house that belongs to the landlord.
CHIC -5	1c	Good access, left exposed in patio but rendered on the outside; Closed compound - Main house plus extension. Patio covered with zinc roof.
CHIC -6	1c	Wide access; Closed compound, rendered on the outside. Main house plus extension. Covered patio
CHIC -7	1c	Narrow access; Closed compound, rendered on the outside. Main house plus extension. Covered patio
CHIC -8	?	Narrow access; Closed compound.
CHIC -9	1a	Wide access; Main one bedroom house facing the road.
CHIC -10	1a	Wide access; Main one bedroom house facing the road.
CHIC -11	NA	Wide access; Has just demolished to rebuild another house.
CHIC -12	1c	Wide access; External front and back patio; Back patio large and partially covered; Very good condition.
CHIC -13	1b	Wide access; External front and back patio. Visible from outside. Good condition.
CHIC -14	1c	Wide access; rendered on the outside. Front and side open patio; High wall, house not visible from outside.
CHIC -15	2c	Wide access, plastered outside; Open side patio; High wall, house not visible from street

CHIC -16	1b	Wide access; Low-level wall, house visible from outside
CHIC -17	1a	Wide access; room in compound of several rooms; No external wall blocking the view, room visible from outside.
CHIC -18	1a	Wide access; External walls plastered; External area by the side of the house; House visible from outside.
CHIC -19	1c	Wide access; 1 bedroom house; External patio covered with corrugated iron sheet;
CHIC -20	1c	Wide access; External patio open; High wall, house not visible from the street
CHIC -21	1c	Wide access; External patio covered; High wall, house not visible from the street
CHIC -22	1a	Narrow access; Small one room concrete house; blocks left exposed; Poor conditions
CHIC -23	1a	Narrow access; Small one bedroom house; Walls plastered inside; No external area
CHIC -24	1c	Wide access; External patio covered; High wall, house not visible from the street
CHIC -25	2b	Wide access; 2 storey house; Walls plastered outside and inside; High external wall; house partially visible from the street

Table 6.5 - Participant and dwelling typology in case study one

6.6 –SPATIAL ASSESSMENT CASE STUDY TWO (ZANGO)

This section comprises technical information on a sample of housing in case study two, including main features as well as variations found between dwellings. Moreover, the dwellings are further grouped into different typologies, devised according to main construction methodology and use of space. This process corresponds to Stage 1 of data collection, as identified in the methodology chapter, and aims at providing an overall understanding of the physical context and background of cases study area two.

6.6.1 –Dwelling variations and typologies: technical survey

Table 6.6 below comprises the outcomes of transect walks carried out throughout the course of various visits with and without interaction with the residents of Zango. The information collected at this stage was restricted by what was possible to gather from observation alone, therefore focusing on the physical features of dwellings. The

information herein aims to provide a broad understanding of the case study area's fabric. Moreover, table 6.6 indicates the dwellings' key features as well as the most common variations found within each dwelling. It follows the same approach used previously to characterise the built environment in the informal settlement in section 6.6.1. This comprises the 1) number of storeys; 2) layout/arrangement; 3) construction methodology; 4) existence or not of an external area within the plot; 5) visibility from the street; 6) type of roof and; and 7) type of openings (windows). In addition to listing the features and variations, table 6.9 includes a column where a code that refers to one or more than one photo is used to illustrate the respective feature. The photos can be found on table 6.10.

Unlike what was observed in the informal settlement featured the section 6.6.1, Zango is generally characterised by an array of similar looking buildings, implemented onto a predominantly orthogonal grid of plots over a large extension of land. The majority of these buildings are residential, although occasionally the grid of 15 by 15m plots of land containing a 60 m² single storey detached house is interrupted by larger buildings accommodating services and equipment such as construction materials factories, grocery shops, schools, police stations, restaurants, governmental buildings, etc. Although some of the latter are clearly originally designed to house some of the functions mentioned above, as shall be seen further ahead, others seem to be the result of adaptations made by the occupants to the original houses.

In terms of key features of dwellings, these consist of a standard model of house replicated throughout the extension of Zango (see Figs 6.15 to 6.17 below). However, despite sharing most features, certain architectural elements do differ depending on the area of Zango in which the houses are located. These changes are for example colour of façades and/or subtle variations in layout and design. They do not affect however greatly the overall homogeneity observed throughout Zango. Furthermore, it is also common to find houses - especially the ones in Zango 1 - that have been built the longest - that today display significant modifications made to the initial typology. The extent of changes made to some of these houses means that in some cases it becomes practically impossible to visually trace the original base house.

ZANGO – TYPICAL/ STANDARD HOUSE

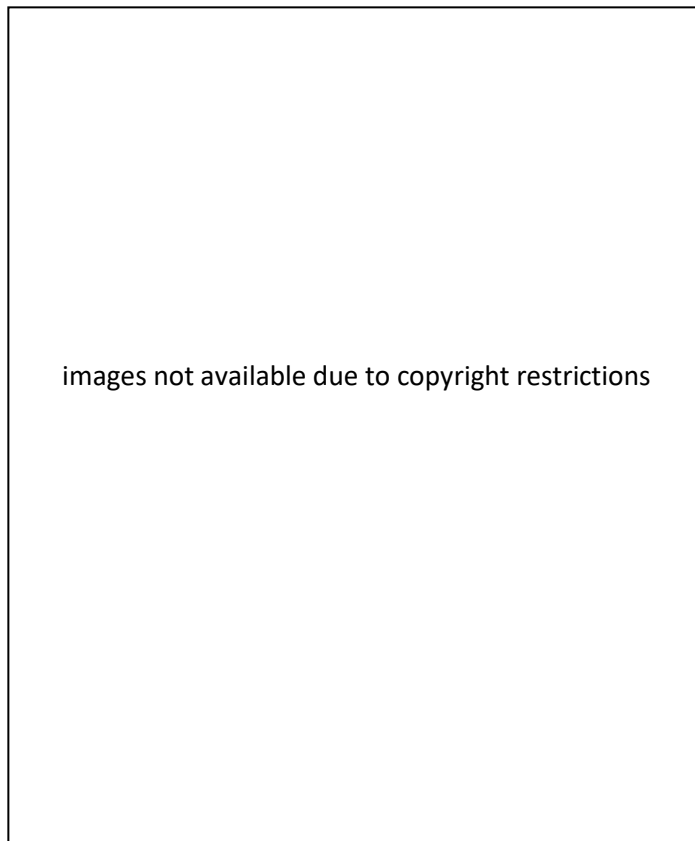


Fig. 6.15 - Plan of typical standard base dwelling in Zango.

- 1 - Patio/courtyard
- 2- Living room
- 3 - Kitchen
- 4 - Toilet
- 5 - Bedrooms

Fig. 6.16 - Side (top) and front (bottom) elevations of typical standard base dwelling in Zango
Source: (Videira, 2012)

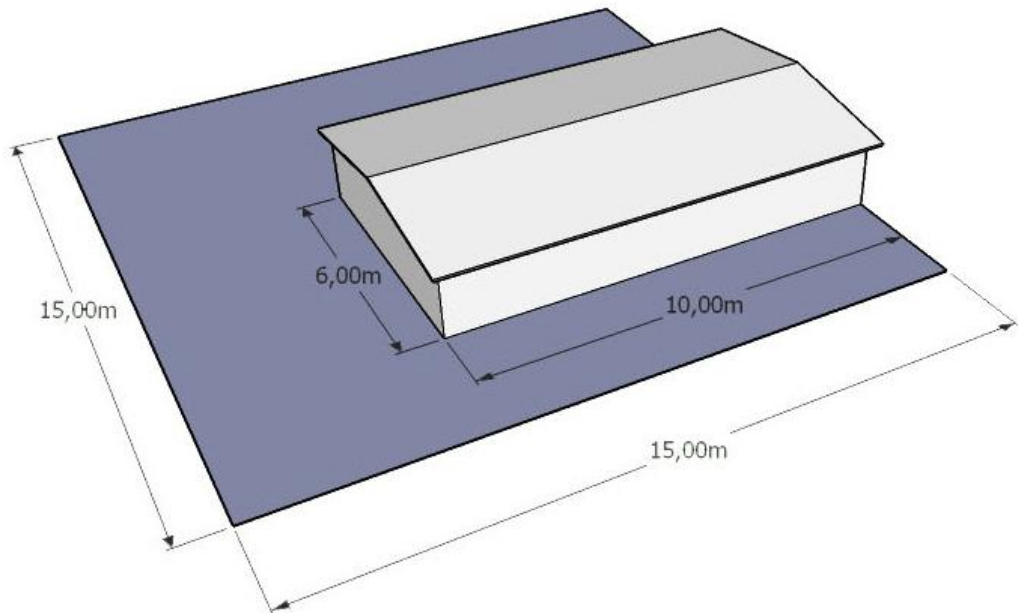


Fig. 6.17 - 3d representing plot and footprint of typical standard base dwelling in Zango, including dimensions.

FEATURES	VARIATIONS	PHOTO (table 6.7)
Nr. of storeys	- 1	6.s)
	- 2 or more	6.t)
Layout/Arrangement	- Single house	6.u)
	- House + extensions	6.v)
Construction methodology	- Concrete block	6.v)
	- Timber and metal sheet	6.w)
External area (patio, courtyard, garden)	- Yes - covered	6.x)
	- Yes - open	6.y)
	- No	6.u)
View from the street	- No wall	6.s)
	- Low-level wall (house visible from the street)	6.z)
	- High wall (house not visible from the street)	6.aa)
Roof	- Mainly zinc or corrugated iron	6.w)
	- Mainly fibre cement	6.y)
	- Clay tiles	6.bb)
Windows	- Metal bars	6.bb)
	- Shutters	6.cc)
	- Other	6.y)

Table 6.6 - Key features and variations of dwellings in case study two. To be read with table 6.7 below.

CODE AND PHOTO	
6.s)	
6.t)	
6.u)	
6.v)	
6.w)	
6.x)	
6.y)	
6.z)	
6.aa)	
6.bb)	
6.bb)	
6.cc)	

Table 6.7 - Photos illustrating examples of features and variations of dwellings listed in table 6.6

6.6.1.2 - Dwelling typologies

In addition to combining the key features and patterns observed throughout dwellings in Zango, these were further categorised into typologies. The typologies were devised in order to associate the participants to a specific type of building and therefore quickly identify the overall physical characteristics.

Unlike in Chicala where there was a certain degree of diversity with regards to construction methodology, in Zango the main construction methodology used is concrete block - with the exception of temporary houses built with corrugated metal sheets, inhabited by population still waiting to be relocated in one of Zango's base standard houses. Moreover, as the typologies are mostly homogenous in terms of appearance, it was decided that it would make more sense to devise typologies firstly according to construction methodology and then by modifications made to the base core house. This ranges from no modifications to major modifications. This information can be found in table 6.8 below.

CONSTRUCTION METHODOLOGY		DEGREE OF MODIFICATIONS	
Dwelling Typology	1 Concrete	a	No modifications - base house only
		b	Minor modifications , base house recognisable - example low wall around the plot, painting...
		c	Significant modifications - works mainly done around the base house. Example: building of extensions and wall around the house
		d	Major modifications , base house not recognisable. Example, intervention in the main house plus construction of extensions, structural modifications, High wall enclosing external area (house not visible from street)
	2 Metal sheet/ corrugated iron	a	Temporary houses (N/A)

Table 6.8 - Dwelling typologies in case study two

6.6.1.3 - Participants' dwellings

Table 6.9 provides a succinct description of the participants' dwellings, including dwelling typology (refer back to table 6.8) as well as a brief description of elements particular to each dwelling. An extended version of this table containing further information on the participants can be found in Appendix 3.

Code	Dwelling typology - brief description	
ZNG-1	1c	Base house, plus extensions on the back of the house
ZNG -2	1a	Base house only.
ZNG -3	1c	NA
ZNG -4	1c	Original house plus extensions (two separate living areas and bathrooms outside). Wall around the plot. Construction works in progress
ZNG -5	1b	Base house, low wall around the plot. Few alterations
ZNG -6	1a	Base house only.
ZNG -7	1b	Original house plus extensions. Wall around the plot. Construction works in progress
ZNG -8	1b	Base house only.
ZNG -9	2	Temporary tin house
ZNG -10	Mainly 1b	Base house, low wall around the plot. Few alterations
ZNG -11	Mainly 1b	Base house, low wall around the plot. Few alterations
ZNG -12	1d	Self-built. Base house, structured altered, extensions. High wall around the plot. House not visible from the street
ZNG -13	1d	Self-built. Two base houses together, structured altered, extensions. High wall around the plot. House not visible from the street
ZNG -14	1d	Self-built. Base house, structured altered, extensions. High wall around the plot. House not visible from the street
ZNG -15	1a	Base house only

Table 6.9 - Participant and respective dwelling typology in case study area two

6.7 –SUMMARY

Chapter six introduced the findings from fieldwork in in both case study areas in relation to contextual and spatial assessments carried out as part of the implementation of the PPOA.

It focused on the more technical aspects of PPOA, thus relating mostly to findings that emerged prior to extensive interaction with occupants. It then moved on to explore the findings resulting from the contextual assessment which included a contextual description of each case study focusing on historical aspects of their development. The findings resulting from the spatial assessment followed and consisted of a technical oriented characterisation of built space. This included a descriptive analysis of the areas' building fabric, as well as the main features and variations between dwellings. Moreover, the dwellings were further grouped into different typologies devised according to main construction material and use of space.

The subsequent chapter seven explores the outcomes of the physical and social assessments of the PPOA process.

CHAPTER SEVEN – PPOA: Physical Assessment

"Here we have the possibility, the dream of being able to structure a home. And even if this is not the house of my dreams, it is the first house! We have the possibility of building a structure even without technical knowledge, following a vision..."

ZNG-12:M, participant resident in Case Area Two (Zango)

"The government brought us here, gave us this. Some only received the houses, some remain in the same house living with 3 or 4 people [families]. They are still waiting and do not know when the government is going to solve this problem and will give us conditions regarding the water. Health depends on water, without water it is difficult..."

ZNG-15:F, participant resident in Case Area Two (Zango)

7.1 – INTRODUCTION

Chapter seven continues the unpacking of the framework that guided this research and explores the outcomes of the PPOA process, with focus on the physical assessment. These findings emerged as a result of a combination of technical analysis driven by the researcher and the use of participatory enquiry tools in order to gather participants' input during the data gathering process, thus drawing from the background of both POE and PRA. It further captures the views of stakeholders on the issues under discussion.

In terms of general structure, chapter seven demonstrates separately the findings relating to the physical assessment, namely in terms of 1) building fabric, adequacy and appropriateness, 2) structural stability and construction process, and 3) Infrastructure, services and accessibility. Each of the subsections above includes a detailed description of the findings and finishes off with a PPOA section summary highlighting the main issues which emerged from the technical analysis. These are further combined with participation feedback, supported by a series of relevant visual elements and participants quotes and stories. This table is devised according to the core principles established in the conceptual framework thus aiming to emphasise the contribution of both disciplines (POE+PRA) to the overall PPOA methodological process.

7.2 – PHYSICAL ASSESSMENT: CASE STUDY ONE (CHICALA)

This section comprises the findings resulting from the Physical Assessment of the PPOA process carried out in case study one, Bairro Chicala. It looks specifically at three groups of data, respectively: 1) building fabric, adequacy and appropriateness; 2) Structural safety and construction process; and 3) Infrastructure, services and accessibility. Each subsection closes with a table (PPOA subsection summary) which pinpoints the main issues encountered and presents evidence according to its source, overlapping the technical assessment and information collected through interaction with participants.

7.2.1 - Building fabric, adequacy and appropriateness

The range of most commonly observed materials used in Chicala that make up the building fabric include blocks (mostly concrete) used as walling material, cement (floors, mortar, wall plaster), corrugated iron sheets and fibrocement (for roofing), and ceramic tiles (as finishing material for floor or walls).

Fieldwork revealed that the shaping of the neighbourhood's built environment in Chicala has undergone significant changes over time, and that social perceptions associated with materials and construction practices have been playing an important role in this process. Based on accounts provided by some of the earlier residents of Chicala who participated in this research, particularly CHIC-1:F, CHIC-5:F and CHIC-12:M - aged 54, 50 and 44 respectively, all living in the neighbourhood for more than 30 years -, building materials and construction methodology used in the neighbourhood have suffered a notable change in the last four decades. Although today the overall fabric of dwellings is mostly composed of concrete block houses - with the occasional hollow brick or timber house -, according to CHIC-12:M before the wide use of concrete blocks, the neighbourhood's original houses were built with a type of straw or reed called "*luando*" and most of the dry area today was then under water. CHIC-5:F, who also remembers the old "*luando*" houses, explains that these were replaced in the 1970s by timber construction. A shift that she attributes to falling out of fashion of "*luando*". As CHIC-5:F further explains, unlike the "*luando*" houses, the latter were traded by white settlers ("the whites would bring, would buy in the shop and would make"). Despite the success of the timber houses, according to CHIC-1:F, in the period following the independence these too lost the appeal and like "*luando*" houses eventually fell out fashion and became associated with poverty and backwardness. CHIC-1:F pinpoints the introduction of concrete blocks in the neighbourhood at around 1975-78.

However, despite the introduction of concrete blocks, timber houses continued to be built by people who were not well off enough to build a block house. Therefore, when timber

was chosen it was not because it was a traditional material but rather because people could not afford blocks (from which the colonial houses were being built). Since then construction practices have been adapting to accommodate new needs as well as to meet renewed perceptions of quality and aesthetics or trends.

CHIC-12:M although currently living in a concrete block house (type 1c, see table 6.5), still owns the wooden house next door where he grew up which he rents out to two families. Despite having been suggested various times towards changing it to a concrete house he has decided to keep it as a reminder of Chicala's identity. His wooden house is one of three left in the area. In his words:

"Many people having been coming with proposals, they even wanted to build a first floor, they would keep one side and we would keep the other. For me it is really a question of identity (...). The bairro has lost the features it used to have; it is not what it used to be, so I prefer to conserve it for a little longer..." (CHIC-12:M)

In relation to such aspects of culture and identity, stakeholders' views are split between an upgrading vs eradicating approach for the informal settlements in Luanda. Anthropologist STK-5 for instance, who fears that as a result of the NUHP the "musseques are to be demolished and rebuilt" and replaced by "ten storey buildings", expresses concern that an approach which fails to take into consideration the way people are used to inhabit the urban space is implemented. As an example he reflects on how life in a multi-storey building could be very challenging for someone who has never experience it before: "Then it will be difficult to raise a pig in the 10th floor, isn't it?...". Architect and university lecturer STK-5 expresses a similar view and advocates that an approach that imports models from outside to solve context specific problems in Luanda is bound to fail. As he further elaborates the

"The way of life is completely different, does not have any similarity to the usual standard(...) So the plan is not successful first because it is too expensive to adapt here and because at first sight it does not meet any social, anthropological, economic, cultural, standard, nothing ... it has nothing to do with the way of life". (STK-5)

In accordance with the above, others go further and raise the importance of preserving the cultural value of the informal settlements. One of the architecture students part of the FG-1 discussions declares "I personally do not want the end slums because there is our root, is our culture, our origin. What I want is that life in the musseque is better, that's all". This point of view is not however shared by high ranked IPGUL official STK-4, who in fact does not perceive the way of building in the musseques as a culture, and therefore believes that there is no reason for the musseques to be preserved.

The frequent presence of building materials by the houses as well as clear signs of ongoing building works suggested a dynamic nature of construction process which entails demand for building materials and labour. A fact corroborated by participants who often referred to their houses as unfinished or in the process of completion. In relation to these, findings from fieldwork reveal an overall acceptability towards concrete blocks as a walling material, as well as preference for this construction methodology over others, namely timber and other traditional earthen based construction methodologies (such as adobe and wattle and daub). Although it was observed that the latter are still used presently in other parts of the country, they do not seem to be as common in urban areas. A similar depreciative view towards "traditional" construction materials and building technologies is raised by other participants, as seen for example in CHIC-13:M who states that material such as "adobes are for rudimentary houses, rural houses". CHIC-2:F, in addition to clearly expressing her preference towards concrete blocks, remarks that adobe bricks or wattle and daub do not constitute appropriate construction materials for Luanda - although she agrees they would be appropriate for the "province", i.e., rural areas), where she believes the soil is stronger and therefore a better quality material would be produced. These construction methods are not regarded as strong enough and not water resistant at least not in Luanda.

Concrete blocks were readily available from a small scale production plant located in one of the entrances of Chicala, where blocks were manufactured by hand and left to cure before being sold out. This option was the most frequently mentioned, although in some cases participants claimed to have purchased the raw materials separately to make blocks in situ during construction, as this was a cheaper option (if they did it themselves).

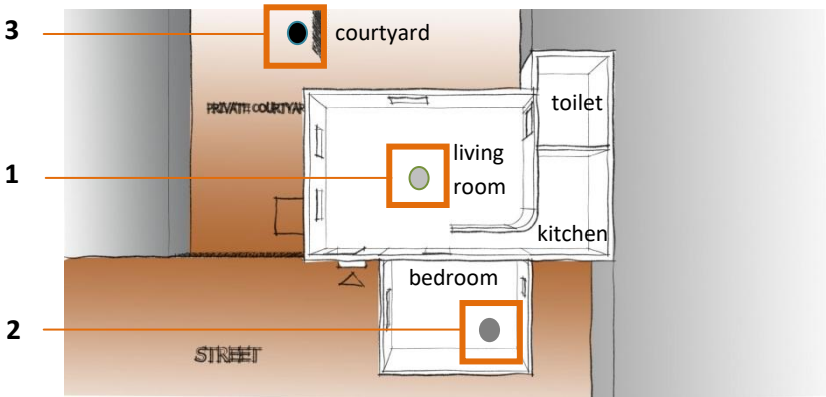
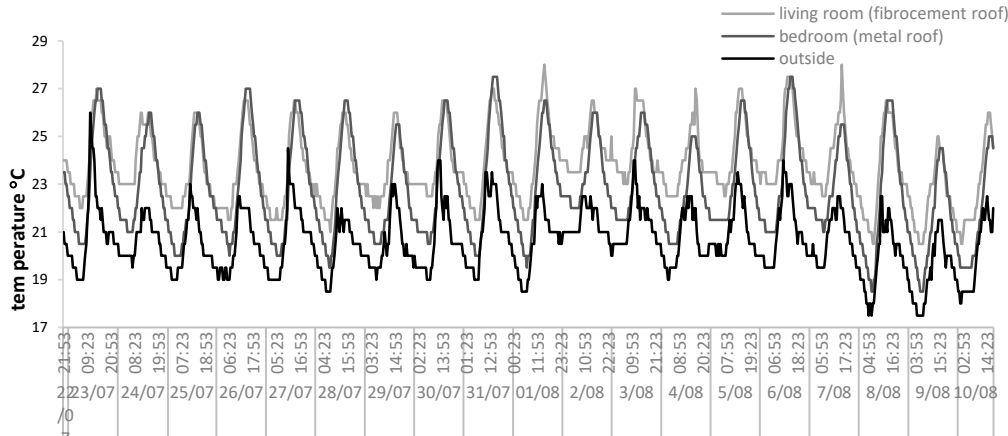
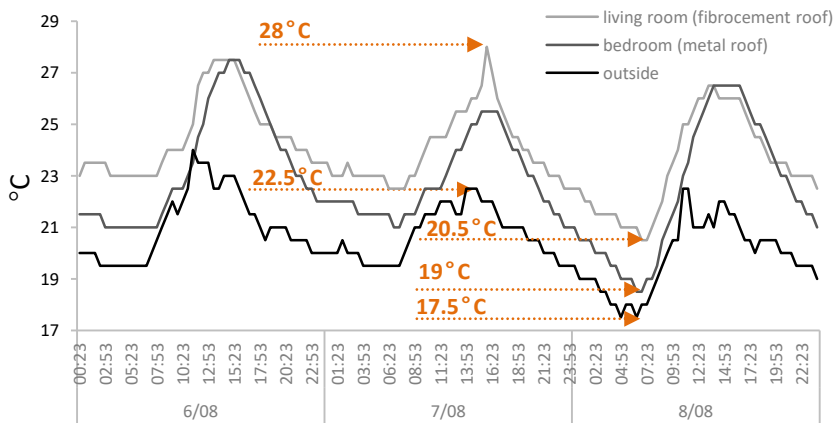
In addition to the above, the following demonstrates that participant's preference towards concrete blocks was often based on perceptions of durability, resistance and adequacy. As far as satisfaction towards building materials is concerned, participants widely agree on the fact that concrete blocks (for walls) and fibrocement or roof tiles (for the roof) are the most suitable material for the construction of their houses. With regards to concrete, such preference is often associated with certain characteristics the participants believe the blocks will provide their houses with, namely durability, longevity, resilience to sea breeze and other elements, water resistance, and aesthetically more attractive. Moreover, they also show an overall satisfaction towards its performance. This is referred by CHIC-11:M, who built his house in 1989 and was amongst the ones who at the time used cement blocks for the walls. One of the reasons that lead him to choose concrete blocks was its perceived durability. According to him concrete blocks can last up to 50 years and consist therefore of the most adequate choice.

With regards to roofing materials, although the most widely used type of roof in bairro Chicala is metal roof sheeting, the preference tends to go towards the material

fibrocement. Metal roofs, according to some of the participants cause discomfort due to overheating and high noise levels when it rains. Moreover, given the location of the bairro by the sea, it is further claimed that zinc is not appropriate to the context, as the sea breeze gradually corrodes metal causing its deterioration. Given the above, improving/upgrading the roof was amongst the most mentioned alterations the participants would like to make to their houses in terms of materials used.

Following claims of overheating due to the use of metal roofs, the thermal performance of one house (CHIC-18:M) was monitored during the course of 20 days (22nd July 2013 to 10th August 2013). Data loggers were placed strategically in two rooms of the house (as indicated in table 7.1) with different roofing materials: in the living room (fibrocement) and the bedroom (metal roof) as well as outside, in order to register external air temperature. Although the investigation on the thermal performance was carried out during the cold season, it still provided an insight into how these spaces responded to temperature variations and could therefore indicate a probable outcome during the warm season (February to April) in which the maximum temperatures can reach above 30 °C during the day and the minimum does not go below 23 °C during the night.

Results indicate that the room with the metal roof tends to be more susceptible to the variations in the external temperature and often has higher temperatures than the living room during the day. Moreover, although the increase in temperature in both spaces seems to happen simultaneously and at the same rate, the thermal delay in the living room is slower and the temperature never drops as low as it does in the bedroom at night, thus keeping that space warmer for a longer period of time during the evening. Even so, in the coldest nights (17.5 °C external temperature) the temperature in the bedroom did not drop below 20 °C, which confirms that the materials perform relatively well during the cold season in Luanda. However, during the day both rooms registered temperatures above that registered outside (sometimes more than four degrees above), thus suggesting a potential overheating problem regardless of the use of either material during the warm season, when the external temperatures go above 30 °C every day and the minimum does not drop below 23 °C. This is illustrated in the PPOA section summary below using a line graph.

TECHNICAL ANALYSIS	OBSERVED	REPORTED	STORIES
 Location of temperature loggers shown in plan - house CHIC-18:M  Thermal performance in dwelling CHIC-18:M (days 22/7-10/8/2013)  Detail - Thermal performance in dwelling CHIC-18:M (days 6-8/8/2013)	• Main construction methodologies consist of concrete block (most common), hollow brick, & timber (less common). • Concrete blocks produced locally, small scale production. No formal control over quality. • External walls often left exposed, internal walls more commonly finished with cement render. • Floors: bare cement (for external patios) or tiled (inside of the houses). • Roofs: prevalence of corrugated iron, often with visible signs of rust. Other materials include fibrocement and very rarely fired terracotta tiles. • Openings: metal used for openings (windows & doors). Although windows mostly had no glass, some cases glass was used. • Construction debris and waste used as building material - floor filling and foundations after stabilisation with concrete • Poor workmanship observed in assembly of building components. • According to thermal analysis (on the left), fibrocement used for roofing may contribute to a warmer house during the night, but during the day seems to perform similarly to metal roofs - potentially also leading to overheating. • Privacy: Physical approach to the house is usually gradual, first through a semi-private area and then the house. The entrance to the house is often hidden from street level view. • High walls enclosing external spaces often combined with metal bars to enclose external private spaces in the house.	Residents: • Preference towards concrete block - Sense of permanence and durability. Depreciative view against traditional building materials such as earth or timber. • Knowledge on how to build with other materials lost. • Preference towards tiled floors, although often claimed not be able to afford - tiled floors mentioned in reference to an ideal house. • Corrugated iron is seen as inadequate for this area as it rusts due to contact with sea breeze. Chosen due to low-cost. However, it causes discomfort (overheats and it's noisy when it rains). • House overheats as a consequence of use of corrugated iron for the roof. Occupants spend time in the covered patio during the warm days. • Willingness to carry out maintenance of building fabric closely associated with ownership. • Houses perceived by occupants as unfinished, continuous construction process. External actors: • Dividing opinions on whether musseques are to be acknowledged as part of Luanda's culture or not. • Informal settlements can be upgraded and meet occupants requirements. • Poor quality of fabric in musseques means they should be cleared out.	CHIC-3:M: In relation to the noise from the roof when it rains: <i>"It is like a bang"</i> CHIC-12:M: When asked if was happy with the house <i>"Not really, (...) this [the house] is not what I want yet. I intend to make some remodelling in the front part and then inside again. There is much that will change here"</i> CHIC-12:M: <i>"The bairro has lost the features it used to have; it is not what it used to be, so I prefer to conserve it [wooden house] for a little longer..."</i> CHIC-12:M: <i>"A person who has today 50 years old, was born here, spent his life fishing (...) what is that person going to live of? It is complicated... Fortunately or unfortunately my parents are not alive to experience this. At least a part of this neighbourhood is threatened. I'm in risk of leaving this place! Where we are going nobody knows..."</i> Story box 1: CHIC-3 (M). Seven occupants (family) First settled in this bairro in 1990, previously lived in Congo where he gained construction experience. Given the high density of the urban fabric it was difficult to find land available to build a house, so at first they rented a house instead. Eventually built his house on artificially created land, cluttering construction debris (transported by truck or by boat) as well as other forms of rubbish and subsequently stabilising this with concrete until a flat surface above water is created. Built his house with the help of his son, a process that he claimed to have completed in less than a week. The materials for the house were selected considering mainly their affordability. If he had more financial means he would have used materials such as tiles from the floor and a different roofing sheet as this one is getting damaged and is too noisy when it rains. He is in the process of expanding further the living space by repeating the same process of creating artificial land behind his current house and build once the ground is stabilized. He is happy with the house but nevertheless states that it is not the ideal house he would like to provide to his wife and children. His dream house would be larger.  FG1(architecture students): <i>"I (...) don't want the musseques to disappear, because there is our root, our culture, our origin. All I want is that the conditions of life in the musseques improve."</i> STK-4 (high ranked government official Institute Planning and Urban Administration of Luanda): <i>"I cannot consider building in such a way as a culture. Why? Because today we got used to other habits assumed by other cultures. We have other cultures in our colective experience"</i>

7.2.2 – Structural stability and construction process

Despite the informal nature of dwellings in bairro Chicala, no major incident or problem attributed to structural failure was observed nor reported by participants during the course of fieldwork. Apart from one (timber) house, which did not exhibit a sound structure and appeared to be in eminent state of collapse (CHIC-1:F) - see table 7.2 - a concern also raised by the occupant, generally the houses appear structurally stable. A perception given despite various signs of mending and repairing, and frequent cracks on walls. The structural strategy was achieved in the majority of cases through a combination of load-bearing concrete block walls, and the addition of other structural elements such as beams and/or lintels and steel bars used in corners as reinforcement. Other cases displayed a more complex structure and incorporated a full frame including columns, beams and lintels. These were generally the houses with more than one floor. Potential structural problems included poor foundations, especially observed on houses built on top of stabilised rubble, as illustrated in PPOA summary section below.

According to participants, structural integrity was not considered a major issue, although some raised concerns in relation to houses built by the water, a consequence of Chicala's contained location and scarcity of land available for further construction. Such concerns were brought up by residents of houses built on piles of debris stabilised by concrete, a common feature in the neighbourhood, given its location by the water. During the SSIs, various participants (CHIC-3:M, CHIC-11:M and CHIC-18:M), demonstrate how plots of houses by the river are being extended through gradual accumulation of a mixture of construction debris (brought in trucks from the city), general waste and concrete. This practice allows these houses to gain access to dry land on top of which they can grow further. An example of a structured built on top of stabilised mix of rubble, waste and concrete is shown in table 7.2.

CHIC-3:M, CHIC-11:M and CHIC-18:M, all have built their houses completely or partially onto a plot created by pouring concrete onto rubble placed into the water, a process referred to as '*entulhar*' (literally translated as piling up). When CHIC-3:M first moved to the neighbourhood in 1990 he lived in a rented house and at the time the plot where his house is now built did not exist:

"Here this was water and where waste was dropped we added rubble and formed a plot to make a house". CHIC-3:M

CHIC-11:M, who followed the same method in order to have access to artificially created dry land, explained that despite gaining land, building on rubble may cause the walls to crack: "here the water underneath tries to erode the houses". However, this did not stop others such as CHIC-18:M from extending his plot and house using the same method. Despite statements of potential structural problems he claims to trust his house from a

structural point of view and only conducts maintenance repairs approximately once every two years.

With regards to the construction process, dwellings in bairro Chicala are erected through informal construction practices and, as per the definition of informal settlements provided by UN-Habitat (1995), do not comply with current planning and building regulations. Instead, it is the owner/occupant - whose role often overlaps with that of (self-help) builder - who leads the process of decision making when it comes to determine what, where and how to build their house. With no control from authorities, the dynamics of built environment production is characterised by a fast pace of construction, perhaps encouraged by wide availability of building materials - either produced within the neighbourhood (Chicala has its own small scale production of concrete blocks), or in formal and informal markets throughout Luanda.

Moreover, usually there are no construction stages clearly defined - a planning stage often takes place in parallel with construction stage. Construction dynamics in the bairro is characterised by an almost continuous state of adding and changing to the houses, a phenomenon validated by both interaction with participants and observation and attributed to increasing in number of occupants or simply to adjust layout. According to participants' accounts construction occurs gradually. The process tends to start with completing one room (where occupants can take shelter and belongings can be kept) and follow with further spaces/rooms which grow according to a combination of needs and availability of financial means. Although the increase of living area is frequently associated with providing more space for the number of occupants, it is not always the case. CHIC-21:M for example, despite living on his own, had a pile of blocks and sand that he was using not to extend his house but rather to modify the current layout, whilst CHIC-5:F hopes to increase the space to accommodate comfortably more visitors. This continuous organic growth is also emphasised by CHIC-14:F, who lives in a household of 13 (family and adopted children). Although she also envisages a dream-house as being large, "on a big plot, a corridor separating the rooms, a veranda where children could play", she adds that she would like this house to be developed over time, much like what already seems to be a relatively common practice in the neighbourhood.

Signs of widespread construction works taking place throughout the neighbourhood were suggested by either active construction works or prevalence of construction materials by the houses (usually concrete blocks and/or raw materials to make concrete blocks, such as sand and cement). In addition to being observed, during fieldwork such fact was later confirmed through SSIs, as participants often referred to their houses as an unfinished product or in need of further building works to improve living conditions, by extending space, modifying layout, repair problems, replace materials for improved performance, and so on.

The continuous construction process as a way to increase living conditions and consequently increase occupant satisfaction was particularly emphasised by two participants who share a similar story of upgrading their house from what was described as a "metal sheet hut" (the first house built upon arriving in the bairro) to the concrete block house in which they live now. To CHIC-10:F this transition from metal sheet to concrete not only reflects on her view of the house but also on what others (neighbours) perceive towards her house in terms of appearance and aesthetics, as for her it constitutes an improvement from the metal sheet house where she used to live before in that same plot. Such changes also denoted a transition from a temporary type of shelter to one of permanent nature, an idea suggested by the use of terms such as "strong", "durable", "permanent", "resistant" when referring to concrete blocks. Moreover, as CHIC-20:M and CHIC-7:F further note the gradual and continuous construction process is associated with the availability of financial means. The latter reminds that her house has not been completed because her husband has deceased and she can no longer raise money to finish the construction.

Table 7.2 - PPOA SUMMARY SECTION: STRUCTURAL STABILITY AND CONSTRUCTION PROCESS

TECHNICAL ASPECTS	OBSERVED	REPORTED	STORIES
House in risk of collapse still inhabited (4 occupants)  Timber house in poor state due to lack of maintenance.	Construction process: • Informal construction, not compliant with building regulations • Building elements (eg. concrete blocks) produced by unskilled labour (no control over ratio of components, nor over quality of finished product) • Self-built houses (owner builder) despite lack of experience • Fast building process taking as little as a week	Residents: • Structural safety not perceived as an issue (no major structural incidents reported or observed) • Self-built processes associated to low cost, quality and safety not a priority • Sense of permanence and structural safety associated to use of concrete block • Depreciative view towards traditional construction materials such as earth - and respective construction methodologies - or timber	CHIC-11:M: "Here this was water and where waste was dropped we added rubble and formed a plot to make a house." CHIC-11:M: "Here the water underneath tries to erode the houses."
Different uses of structural elements  Example of dwelling in Chicala with corner steel reinforcement.	Structure: • Houses often built onto stabilised rubble and waste accumulated over water display signs of poor structural performance • Two or more storey buildings built on unstable ground • General absence of structural elements (mostly external and internal load bearing concrete block walls) • Openings (windows) carved on load-bearing walls may compromise structural stability	• Improvement of quality of life associated to transition to concrete block • Frequency of maintenance closely associated with home ownership • Self-building process usually through gradual construction according to household needs • Lack of knowledge and experience when self-building may lead to poor quality construction and problems • "Dream house" would be built using concrete block or hollow fired brick	Story box 2: CHIC-25 (M), 56. Three occupants (family) +/- 30 tenants Lives with his family (wife and nephew) in part of the ground floor of a 2 storey house. The remaining ground floor and the whole of the first floor is rented to students and families, who tend to rent for a minimum of 6 months. Moreover, behind his house he built extensions which are also rented out to families. There are a total of 30 people living in the space. The rent for the rooms is an average of 100 dollars a month per room. Just before coming to Chicala, Tiago lived on the opposite side of the bay. He sold his house after feeling pressured to do so and used this money to buy a plot of land in Chicala for 700 dollars in 1995. The plot he initially acquired in Chicala was gradually enlarged by means of piling up construction rubble and subsequent stabilisation with concrete. The rubble used was a sub-product from a construction company which at the time was in the process of constructing a public building (museum) in the city centre and using Chicala as a dumping ground for construction waste. Having had some experience as a builder, he built his house with the helped of skilled labour. The main house, which is the only one perceived from the street, appears to be of better standard than the remaining houses in the compound. It has larger internal areas and incorporates structural elements (columns and beams). Although trusting the structural stability of the house, he demonstrates concerns towards the fact that it has been built on ground artificially created on stabilised rubble. This causes cracks on the walls and damages the steel inside the structural elements.
Houses built on stabilised rubble and waste  Example of use of complex structural elements.	• Poor condition of some houses due to lack of maintenance in risk of collapsing • Highly dense urban fabric entails increased risk for structures in case of accident/collapse • Roofing materials not attached properly to walls	External actors: (in relation to informal settlements) • Perceive housing as poor quality • Use of lower quality imported cement because Angola cannot meet current demand • Over densification of urban fabric • Poor quality of construction	<i>"The concern we have here is that we are by the sea. (...) It causes cracks and I don't like it. It is because we did not that much experience building"</i>
 Example of houses built on top of rubble stabilised with concrete.			CHIC-4:M: "It [his house] is reasonable, although still does not match what I would like it to be. And also because it is' a rented house, it is not possible to make much of the investment in someone else's house. Then the owner begins to see what a wonder.... Anyway, so that in future, maybe in a couple of years (...) I will have my own house and will do something better." CHIC-14:M: "We built this house very quickly [2 months] and it is already cracking" "... but when a crack opens we just have to get the cement and put where it cracked, plaster" CHIC-20:M: "First we made a metal sheet one [house], afterwards with time we managed to gather a sum of money, then I ordered blocks and we made it [current house]. Later we were able to create conditions to put doors and windows."

7.2.3 –Infrastructure, services and accessibility

Chicala is located within 20 minute walking distance from the city centre (Mutamba square). Its privileged location means quick and easy physical access to all the services and amenities provided within the city. In relation to this, participants made reference especially to how they benefited from proximity to schools and transport links that serve the centre but also the periphery. Proximity to the city in some cases also means access to more work opportunities, even if sporadic, like CHIC-10:F, who occasionally goes to Mutamba area (in the city centre, 30 minute walk) to work as a cleaner or CHIC-7:F who gets clients from the city to whom she does the laundry. In addition to proximity to services, Chicala's location also conveys a sense of safety that several participants claimed not to be found in other bairros in Luanda.

Within the limits of Chicala the participants also make use of the various small grocery shops and the street market that runs in the main streets crossroad. These sell a variety of products, ranging from general household items to food and even construction materials.

Although the access to Chicala is made through paved roads in overall good condition, upon crossing the bairro's threshold, the state of the road worsens and features absence of pavement and large pot holes. Moreover, due to poor or lack of surface water drainage, the pot holes are frequently filled with open sewage or grey waters coming from the nearby houses. All the above, combined with a highly dense urban fabric and vehicles or other large objects left abandoned on the streets, contributes to difficult vehicle and pedestrian transit within Chicala. In addition to affecting transit generally STK-4, a highly ranked government official in the urban administration department of Luanda, also calls attention to the risks which can potentially arise from a highly dense urban fabric such as the one found in Chicala. This not only makes coming in and out of the bairro a challenge generally, but can prevent an ambulance to get through and thus become an issue.

With regards to electricity and water, Chicala is served by the national power grid, however its provision is intermittent and power cuts are frequent. These can extend for days leaving in the dark those who cannot afford a diesel powered generator. This issue was also raised in relation to the use of appliances and conservation of food which is also affected by the blackouts. The problem of unreliable provision of electricity was not specific to this bairro but rather applies to Luanda generally. As far as water is concerned, with exception of some of the houses integrated in the formal urban fabric and facing the main road (Rua Agostinho Neto) Chicala is not serviced by piped water. Nevertheless, the researcher observed various strategies adopted by the participants in order to collect and store water. These were respectively: a) storing water in a standard 1000L water tank which was refilled depending on consumption. This water was not potable but participants reported using bleach to purify it and potentially make it suitable for human

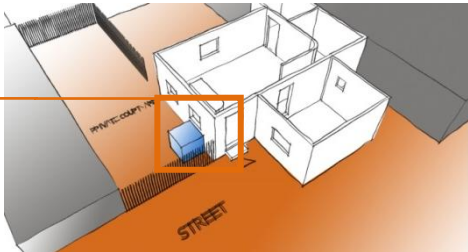
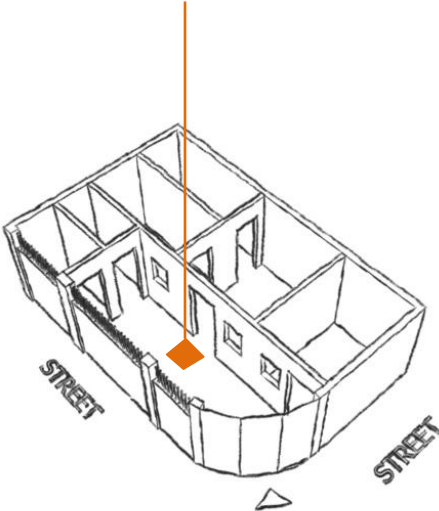
consumption. B) storing water in an underground cistern built usually under the patio floor. Despite the cement walls, the proximity to the bay often entailed contamination either by the sea water, or the waste water (hole on the ground toilets, grey waters). C) Storing water in small containers. With this option it was also a common practice to add a portion of bleach.

The water refill for the largest volume tanks was done through a truck which usually passed by once a week and sold water to residents. The water for the latter option on the other hand was bought and fetched from the houses adjacent to the main road and serviced by piped water.

As far as waste disposal strategy, burning of waste was observed as well as dropping off of waste to the bay. These were then confirmed as the main forms of dealing with waste in the households. No formal waste collection conducted by the local council was observed nor reported.

In line with a view in favour of an upgrading oriented approach for the future of informal settlements, director of local NGO (STK-1) argues that despite the government's will to see the musseques disappear, that does not represent a realistic approach given the large numbers of population currently residing in such areas. In his words: "even with this country's oil wealth they would have enough money to provide housing for the millions of families who are living in substandard housing today". Referring to examples found elsewhere in the world of successful slum upgrading, he expresses a belief that that in the near Luanda's informal settlements may suffer a transformation and become places where people can live in reasonable quality houses. A stance shared by the architecture students who suggest that the quality of life in the musseques can be improved by providing "basic aspects such as sanitation, drinkable water, transport, electricity, pavements, and green spaces" (FG-1).

Table 7.3 - **PPOA SUMMARY SECTION: INFRASTRUCTURE, SERVICES AND ACCESSIBILITY**

TECHNICAL ANALYSIS	OBSERVED	REPORTED	STORIES
 Poor condition of internal roads Water stored in various sizes containers or cisterns (bottom: CHIC-20:M; right:    Chicala (square) adjacent to local taxi route network (city centre circled) Map of (informal) local taxi network (Source: xx, 2011). Orange square indicates Chicala's location	Access: • Good transport links from Chicala to Luanda and periphery • Roads within Chicala in poor condition: no surface water drainage, open sewage, large potholes, big objects left abandoned obstructing the streets Services: • Small commerce (usually front part of a dwelling) within Bairro provide basic household goods and food. Daily local market in main square • Proximity to Luanda's services and amenities - easy accessed by foot or communal taxi Infrastructure: • Unreliable provision of electricity, despite being connected to grid. Frequent blackouts. • Wide use of diesel fuelled generators when power is down (depending on affordability) - noise pollution • Septic tanks in some houses. In others dark waters are going directly to the sea (usually through a hole) • Waste management strategy consists of burning household rubbish and disposal of larger waste to the margins. Some of the latter is used to fill up the margins and increase dry space to be built upon (stabilised with concrete)	Residents: • Privileged location close to city centre's services and opportunities. However, makes houses (including rent) more expensive • People can walk to the city centre and work place thus avoiding Luanda's heavy traffic. • Unreliable electricity provision, not all can afford a generator to replace when there is a power cut. This impacts on people's lives • No access to piped water. It has to be fetched or bought. Water is treated with bleach. • Good connection with local communal taxis network, easy access to other areas within Luanda. • Children go to nearby school nearby and come back walking. • Small shops and grocery stores scattered through the neighbourhood. Local market in central square. Selling food, clothes and other household items • Waste reused as construction materials – mixed with concrete • Appliances often damaged by peaks of electricity supply following blackouts • Not everyone can afford generators. Some stay in the dark when power is down External actors: • Measures to bring sustainability to musseques associated to provision of basic services, connections and security of tenures • Provision of basic services and amenities could contribute to improve slums without having to eradicate them	CHIC-25:M: <i>Here we say that we are in the city. Here we have the port, here is the downtown which is the centre with all the banks. I can walk to the airport or take the taxi, it is easy. I can go in the centre of Luanda which is Mutamba on foot, we are close to everything. If I lived in Viana [20kms away from Luanda] I would be arriving now but would have left 6 hours ago, would have found a traffic jam. Can you imagine abandoning the car and carry on by foot? Here we are well"</i> CHIC-10:F: With regards to displacement <i>"It will depend on the area (...) sometimes there is no school, sometimes there are criminals. I much prefer Chicala... Those distant places, leave from there to work, there are many who lost their jobs because they are not coping. Sometimes they wake up at 5 am, get to the stop [bus or taxi] and there are criminals..."</i> CHIC-18:M: <i>"For many people who have houses 30 or 40km from the city centre it is very difficult to get there on time to work. So, many people come and look for a house here because it is closer. They can even walk to work (...) but that increases the prices of the houses. And also because it is a quieter and safer bairro"</i> CHIC-10:F: <i>"Sometimes I go to work in Mutamba in a house."</i> CHIC-12:M: <i>"What needs improvement in Chicala is access to water"</i> / CHIC-7:F: <i>"What I dislike the most is the lack of water and the fact that the electricity fails a lot as well"</i> / CHIC-4:M: In relation to electricity supply: <i>"It fails very often. It fails more times than we have energy"</i> Story box 3: CHIC-2 (F), 42. 13 occupants (family) Moved from the southern province of Benguela to Luanda in 1982 where she settled in an informal bairro before moving to Chicala in 1993 She is connected to the grid, but the electricity is unreliable. For the time when the power is down they rely on a generator. She has no access to running water and buys it in containers from houses in the neighbourhood closer to the main road, where she has to carry them from. She likes and feels comfortable living in this bairro, partly because her children go to school nearby. However, she feels that she has no say if herself and her family are displaced to another place and will have no choice but to leave their current house and life. She feels that that feeling of helplessness would be attenuated if upon being displaced the children had access to school close as well. <i>"I can't go because I have got children who are studying. There [the place where people are being displaced to] sometimes there are still no schools to study. For that reason I cannot go there because my children study here. They are closer."</i>  FG1 (architecture students): <i>How can we make a more sustainable musseques? Basically we have to provide the basic things, essential (...) We have to give basic sanitation, potable water, transport, light, paved roads and green spaces"</i> STK1(Director local NGO): <i>"...we've seen all over the world that slums can be transformed very simply without eradicating them, By supplying basic services, by providing social amenities like schools and health facilities. And by providing secure of land tenure."</i>

7.3 – PHYSICAL ASSESSMENT: CASE STUDY TWO (ZANGO)

This section reflects the findings resulting from the Physical Assessment of the PPOA carried out in case study two. It looks specifically at three groups of data, respectively: 1) building fabric, adequacy and appropriateness; 2) Structural safety and construction process; and 3) Infrastructure, services and accessibility. Each subsection closes with a table (PPOA subsection summary) which intends to pinpoint the main issues encountered and presents evidence according to its source, overlapping the technical assessment and that reported acquitted through interaction with participants.

7.3.1 - Building fabric, adequacy and appropriateness

As seen in section 6.7, the dominant construction methodology in Zango is concrete block. Other materials also used in the remaining building fabric include fibrocement, corrugated metal or zinc sheets (roofing), and metal (doors and windows). Additionally, ceramic tiles and hollow bricks are occasionally also used - although these are more commonly found in houses built under the assisted self-building programme and not in houses built for resettlement purposes - which mainly incorporate fibrocement or zinc sheets.

Findings from fieldwork in Zango amongst the resettlement project settlers suggest an overall dissatisfaction towards the building fabric of dwellings. This is expressed generally towards the whole house, but especially towards particular building elements or components. In terms of building elements, participants referred to the metal doors and windows as being of low quality, fragile and unable to provide enough safety for the occupants (ZNG-10:FG, ZNG-11:FG, ZNG-2:M). Participants advocate that other materials should be used for windows and doors, since the current solution "during the rainy season (...) end up getting damaged" and "the windows rust and eventually get damaged" (ZNG-10:FG), thus requiring replacement. In addition to the windows and doors, the roofs represented were pointed as another source of dissatisfaction, as these usually let water in, are also too fragile and frequently blown by the wind (ZNG-10:FG), which is why it is common to find rocks or other heavy objects on top of the roofs (a practice similar to what was observed in the informal settlements).

Although the above refers to particular elements within the dwelling, it also highlights the participants' dissatisfaction towards the dwellings' capacity to protect against the elements and extreme climatic events. Depending on the area of Zango where they inhabit, these tend to focus more on impact of flash floods during the rainy season and extreme heat during the dry season. Despite the fact that participants residing in Zango have also mentioned the high temperatures felt in the hot season, as far as the response to climatic context is concerned the factor 'location' alone was considered the main

source of dissatisfaction. This was the case because the houses were perceived as not being able to resist flash floods that affect that location during the rainy season.

Amongst residents of Zango 1, the most frequently mentioned problem and cause of dissatisfaction was the houses located in this area are hit by floods during the rainy season. The participants refer to flooding for example as a "serious problem" (ZNG-4:M), "a big concern" (ZNG-5(M)) or the paramount issue of the area (ZNG-8:F, ZNG-4:M). Moreover this yearly phenomenon also represents a source of distress. This is expressed by ZNG-5:M who claims to live daily with a fear that it might rain heavily as that usually means that floods might damage the contents of the house. The same concern is also evident in ZNG-7:M participation, who says that:

"...the water, what really concerns us here is the water. The water takes our quietness, Many times even when the rainy season approaches we are already with our hearts in our hands (...) Many times, especially people who live in this area, when they are away and see that it will rain soon one will get worried. Sometimes there are children in the house and with all that flood, the children cannot react."
(ZNG-7:M)

To participants this not only entails the permanent damage of the dwellings' contents but also the fact that houses may be inhabitable for the whole period of the flood and subsequent clearing and cleaning out. A fact that also has an impact on the perception of what constitutes a house. For ZNG-5:M for example, he does not consider his as a house during the entirety of the year, as cannot inhabit it permanently. ZNG-8:F and ZNG-6:M also point out the inhabitability during the rainy season, arguing that during that period of time residents often need to vacate their houses and find an alternative accommodation. The marks on the interior walls of ZNG-8:F's house (see in PPOA summary section below) clearly illustrate the levels of previous floods and support her words "When it rains people have to abandon their houses to live somewhere else." A problem also raised by ZNG-6:M who says that "There are areas that flood and force people to leave their houses".

This is not however the case with all the participants from Zango 1, as ZNG-7:M and his family, when questioned whether they would leave their houses during the floods answered:

"We remain here [in the house], we wait two or three days until the water levels from the street comes decreases and then we start removing the water from within the house into the street..." (ZNG-7:M)

As mentioned by ZNG-4:M the floods in Zango 1 are a context specific problem since "Others who ended up in different houses are fine". In line with this, ZNG-7:M - part of a

group of people displaced from Boavista and relocated in Zango in 2001 - states that the flooding problem in Zango 1 occurs because the houses are "in an inadequate location". According to him the authorities ignored warnings from farmers who used to work on that land before project Zango was implemented. In his words:

"...they [the farmers] knew that in the rainy season this area floods. (...) And when this project was brought here they explained the engineers that this area is low and when it rains it accumulates a great amount of water and the engineers did not want to obey..." ZNG-7:M

In addition to the inadequate location, ZNG-5:M advocates that "In technical terms it [the project] was not well designed" as he believes that it is possible that the land was not properly levelled and is directing flood water toward their houses when it rains.

In terms of interventions carried out as a consequence of the floods, in addition to the piles of sand abovementioned, perhaps the most noticeable interventions are the ones that take place at the dwelling level. These are usually in the form of permanent elements (concrete blocks) added to the house and usually strategically placed on the different accesses to the house, either on the outside wall and the front and/or back door (see table 7.4). As mentioned by ZNG-1:F "... you have got to make that barrier otherwise the water comes in and destroys everything". However, according to ZNG-12:M although such measures may temporarily solve the problem to some of the houses, there are other areas within Zango 1 where the floods are so severe that not even temporary or permanent blocking measures are effective.

"These houses on the side of the road, people can still manage. What is the solution? They pile up blocks in the gates, raise the level... I mean, the cars can no longer get in, and people have to make some gymnastics (...) But the houses further to the back, there is no chance. There are houses there where water reaches half [the height of the house]. So there, only this year they were able to get the people out of there. These people live there for more than 5 years since they were relocated and live under such conditions. When it rains they had to abandon their houses" ZNG-12:M

With regards to the preventive measures to keep flood water away ZNG-1:F further states that these elements alone so not seem to be sufficient to prevent flood water from coming into the house and cause damage "Sometimes water came in and destroyed everything, I had to buy everything again...". A fact that ZNG-4:M and ZNG-8:F also make mention to. ZNG-4:M further raises the problem from an economical perspective and argues that damaging furniture yearly entails buying new one to replace the damaged furniture "People cannot put together all that money to buy all the furniture. We will pay

again". To which he adds the lack of financial or other form of support to attenuate damages caused by floods.

"No, it is all at our expense, we have no support. The furniture got all damaged and we have no support. The administrator of Viana came round, looked and said he wanted to provide support, but up until today it has not done so. It's us the residents who make our sacrifice". ZNG-4:M

Moreover, findings revealed that satisfaction towards the houses' indoor thermal environment generally differ amongst participants living in houses provided as part of the resettlement project and those who built their houses (assisted self-building). Nevertheless, in either case, participants mostly show concern towards keeping the house comfortable during the hot season, as it can cause overheating. Measures to increase satisfaction and achieve indoor comfort also differ depending on whether they had any control over the construction process.

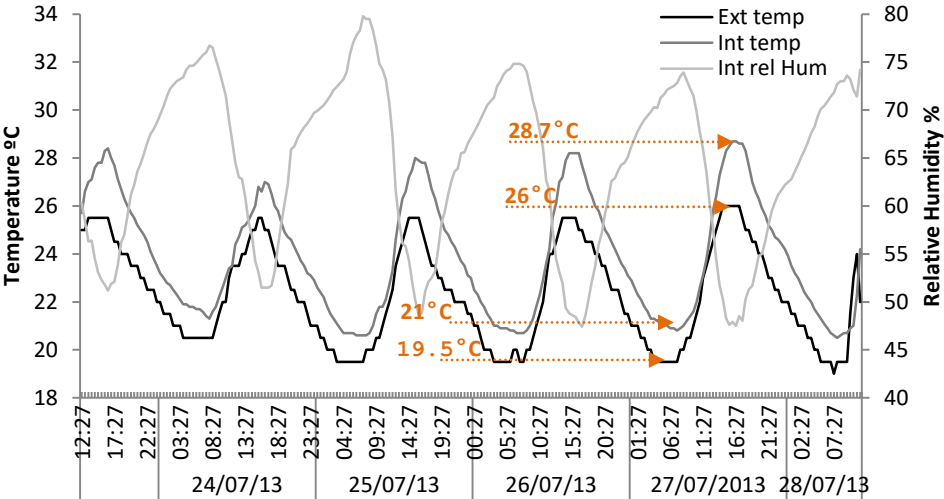
As far as houses in the houses in the resettlement project are concerned, and given that occupants were provided with the house as a finished product, certain aspects of its design and configuration tend to be associated with overheating felt during the hot season. For example, the ceiling height of the base house was often pointed out as a cause of high temperatures and discomfort felt inside the house. As a response to this, participants therefore suggest that raising the ceiling height would prevent the house from overheating. Raising the overall height of the house is pointed as a common practice amongst Zango residents as a corrective measure in order to achieve comfort. A measure that, as it was observed and confirmed by participants in the men's focus group has already been carried out by some of the neighbours who can afford it. Measures to increase thermal comfort range from opening and closing of windows as needed, to more elaborate strategies such as installation of air conditioning units, selection of building materials or alterations to the current layout (raise ceiling height, increase window opening).

Unlike the above where measures to achieve comfort can only be applied in a post-construction stage, participants living in self-built houses were able to implement measures to avoid overheating prior to construction. These strategies were mostly at the level of building material choice and incorporation of architectural elements for that purpose. However, in addition to pre-construction measures, several air conditioning units were observed and participants have reported making use of those during the hot season. For this reason in this case, although the excessive heat during the hot season was mentioned it was not raised as a cause for discomfort. ZNG-12:M, who built his house under the assisted self-building programme, points at a connection between building materials and architectural elements to thermal performance. He states that using only

metal sheet for the roof would not be enough to maintain a comfortable indoor temperature, hence he chose to have a false ceiling to create a buffer area under the roof. In addition to that he also mentions he chose to have large windows instead of the smaller ones seen in the standard base house for cross ventilation. The same feature is observed in ZNG-13:F house, who also claims to be using a false ceiling to prevent the house from overheating.

With regards to access to building materials, these were found to be widely available in shops and speciality markets throughout Zango as well as in other parts of Luanda. Participants claimed that are sold at a reasonable price (one cement block can range from 60 to 100Kz and may include transport in this price). However, similarly to what was mentioned earlier, participants express concern towards the quality of imported materials, namely the cement brought from China, which despite being cheaper is often associated with perceptions of inferior quality when compared to local Angolan cement.

Table 7.4 - PPOA SUMMARY SECTION: BUILDING FABRIC, ADEQUACY AND APPROPRIATENESS

TECHNICAL ASPECTS	OBSERVED	REPORTED	STORIES
 Graph 7.3 - Thermal performance and relative humidity readings in dwelling ZNG-3 (23/7-28/7/2013)  Measures to stop flood water to enter the houses and flood levels visible on internal walls. Top ZNG-3:F, bottom ZNG-8:F 	• Overall scheme based on repetition of similar housing type of housing throughout Zango (mass housing). • Main construction methodology: concrete block. Rare cases of hollow fired brick observed. • Frequent presence of extensions and addition of other architectural elements to the base house. • Visible difference between quality of workmanship in base house (better) and extensions (poor). • Common absence of finishes in external walls (concrete blocks covered with layer of pain), particularly in resettlement project. Cement render and paint in some cases. • Local availability of construction materials in small or large scale warehouses/shops. • Floors: exposed cement (inside and/or external patios) or tiled (inside of the houses); Openings: Metal used on windows and doors. Windows mostly with no glass. • Roofs: Prevalence of fibrocement, fragile connections to walls - reinforced with heavy objects on top. Rare use of fired terracotta tiles. • Unclear physical limit between public (street) and private space of the (standard base) plot/house. However, high walls enclosing the external space were observed as additions to the house.	• Resettlement project: no input on choice of building materials or housing leads to dissatisfaction towards certain elements of building fabric (overall impact on satisfaction and comfort.) • Inability to effectively protect against elements and extreme climatic events such as heavy rain and flash floods. Housing contents destroyed as a consequence. • Alterations made to houses to prevent that often make house less accessible (raised entrance, raised walls) • Inappropriateness of material used for doors and windows - are easily damaged due to contact with heat and rain. • Fragility of roofs. Often require heavy objects on top to avoid being lifted by strong winds. • Reports of overheating in association with materials (absence of false ceiling) and ceiling height (perceived as too low). Reported in resettlement project. • Air conditioning units used as a corrective measure to control indoor climate (both resettlement and self-built). • Pre-construction measures to increase occupant satisfaction include modifications to the original plan and structure of standard base house - wider windows and the use of false ceilings. • Temporary housing overheats due to use of metal sheets as building envelope. During the day occupants feel "like an oven".	Story box 4: ZNG-7(M) 41. 12 occupants (family) Displaced from bairro Boavista into Zango in 2001 where he lived in a tent with his family before being given a house in 2003. Has been gradually modifying the standard base house to gain space and improve the house. These include plastering and painting walls, enclosing the plot with wall and gate and building extensions in the back of the house (to rent out) and two external toilets. Some of the physical changes/adaptations made to the house are also a preventive measure against floods, and he plans to develop this further in the future in order to stop flood water from coming in and damage the contents of the house, for example raise the floor of the house to be above the flood level.  Floods in this area during are a constant phenomenon during the rainy season, damaging furniture and housing contents on a yearly basis. He believes that this problem was not considered when planning the location of Zango1 - although the previous users of that land (farmers) called attention to this fact - and that they live in an inadequate area. Himself and his family are left with a feeling of hopelessness in regards to solving this situation, also there is no support from authorities to address this situation. <i>"We regret that the area is inappropriate to have houses. (...) The materials are the same that they are using everywhere, right? In the other houses it doesn't go inside [flood water], to us it only floods because we are really in a bad location, in an appropriate place"</i> ZNG-3:F: <i>"At times the water came inside and ruined everything. I had to buy everything again"</i> ZNG-4:M: <i>"This is a serious problem, all houses are flooded. One does not know how to get out to buy bread... Going to work is very difficult"</i> ZNG-3:F: <i>"You have to make that barrier, otherwise the rain comes in and ruins everything"</i> ZNG-5:M: <i>"It was necessary to start building, because we were told it was best to build to keep the water out. The water still gets in, but it is more difficult (...) But last March we had a surprise. The rain was heavier and some houses had water up to the ceiling level..."</i> ZNG-7:M: <i>"What happens is that we have to block the entrances so the water doesn't get inside the house"</i> ZNG-10:FG: <i>"During the rainy season the windows and doors end up getting damaged."</i> ZNG-13:F: <i>In relation to false ceiling: "It makes a difference because it heats up less"</i> ZNG-7:M: <i>In relation to the floor to ceiling height of the house: "It gets very hot because the house is too low."</i> ZNG-5:M: <i>"...We would raise it more. These ones are too low and when the sun faces it it is complicated to be inside"</i>

7.3.2 – Structural stability and construction process

Findings from fieldwork suggest that views on structural integrity in Zango vary depending on whether participants inhabit houses built as part of the resettlement project or in those built under the self-building programme. With regards to the former, findings on occupant satisfaction towards structural integrity of Zango's dwellings tend to focus on the absence of basic structural elements. This refers to foundations, columns/pillars and beams which, as observed throughout Zango and pointed by participants, have not been incorporated in the building fabric. Instead of foundations, as explained by ZG-12:M, the houses are built over a layer of concrete poured over the footprint of the house, above which load-bearing blocks walls are then raised. Moreover, in addition to stating that a 15cm concrete slab does not make a "decent" foundation, when referring to his house ZNG-6:M further explains that "it does not have a beam, it does not have foundations". Such construction methodology in which no structure is used is in fact pointed by another participant ZNG-5:M as one of the major problem of his house.

This fact is thus generally perceived by the residents as having a negative impact on the overall structural integrity of houses and also as a limiting factor for potential future expansion upwards as supporting an extra floor on load-bearing walls alone is considered unsafe. Additionally, the absence of structural elements is associated with fragility, as participants suggest that cracks on the walls are frequently the consequence of road works taking place near the houses in which heavy vibration roller compacters are used. With regards to this, ZNG-12:M explains that the houses were built before roads were finished and when heavy machinery started to be used in order to compact the soil, the walls gave in due to absence of a solid structure to hold them together: "Then the roads came, they came afterwards (...) All houses in an approximate 300 metre radius all have cracks because of the cylinders. And this does not have foundations."

Although the remarks above mostly refer to the base standard house delivered as part of the resettlement project, the lack of structural elements is also a common feature of extensions later added to it by the residents, as exemplified in the in the PPOA summary section below. However, this is generally not the case with self-built houses, which despite following the standard template of house, do tend to incorporate structural elements. In such cases, the owner/builder has control over the construction process and therefore ultimately makes decisions regarding the building fabric, including whether or not to incorporate structural elements. ZNG-13:F's house for example - one of the 685 thousand covered by the "assisted self-building" initiative under the NHUP - was built under the supervision of her husband who had previous experience in construction and made use of local labour ("Here you can find everything, locksmiths, masons, carpenters, electricians" ZNG-13:F). The structure initially anticipated a first floor, which was never built due to the husband's death and consequent interruption of income used to fund the construction. As

a result, and with the perception of a structurally sound house, for this participant the structural integrity of the house is neither a problem nor a source of concern.

The issue of structural quality of dwellings in Zango was also raised by stakeholders interviewed in the course of this research. With regards to the latter kind of housing for example, despite encouraging initiatives to promote self-building processes, a local architect and lecturer in Construction in a local university (STK-10), emphasises that a sound structure is also dependent on the adequate set of knowledge and skills. To which he adds that although the structure is indeed included in most of these houses it does not mean that it is always correctly dimensioned for the building in question, which can potentially lead to waste of raw materials and/or structural problems. Perhaps in order to avoid such problems, according to government officials (Ministry of Urbanism and Construction (STK-9) and National Institute of Housing (STK-3)) interviewed, in addition to provide plots of land with infrastructure, the "assisted self-building" programme aims to provide support to owners/builders during construction process. This according to the government official in the National Housing Institute includes for example "technical assistance" given by professionals with technical knowledge in the field of construction, but also pre-designed projects of housing typologies owners can use "in order to facilitate the life of those who may not have the resources to approach an architecture or engineer practices" (STK-3).

Nevertheless, and despite the technical assistance aforementioned, findings from fieldwork suggest a general unawareness amongst participants with regards to implementation of such support measures in Zango. Although in theory the construction process of these houses would be oriented, ZNG-5:M for example is not aware of help from the government to carry out improvements in the house. In relation to this one of the self-builders stated "No, that's on paper because in reality it's not like that. You have got to manage absolutely everything" (ZNG-12:M). In his case the lack of assistance combined with a poor understanding of what was involved in the construction process, which included for example use of lower quality building materials. The claims below further support this stance:

"At least here in Zango I can assure you that in the assisted self-building programme there is no assistance" ZNG-12:M

"No, I did everything myself. The government practically sends inspectors to monitor the construction work. (...) The government only touches on the relocation houses, from the people brought from the city, it has nothing to do with the self-building." ZNG-14:F

Instead of using support from authorities he states that it is common for self-builders to get help from technicians working for local construction companies, including the design of plans for the house. In the case of ZNG-13:F who bought two plots and is building an

extended version of the typical Zango house along the two plots, had the help of the nephew who is an architect to design the plan.

The images in the PPOA summary table 7.5, taken in various locations of Zango, illustrate the above and capture the absence of structural elements in the base house in different stage of construction. In contrast it also shows structural elements integrated in dwellings built as part of the assisted self-building programme.

Zango's urban fabric has been developing over time. A journey towards Southwest through the main road (*Estrada do Zango*) displays the various stages of Zango project's development, from Zango 1 (dating back to the early 2000s) to the more recent and ever growing Zango 5. This journey also provides a visual narrative of how occupancy through time has contributed towards a progressive transformation of built environment. This is visible for instance in changes made to the appearance the base house and external area of plot. Although these interventions can be generally found throughout Zango (1 to 4, as the houses visited in Zango 5 were not occupied at the time of fieldwork), they are more predominant in the earlier areas (1 and 2) and less in the most recent, thus suggesting a relation between time and the intensity of occupant intervention. The figures below intend to illustrate that relationship and constitute an example of how architectural space in Zango is appropriated and tailored by the residents in order to meet occupants' needs and, according to participants, increase satisfaction towards the house. Furthermore, as can be observed in the pictures, the changes that occur as a consequence of occupant's intervention not only have an impact on the general appearance of the house as a unit but they also contribute to shaping the overall fabric of the of the neighbourhood, as seen from the aerial images (figures 7.4 and 7.6).

The frequent presence of construction materials (mostly concrete blocks and sand) observed by the houses throughout Zango reinforces the perception of a culture of continuous appropriation/adaptation of space and consequent gradual transformation of Zango's urban fabric. One which according to participants in Zango is taking place both formally and informally. In fact, information collected during fieldwork suggested that following the occupancy of houses, a shift towards informality in what concerns construction practices in Zango occurs in a manner resembling practices in the informal settlements - with the difference that in Zango these are restricted to a limited plot. Moreover, it is often the case that modifications/alterations/additions to which the residents requested authorisation and others made without informing local authorities often coexist in the same house.



Fig. 7.1 - Example of house in Zango 1 (from participant ZNG-1:F). Example of occupant intervention. Extension built behind the house (extra bedroom and kitchen), addition of trees and greenery. Photo by Célia Macedo, 2011



Fig. 7.2 - Aerial view of part of urban fabric in Zango 1. Visible signs of residents intervention include planting trees and greenery as well as addition of living area through the construction of extensions. Construction dates to 2001. Red circle marks house pictured in photo above, red dotted line represents *Estrada do Zango* (Zango Road). Image source Google Maps.



Fig. 7.3 - Example of house in Zango 4. typical occupant intervention to increase living area. Ongoing construction of an extension to increase area of the house. Photo by Célia Macedo, 2013



Fig. 7.4 - Aerial view of urban fabric in Zango 4. As it was build more recently, the urban fabric is still mostly untouched and close to the original. Note the absence of trees and other vegetation. Red dotted line represents Estrada do Zango. Credit: Google Maps, 2016

It is not clear amongst the majority of participants whether presently there is a legal procedure in place to follow before undertaking any construction works, nor if there are restrictions to the nature of such interventions. Moreover, participants do not seem be aware if any process of alteration to the original house is meant to be supervised or monitored by the local authorities. ZNG-14:F however is an exception. She described a quick and efficient system consisting of a request for a permission accompanied by a fee before construction takes place (providing as an example the construction of an extension), which according to her does not require the submission of technical drawings, but rather relies on description of the nature of construction work. Nevertheless, it transpires from fieldwork that the practice described by ZNG-14:F is no longer as strictly applied as in the early stages after moving into Zango, and therefore the process of altering the original houses has been made easier over time. In relation to this ZNG-6:M states:

"When we arrived the supervision acted, one could not raise a wall without documents, if the one metre septic tank did not comply, one had to enlarge it and there was a need for more documents." ZNG-6:M

With or without planning applications, the changes being made to the base house are noticeable. ZNG-4:M for example uses the tool timeline (please see Chapter Five for description) to describe interventions and construction works carried out in his house since his family first moved to Zango, and also detailed planned future building works. As seen in figure 7.6, 7.7 and 7.8 below, after moving from a temporary shelter to the house provided as part of the resettlement, he first plastered and painted the inside of the house (shown as 1), made concrete blocks to build a wall that would close up the perimeter of the plot (shown as 2) in 2005, 2006 it was time to increase the living area which was achieved by building an extension split into two separate areas - each consisting of a bedroom and a living room - in the back of the house (shown as 3). This was further complemented in 2013 with the construction of two bathrooms outside (shown as 4).

Despite having increased the living area of his house, this was not done with the purpose of own use, but rather as an investment as he rented out the space. ZNG-4:M adds that that further work will include plastering the external walls and raise the floor height of the house so that the floods do not damage the contents of the house anymore. He plans to do so by stabilizing piles of rubble with concrete.

Another participant, ZNG-7:M describes a similar process. Like ZNG-4:M above, he moved to Zango's permanent house in 2003, after living for two years in provisional shelter (tents). In his case the building works were initiated in 2010 and also prioritised the interior which was bare of finishes. Changes included tiling the floor and modifications to the layout of the house. In ZNG-7:M's words:

"I altered the house. It was a 3 bedroom house, I altered 2 bedrooms and also altered the kitchen because I had to take the bathroom which was inside to outside." ZNG-7:M

Approximately one year later he built an extension. In addition to construction works he also planted various trees in his plot (lemon and mango trees). The planting of trees to make the space more pleasant was also mentioned in the women's focus group ZNG-10:FG, who in addition to that amongst them stated to have painted the houses, laid tiles on the floor, installed false ceilings, etc. The absence of finishes in the houses upon delivery will be referred to in Chapter Eight, section 8.3.1, in relation to occupant satisfaction towards aesthetics aspects of their house.

Similarly to what was observed in Bairro Chicala, during the SSIs and focus groups none of the participants referred to their house as a finished product. Instead, reference was frequently made to on-going construction works or plans for future interventions in the house. From those, adding finishes to bear walls and floors as well as increasing the living area by building extensions are the most commonly mentioned changes made to the original house. Both directly associated with various complaints regarding the dissatisfaction towards the conditions, layout and area of the base house, issues which shall be touched upon again further ahead.

The above suggests a pattern of gradual and continuous intervention that follows the occupancy of the original dwelling, one which according to participants is highly dependent on income and thus directly associated to the availability of financial means. A process that assisted self-building resident ZNG-12:M summarises as follows:

"we are doing construction works slowly. Normally the majority of people do the same, they do the works gradually (...) put together some money "now we will make this" until they finish." ZNG-12:M

This is brought up by self-builders and residents of the resettlement project alike. One of the participants in the women's focus group (ZNG-10:FG) who was relocated from the

informal settlement Boavista explains why she has not built an extension to her house so far:

"I have not built extensions yet because I cannot afford (...) My dream is really to build the extensions (...) but for now I cannot." ZNG-10:FG

ZNG-8:F raises a similar problem, she claims not be able to raise the height of the house nor apply cement plaster because she has no income from work. In relation to this ZNG-12:M reminds that such uncertainty or a sudden change in economic situation, mean that it is difficult to predict a construction schedule, as it he experienced in his household. Although the construction of his house was initiated when both himself and his wife had a stable work situation, due to health reasons he lost his job. With the household depending on the wife's income and the occasional work he manages to find, construction work now weighs heavily on the family budget. In ZNG-12:M's words "She works and I make a business here and there (...) at the moment it is not possible to programme". Hence, although building work was not brought to a halt he states that it is much slower than before.



Fig. 7.5 – ZNG-4:M drawing a timeline illustrating the construction works in his house. Full details below.

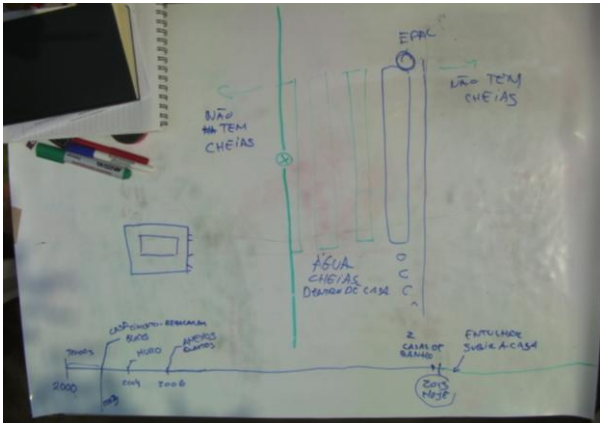


Fig. 7.6 - ZNG-4:M detailed timeline as produced by participant.

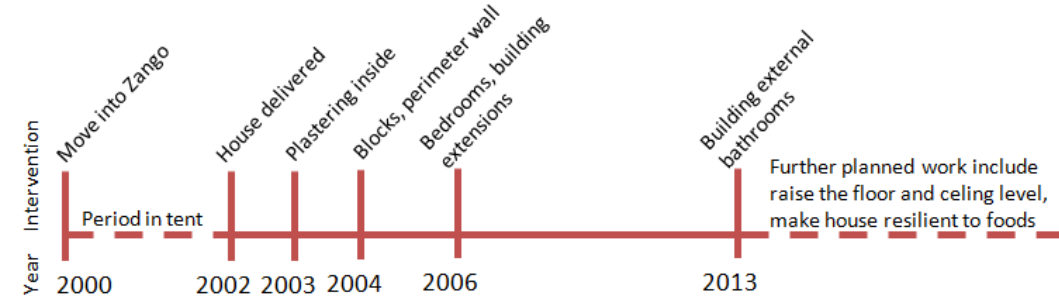


Fig. 7.7 - ZNG-4:M detailed timeline (transcribed).

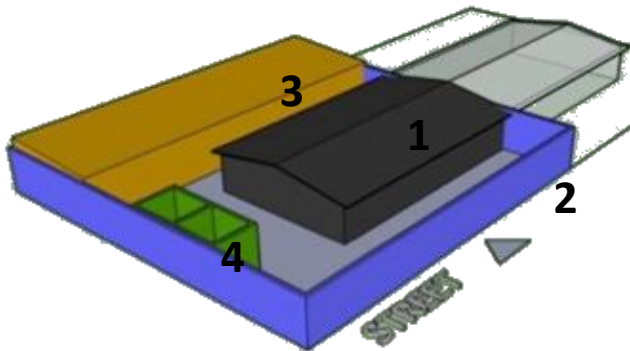


Fig. 7.8 - ZNG-4:M – Different stages of construction described in timeline above.

- Key:
- 1: 2003 - Base house, Finishes and layout
 - 2: 2004 - Wall enclosing plot
 - 3: 2006 - Extension with 2 rooms and 2 living rooms (for renting out)
 - 4: 2013 - 2 external toilets

Table 7.5 - PPOA SUMMARY SECTION: STRUCTURAL SAFETY AND CONSTRUCTION PROCESS

TECHNICAL ASPECTS	OBSERVED	REPORTED	STORIES
 Typical concrete slab of base house  Load bearing concrete block walls. Absence of structural elements.  Example of self-built house which incorporates structural elements.  Example of extension built by residents. Load bearing wall and poor assembly of building elements.	Structure: • Overall (base standard) dwelling structural strategy based on load bearing concrete block walls, erected onto an approximate 20cm height concrete slab. Absence of basic structural elements (foundations, pillars or lintels). • Extensions: usually load bearing concrete block walls • Cracks and fissures on external and internal walls denote potential signs of structural stability affected. • Lack of basic structural elements may compromise the structural stability of house when extending the house upwards. • Self-built houses, although following a similar design to the resettlement project, often incorporate structural elements. • Prevalence of one storey dwellings with a small minority of two storeys. • Roofing materials not attached properly to walls CONSTRUCTION PROCESS: • Formal/planned nature of space (applicable to dwelling but also urban context). • Houses delivered as a finished product (resettlement) and often added to by occupants. • Presence of completed extensions built within the plot and ongoing construction works suggests a gradual construction process.	Residents: • Dissatisfaction towards absence of foundations and structure in standard base house. • Poor communication between owner and builders during construction, leading to choice of poor quality building materials (do not always match owner specifications) and potential impact on structural quality of the house. • Self-built extensions often build with no formal background or experience on construction. • For self-builders, erecting a house quickly after buying the plot is a priority over quality. • Participants were generally unaware of government's intentions of providing technical assistance to self-builders. • Correlation between time of occupation and intensity of intervention/addition of extensions and other elements to the house. • Construction works post-occupancy not regulated by authorities. Lack of awareness of a legal framework in place to monitor building up of extensions. • House referred to as unfinished Phased construction dependent on economic conditions. External actors: • Built environment professionals question the structural quality of these houses as well as the sustainability of this model in the long term. • Government officials claim technical assistance is available to orient self-builders.	ZNG-12:M: In relation to quality of materials: <i>"I had problems because I had no knowledge of construction; I was working and had no time to follow the construction. (...) when one begins to understand it's already too late because the house is already up. The brick I asked to be bought in the factory and they bought from the street..."</i> ZNG-12:M: <i>"At least here in Zango I can assure you that in the assisted self-building programme there is no assistance"</i> ZNG-6:M: <i>"[the house] is on top of a 15cm slab.(...) The building needs foundation, it does not have beams, it does not have foundations."</i> ZNG-5:M: <i>"If we had a possibility to change the house we would. To put pillars in the corners, make good foundations, because this one only has a cement slab."</i> ZNG-12:M: <i>"Here we have the possibility, the dream of being able to structure a home. And even if this is not the house of my dreams, it is the first house! We have the possibility of structuring even without technical knowledge, following a vision..."</i> Box story 5: ZNG-15(F), 56. Six occupants (family) Displaced to Zango in 2010 after a fire in Bairro S. Paulo burnt a large number of houses including her own. Was given an "incremental house" by the government in Zango 4 which consisted of one bedroom, plus a small room used for storage,, one kitchen and one bathroom. The residents are meant to add to these rooms themselves but they do not have financial means to do so and currently have the whole family living in this space. The children sleep in the cupboard. As they do not have a stable source of income (she sells homemade pastries in front of the house) it is likely the house will not be extended soon. It is however already showing signs of structural damage as there are large cracks on the walls.  <i>"If you have money you can finish [the house] yourself, if you do not it will stay like this..."</i> STK-10 (professor constructions, local university): <i>"This is not a new model. It is not thought as sustainable, it would be a model more suitable to a refugee camp as it has no structure. Anybody who thinks of a structure in concrete block with no structure is actually thinking that it will not last a long time. (...) So, from that point of view, nobody has thought about the sustainability of the model. (...) Do not include in the law that this model can be altered if there it has no structure"</i> STK-10 (professor constructions, local university): <i>"This house built in Zango has no foundations. In the house they build for social housing, they make a thin concrete base and build on top (...) So social house is built and it is already cracked? Once we visited one where we could see through a crack on the wall between the living room and the bedroom. Of course it will react like this if it has no foundations. It is very sad that this is given as a solution when their previous house had better conditions."</i>

7.3.3 –Infrastructure, services and accessibility

Provision of electricity and water

In addition to land tenure (and house ownership), the availability of electricity and water supply provided as part of a network of infrastructure in Zango was raised as an improvement comparing to previous conditions experienced elsewhere.

As far as water is concerned, in this case study area, houses are by default connected to the mains, which upon a contract celebrated with EPAL (*Empresa de Águas Públicas de Luanda, Public Water Corporation of Luanda*), are supplied with potable water. The availability of treated potable water in itself constitutes a considerable change comparing to practices observed in case study one, in which people relied on addition of bleach or purchase of bottled water for consumption. Also perhaps as a result, the compact layout of the standard base house in Zango contemplates spaces inside that were usually found externally to the houses where piped water was absent, especially kitchen and toilets. In theory, eliminating the need to transport and store large containers of water next to the toilet to be used as flush allows for the incorporation of these spaces inside the house without having to take much living area. For ZNG-13:F for example, who previously lived in a multi-storey building in Luanda's centre, having piped water means not having to carry (or paying someone to do it for her) large and heavy water containers up three storeys of stairs or having to pay someone to do it for her.

"Going up three floors... there was a lot of water shortage. (...) You had to pay the man downstairs 300 KZ [to carry the water]. It was being difficult for me" (ZNG-13:F)

However, as it was mentioned earlier, it is common to find (self-built) extensions to the base standard house throughout Zango. In some cases it was observed that these rather than internal piped water serviced areas have dedicated areas outside for shower and cooking (ZNG-4:M). It is also likely that the noticeable thriving of greenery inside the private patios and gardens may also be a consequence of having what is basically a continuous provision of water.

In some cases however, upon being asked to prioritise the main problems in the neighbourhood, participants promptly pointed issues associated with faulty or lack of water supply and consequent disruption caused in their lives. This was the case with ZNG-15:F, who lives in one of the "unfinished" incremental houses in Zango 4 and described similar practices and patterns found in informal settlements whereby water is collected from other houses that had fully functioning water supply.

"The government brought us here, gave us this. Some only received the houses, some remain in the same house living with three or four people. They are still waiting and do not know when the government is going to solve this problem and

will give us conditions regarding the water. Health depends on water, without water it is difficult..." (ZNG-15:F)

Moreover, according to her, and her husband, the water collection was usually done at dawn (around 4 or 5am) hence incurring safety issues as people reported being attacked during water collection tasks.

"(Husband) For water we improvise and buy there in the taps (...) Buying in the tanks, wake up at three am. (...) if you have no money you have to carry it [the water]. (...) Wake up at four am to carry water to finish at six or seven am. In the first days that people moved in here the water was coming out of the pipes, but after three or six months, since October last year until today we have no water. Water is bought from the tanks and sometimes in the "half-houses" in front, the water comes out only in some three houses. You have to wake up at three or four 4am. (...) (Husband) And to wake up at 4am is to risk one's life, there is a lot of crime here." ZNG-15:F,

Other participants also referred to the faulty water supply, despite having done numerous complaints to authorities. Adaptation strategies mainly rely on keeping large water tanks in the plot. This practice is actually also adopted even by some participants (ZNG-6:M and ZNG-13:F) who despite having no problems with mains water supply are aware of supply problems in Zango and are looking to avoid running out of water, thus using a mixed method.

"The problem here is really the energy. With the water, we are here in a private area, I made my own piping, went to the EPAL, signed a contract and they connected the water. The neighbours do not have it. (...) We are however fighting for electric power, I am here and I only want the energy to improve, just that. With regards to water, I have got a 1200 litre tank, so if the water fails I have no problem." ZNG-13:F

The above also touches upon another problem raised by residents: the unreliable provision of electricity, despite the area being connected to the grid. Similarly to what happens throughout Luanda, the electricity is not constant and it is given by sectors in different days (usually every other day). Much like what is taking place with access to water, this entails the use of mixed methods (grid + diesel generator) to have access to power and guarantee a continuous supply, which as ZNG-12:M points out is fundamental to be able to conserve frozen food:

"Here some people say they have two generators, they turn one on until 6pm and the other one from 6pm to 8am. It is complicated to conserve frozen produce..." ZNG-12:M

Infrastructure - Road access and transports

The road and transport aspects in Zango were addressed mainly from two perspectives: the access to and from Zango (mainly for work purposes) and the access within Zango (short distance trips to shops, supermarkets, family weekends, etc). The access from Luanda is guaranteed through a motorway that links the city directly to the entrance of Zango. This then becomes Zango's main road - Estrada do Zango. The latter intercalates between single lane and sections with two lanes. In 2013 at the time of the fieldwork, traffic was conditioned in various sections of the main road due to road works, either to enlarge the paved area or to incorporate rain water drainage measures under the road. This would often affect the normal flow of traffic.

The built area of Zango is visible along either side of Estrada do Zango. Moreover, the access within Zango is made through secondary and tertiary unpaved roads. These are not always kept in good condition and often show signs of damage and decay such as pot holes and bumps. Moreover it is also common to find streets partially blocked with piles of building materials (sand or blocks). Secondary roads are roughly 5 metres wide and mostly organised according to an orthogonal grid. The same grid that limits the plots of land. A layout that according to the men's focus group (ZNG-11:FG) is a positive aspect of Zango. They consider that the orthogonal streets are beneficial for example for safety reasons. As they explain, a burglar can be seen from the end of a street, unlike what would take place in the neighbourhoods' labyrinth like streets, a feature of informal neighbourhoods in Luanda.

With regards to the roads adjacent to the houses ZNG-6:M brings up the relation between the poor structural quality of the houses and the process of road construction. He attributes the cracks frequently found on the walls to the fact that these roads have not been flattened and compressed properly. Adding to this argument, ZNG-12:M criticises the mismatch between road construction and respective infrastructure with the construction of houses. He points out that the construction process started with the houses when, in his opinion, it should have been initiated with preparing the site, in which the roads and infrastructure are included. In his words:

"we placed the houses and then we want to put the sewage network or plumbing and that is complicated. In this street in the beginning the water would not stay still. As years go by, cars compress the soil and the water no longer infiltrates in the soil (...) When it starts to rain there are streets where it not be possible to pass through because in the rainy season there are streets which are flooded...(...) I believe if they want a lasting project they should (...) make sewage network and asphalt the road..." ZNG-12:M

According to participants, they mainly either travel to Luanda or take shorter trips within the neighbourhood, or both. In order to reach their destination they seem to rely mostly

on what they designate as taxi, which consists of a privately owned van that can usually take up to nine passengers. Although the use of public transport is also mentioned, travelling to Luanda by bus was not found to be as frequent or desirable amongst the participants as taking the communal taxi aforementioned. Moreover, the perception of the efficiency of the existing transport network is divided between those, like ZNG-13:F who considers that the access to transports is relatively unproblematic, and others who criticise negatively the lack or poor provision of public transport. ZNG-1:F for instance claims that "there is no public transport" and therefore "one needs to get a taxi to get to Luanda". On the subject of public transport, ZNG-12:M also emphasises that the number of public buses available are insufficient to serve the population travelling from Zango to Luanda. Thus he concluded that people's transportation from and to Zango is dependent on the private communal taxi service, which although are not always legal and registered still fill a gap not cover by public transport. Even with the possibility of taking a communal taxi ZNG-12:M nevertheless states that "the transport network is not efficient". He carries on and observes that "It is a chaos to travel from Viana to Zango. They have to take various taxis because the routes are short and they cause traffic jams.". According to him, in order to reach Luanda it is necessary to get into three different taxi routes. He explains how this is his wife daily routine when travelling to work in Luanda every day. Similarly to ZNG-5:M's wife who also starts the day at 5am to get a taxi in Zango in order to get to work on time. On the contrary, after moving to Zango, those who do not have to travel to work in Luanda for work purposes claims to have reduced the trips to Luanda. This is the case for example with ZNG-8:F, who has ceased travelling to Luanda because she does not have any relatives residing there.

The above does not concern ZNG-13:F who expresses satisfaction with the wide availability of transport in the neighbourhood. She argues that in order to have access to transport she only needs to get to the main road and has a choice of different transports (taxi or bus) "we do have transports, one just has to go to the main road and any car can take you to any point of the city". She travels to Luanda to visit family almost every weekend. A visit which with traffic takes her one and a half hours to reach Luanda. One trip that according to the men's focus group (ZNG-11:FG) is bound to be quicker and easier in a near future, since the main road is being improved. Despite the apparent solution ZNG-12:M and ZNG-14:F both call attention for the financial implications of taking a taxi six times a day (return) just to get to Luanda - plus the trips within the city -, when each trip costs 100 Kz, whereas it costs 30 Kz to take a bus. As ZNG-14:F puts it is "a lot of money, the salary goes to the taxi. I need to find a way of looking [for a job] closer."

In relation to flooding issues mentioned previously in section 7.3.1, according to the residents of Zango 1 interviewed, floods during the rainy season cause various problems including limited access - amongst others access to work, schools and food. ZNG-1:F

makes reference for example to the limited access to and from her house: "When it rains here it looks like a sea, you cannot even come with the car". Moreover, the limited access during the rainy season also impacts travels to work and shopping for food and supplies. This is mentioned by ZNG-4:M "...One does not know how to get out to get bread, getting to work is a challenge". Thus he notes that floods represent a great problem inside the houses but also in the streets. According to him this is community addresses this issue by building up barriers with piles of sand. Although this might result as a solution to prevent flood water to come through it also limits access to transports.

Access to work

In respect to access to work as a resident in Zango, participants mostly raise three overlapping issues: the lack of work opportunities within Zango, the distance to where these opportunities can be found (Luanda centre) and the inconvenience of commuting daily from Zango to Luanda. The latter particularly highlights inability for current transports networks to cope with demand and the poor state of accesses and roads but also pinpoints the weight on the household budget.

Zango is located approximately 30kms away from Luanda's city centre and its built area extends towards south for roughly 10 km. Considering that the majority of participants previously resided in neighbourhoods within the limits of Luanda, moving to Zango introduced a significant change in their routines. This is particularly evident amongst those with work commitments in Luanda, as is the case in ZNG-5:M household. His wife, who works in Luanda, in order to avoid traffic wakes up at 5am every day and has to take three different taxis en route to work. Moreover, ZNG-5:M claims to have been himself travelling to Luanda numerous times in order to search for work, as he states that it is in Luanda that job opportunities are available. Such dissatisfaction towards the lack of work in Zango is equally expressed by ZNG-12:M. In relation to this he states:

"People are here but there is no employment. Other thing we are forgetting, I think there should be decentralisation. There are many people who live here but work in the city..." (ZNG-12:M)

ZNG-14:F further points out how the high daily flow of population in and out of Zango puts an extra pressure on transport networks and accesses, as well as on the household budget:

"there is no logic in getting out of here to work in the city, it is too distant. One has to find a way of working close to work close to where they live and study to facilitate. Otherwise it leads to too much taxi, very much fuel" To go to Luanda by taxi (communal van) one spends a total of 1000 Kz(return). All the salary goes to the transport if you work in Luanda." (ZNG-14:F)

ZNG-12:M reminds that the transportation of this workforce residing in Zango relies mostly on illegal taxis (private vans circulating without a taxi license), as the public buses are not sufficient. and therefore it is a fragile system, prone to collapse if the governments.

"...the transports you are mentioning do not work, because in the day they say «from now on only those with a taxi license can circulate...» the buses have no capability to respond." (ZNG-12:M)

As an alternative to travelling to Luanda for work, some residents have shown an interest in starting their own business, integrating a commercial space in the space of their house. ZNG-6:M for example, uses part of his house as a carpentry workshop, ZNG-12:M is planning to open part of his house to the street and run pharmacy, whilst ZNG-13:F after claiming there is a considerable gap in childcare, also plans to use a section of her house to run a nursery.

Community

As far as aspects of community life in Zango are concerned, mainly two aspects emerged from observation and interaction with participants: that of the type of relation and interaction with neighbours and also how the urban fabric may have a role in facilitating community interaction including the former. These two often overlap and influence one another.

In spatial terms, Zango's urban layout is characterised by a regular orthogonal grid of plots interrupted with occasional open empty spaces. These squares are either left open, empty or used for example as improvised football pitches, or are populated with smaller buildings such as kiosks surrounded by pockets of green areas. This spatial arrangement in Zango results in a lower density of urban fabric when compared to informal settlements in the centre of Luanda. At the dwelling level there are different levels of permeability between private and public space, usually depending on the height of the perimeter wall closing up the plot. In relation to this, it was observed that in the streets where perimeter walls were generally lower, therefore allowing visual contact, people were interacting more and streets were more populated in comparison to streets with a predominance of houses closed up with walls higher than eye level. An aspect confirmed by ZNG-14:F who lives in a house type 1d. As a consequence of the high wall surrounding the plot the view from the outside is blocked and the interaction between the private area of the courtyard and the street is limited. Her children play in the courtyard, rather than outside in the street which according to her is a common practice amongst the neighbours living in similar type houses.

"I have neighbours, they have many children, but each one is in its place they do not bother anyone." ZNG-14:F

She further states that she has only one good friend in the area and the contact with the neighbourhoods is limited to a greeting in the morning.

Nevertheless, most participants reported knowing their immediate neighbours within a range of 2 blocks, and maintaining some kind of connection with some of them. This contributes a feeling of community as expressed both in men's (ZNG-11:FG) and women's (ZNG-10:FG) focus groups, although in the latter participants were divided between those who felt solidarity and support between neighbours and those who did not. Like the ones above, ZNG-13:F considers to be part of a close community. Whilst drawing up on a map her closest friends as living in the same block she stated:

"I have no problems with the neighbours. That is essential for me, although I have had some, but that is overcome. In a community that is always the case." ZNG-13:F

Although the attribution of houses may have not necessarily followed existing previous networks, there is an overall sense of satisfaction regarding the relationship between other Zango residents. Moreover, in some cases, participants maintained networks existing since their previous residence before the relocation to Zango as a consequence of group displacements. This was observed amongst participants in Zango 1 (who came from Bairro Boavista) but also in those residing in the temporary "tin houses" settlement. The latter have all been displaced from Bairro Lixeira and were awaiting the attribution of a house as a group. At the time of fieldwork the new permanent houses were still under construction.

With regards to maintaining contact with previous connections who have not moved to Zango, ZNG-8:F claims to have stopped going to Luanda - where her husband's family still live - since she moved into Zango. In the case of ZNG-13:F it is the family that usually visits during the weekend, rather than her going to Luanda. She explains that this has a direct influence on the desirable size of her house, as it needs to be large enough to accommodate all the family members. Having this aspect in mind, she bought two adjacent plots to build one house and extensions.

In addition to the above, there were complaints regarding the lack of communal spaces. ZNG-13:F for example, claims that there are no associations in the area, nor a place where people can gather. Her son, who was present during the SSI, adds that a football pitch is also needed, as at the moment an abandoned condominium is being used to play football. Others also mentioned the lack of an information centre, leisure areas, and a cinema. There were observed however various churches in different parts of the neighbourhood, which as confirmed by the women's focus group (ZNG-10:FG) consisted of an important place of gathering. The lack of communal spaces and leisure areas (especially for youth)

was also reported as one of the most significant problems in Zango 2, raised during a preliminary participatory group analysis.

Services and equipment

Although access to different services and equipment differs depending on the area of Zango, the participants widely agreed that the greatest gap in terms of services and equipment is in healthcare and education. For them, the lack of a large hospital and public primary schools represents a major concern for the population.

As far as education is concerned, ZNG-6:M advocates that although there are secondary schools in Zango, the offer is insufficient in terms of primary schools. The same overall satisfaction with existing schools for older children, but not for the young ones is equally raised by various participants. In the women's focus group (ZNG-10:FG) for example it was remarked that although there are private colleges, there is a lack of public schools. In the men's focus group it was mentioned that there are lack of schools for the younger children. And the only one in the area at the moment is far, thus parents cannot always pick up the children themselves. Moreover, the small number of schools, in their opinion, results in overcrowded classrooms (said to be around 45 students per room) which therefore leads to poor learning conditions for the children attending school. A fact further emphasised by ZNG-12:M who advocates that "the capacity of response is still not satisfactory" regarding offer of schools in the whole of Zango. Nevertheless, despite acknowledging the current problem, he also points out the increase in availability of schools observed since he first moved into Zango:

"it is improving, it has been worse. The number is increasing and the tendency is to increase. In this respect one can see clearly that there is a concern." (ZNG-12:M)

ZNG-15:F, similarly to the above, also considers there is a lack of provision of education in Zango. A problem she puts side by side with poor provision of healthcare.

"Children are not studying, there is no school. The government left a place for the school but is selling the space. And this is the problem that we have, with regards to schools we are bad, with regards to health we are also bad. We have no doctor." (ZNG-15:F)

With regards to the provision of healthcare, ZNG-12:M states that "there is a medical centre which is only a bit bigger than one of these houses. It covers the whole of Zango (...) So, at the moment healthcare is deficient". The need for a hospital nearby was also raised during the women's focus group (ZNG-10:FG) discussion, although not in agreement. Whilst some of the voices argued that the hospital is within distance of a taxi

journey, and therefore acceptable, another participant reminded how the absence of healthcare nearby may have a devastating effect on the community:

"we had a neighbour that has just passed away yesterday at 5pm in the park (...) there is no ambulance. She should have gone to the big maternity. Deaths happen".
(ZNG-10:FG)

This problem, according to some problem might soon be solved, as it was pointed out that there is a hospital currently being built to serve Zango. This raises nevertheless voices of disagreement as it is still considered too distant.

Further to the concerns with provision of education and healthcare, participants expressed the impression that a large supermarket was missing in the centre of Zango (ZNG-13:F). Currently, as ZNG-14:F explains, the existing large shopping surfaces are at driving distance only. She nevertheless states that there are various smaller shops are scattered throughout Zango reachable at walking distance for the residents. ZNG-6:M considers that the walking time involved in everyday shopping is too long, and that smaller groceries available locally are not able to meet all needs. Once again, emphasising the growing trend of the neighbourhood, and with a positive outlook regarding the future of Zango, ZNG-12:M states that at the moment "there are a few shops already and gradually there will be more."

ZNG-14:F and ZNG-13:F both point out a lack of police stations throughout Zango. The former reminds that "Zango 1, 2, 3 and 4 only has 3 police stations." She carries on stating that this is not enough that "because if we see Zango 2, it is too big to depend on the police station on Zango 1 alone. At least in each block should have a police station."

Despite identifying a gap in the provision of particular services, participants have also noted that there has been an increase in offer of services provided by the private sector. As mentioned by ZNG-12:M. He gives the example of banks which he states were the quickest service to reach Zango. A pace that in his view is not seen in the structures from the state. Nonetheless ZNG-5:M observes that whereas in the beginning all the government services were still focused in Luanda, presently these have been made available for Zango's residents, thus reducing the number of trips needed to the city.

Table 7.6 - PPOA SUMMARY SECTION: INFRASTRUCTURE, SERVICES AND ACCESSIBILITY

TECHNICAL ASPECTS	OBSERVED	REPORTED	STORIES
 Top: Example of road conditions in Zango 1 (left) and Zango 2 (right) Right, top: Primary and 1st cycle school in Zango 2 (picture taken during photovoice activity with a youth "show me a place you like the most") Bottom: Example of two grocery shops incorporated in the layout of the standard base house of Zango. Bottom right: external market in Zango4. 		Access: • Roughly 20km separate Luanda’s centre and Zango. • Access Luanda-Zango connected through one main road (Estrada do Zango). Limited option results in congestion and heavy traffic in both directions. • Roadworks at the time of fieldwork (2013) to enlarge the paved area and incorporate rain water drainage measures may alleviate the above. • Access within Zango impacted by poor condition of secondary and tertiary roads (more noticeable in earlier areas of Zango) and/or streets partially blocked with piles of building materials. Infrastructure: • Plots/houses connected to national electricity grid and piped water network. • Electricity provision is not continuous - provided alternately to different zones. • Problems or lack of water provision to some areas. • Some houses have large water tanks outside. Services: • Conventional residential plots (standard house) often adapted to accommodate grocery shops, restaurants and other small businesses. • Various churches scattered throughout Zango. • Informal external markets taking place in Zango 1 and Zango 4. These sold a variety of products including household items and food. External actors: • Relocating residents of informal settlements of Luanda to peri-urban area may result in social discrimination. Reported: • Limited access to work, either due to inconvenience associated with distance to Luanda and the lack of opportunities offered within Zango. • Commuting to Luanda done through private vehicle, public transport (bus) and private communal taxi service. • Journey time to Luanda impacted by heavy traffic. It can take more than three hours. • Public bus cheaper (30KZ) but less frequent; taxi more used but more expensive; takes three journeys to reach Luanda (3 x 100KZ one way) with high impact on household budget. • Communal taxis not always legally registered. Fear that this may result in cancelling this service and therefore further limiting access to Luanda, as public transport alone cannot meet demand. • Provision of water and electricity perceived as an improvement from previous conditions where these were not available. However, still not fully functional. • Lack of communal spaces and spaces for social gathering. • Perceived gap in local provision of healthcare and education. • Some participants used residential space for their business and others were had plans to open a business in their house in the future.	ZNG-12:M: "people are here but there is no employment. Other thing we are forgetting, I think there should be decentralisation. There are many people who live here but work in the city..." ZNG-14:F: "there is no logic in getting out of here to work in the city, it is too distant. One has to find a way of working close to work close to where they live and study to facilitate. Otherwise it leads to too much taxi, very much fuel" To go to Luanda by taxi (communal van) one spends a total of 1000 Kz(return). All the salary goes to the transport if you work in Luanda." ZNG-15:F: "Children are not studying, there is no school. The government left a place for the school but is selling the space. And this is the problem that we have, with regards to schools we are bad, with regards to health we are also bad. We have no doctor. " ZNG-10:FG: "we have a neighbour that has just passed away yesterday at 5pm in the park (...) there is no ambulance. She should have gone to the big maternity. Deaths happen". ZNG-5:M: "we have got driving schools, we've got SIAC [Integrated Services for Citizens- Serviço Integrado de Atendimento ao Cidadão]. We take care of almost everything at SIAC, our Identity card... We have got police stations." ZNG-13:F: "We are however fighting for electric power, I am here and I only want the energy to improve, just that. With regards to water, I have got a 1200 litre tank, so if the water fails I have no problem." Box story 6: ZNG-10(G), Women's focus group Priority activity  • Negative aspects: 1 - Lack of Hospital/ Health 2 - Lack of schools for small children 3 - Unreliable provision of electricity • Positive aspects: 1 - House 2 - Water 3 - Formal and organised urban space/fabric STK-3 (high ranked official National Housing Institute): "This means that it is our responsibility, government, to infrastructure lands. Orient with the technicians how populations should build their houses." FG1(architecture students): "There will be a devising wall between poor and rich, that is what is going to happen. There will be a place where there are only poor people and another place where there are only rich people"

7.4 – SUMMARY

Chapter Seven explored the outcomes of the PPOA process, with focus on the physical assessment. These findings emerged as a result of a combination of technical analysis driven by the researcher and the use of participatory enquiry tools in order to gather participants' input during the data gathering process, thus drawing from the background of both POE and PRA. It further captured the views of stakeholders on the issues under discussion.

In terms of general structure, chapter seven demonstrated separately the findings relating to the physical assessment, namely in terms of 1) building fabric, adequacy and appropriateness, 2) structural stability and construction process, and 3) Infrastructure, services and accessibility. Each of the subsections above included a detailed description of the findings and finished off with a PPOA section summary highlighting the main issues which emerged from the technical analysis. These were further combined with participation feedback, supported by a series of relevant visual elements and participants quotes and stories. The following chapter will focus on the latter section of the PPOA process and focus on aspects relating to the social assessment, namely space layout and aesthetics as well as safety and security.

CHAPTER EIGHT – PPOA: Social Assessment

*"Having the financial means one can improve [the house]. I like this bairro, but when we are to be removed we will have to go, no-one is going to complain, right?
The government decided something and we all have to comply"*

CHIC-20:M, participant resident in informal settlement, Case Area One

8.1 – INTRODUCTION

Chapter eight comprises the outcomes of the latter section of the PPOA process and therefore focuses on the findings arising from the social assessment carried out in both case study areas. Unlike the previous chapters, the findings herein were mostly driven by participants' input thus the technical background brought by the researcher played a secondary role in the data gathering process. Hence it draws mostly from the background of a PRA approach. It further captures the views of stakeholders on the issues under discussion.

Following the same structure as the previous two chapters, it demonstrates separately the findings relating to the social assessment, namely in terms of 1) space, layout and aesthetics, and 2) safety and security. Each of the subsections above includes a detailed description of the findings and finishes off with a PPOA section summary highlighting the main issues.

8.2 – SOCIAL ASSESSMENT: CASE STUDY ONE (CHICALA)

This section comprises the findings resulting from the Social Assessment of the PPOA process carried out in case study one, Bairro Chicala. It looks specifically at two groups of data, respectively: 1) space, layout and aesthetics, and 2) safety and security. Each subsection closes with a table (PPOA subsection summary) which pinpoints the main issues encountered and presents evidence according to its source, overlapping the technical assessment and information collected through interaction with participants.

8.2.1 – *Space, layout and aesthetics*

In the 25 households interviewed in bairro Chicala, there was a large variety in number of occupants (for example in one case (CHIC-21:M) there was one occupant whilst in other cases the occupants ranged between 10 and 13 people). With regards to layout and size, houses ranged from a single room of approximately 10m² to larger multi-roomed houses and occasionally with more than one floor. Moreover, as identified previously when defining dwelling typologies, the majority of houses had access to external private courtyards, usually enclosed with a wall (either completely or partially blocking view from street level).

Participants were enquired on their satisfaction towards current space/size of their houses. The outcomes revealed that adequate or satisfactory space seems to depend on a balance between space available and number of occupants in the house. Nevertheless, existing space in relation to the number of occupants was rarely referred as a problem, as in such informal context this issue tends to be addressed by increasing the living area of the dwelling when required (through construction of extensions for example, or an extra floor). There were however two exceptions to the above: CHIC-17:F and CHIC-9:F both expressed a deep dissatisfaction towards having to share a one room house with other occupants (family members). CHIC-17:F, who shares the living area with her two children, states "Yes, it is small, I cannot fit my children there". For that reason, currently she is looking to find a job so that she can move to a bigger house. Given that the room is part of a compound with access to a common external area, most of her daily activities and household tasks are carried out outside that room, such as doing the laundry, cooking, eating and using the toilet. CHIC-9:F also lives in a one room house with 7 other occupants, all her children and step-children. Like CHIC-17:F, she too would like to have more space "I like it [her house] but the space is very tight (...) Only one room is not enough. It is really small (...) It needs to have two bedrooms, one bedroom and a living room and kitchen, bathroom...". Unlike CHIC-17:F above, CHIC-9:F's house is not part of a compound and she does not have access to a cooking area, neither inside nor outside the

house. For that reason, as she explains, she buys food from local women who cook at home and sell meals.

CHIC-10:F, like the two cases above shares a one room house - albeit with internal partitions created with curtains and fabrics hanging from the ceiling - with her children (household of 6). Although she did not express dissatisfaction towards the lack of space and in fact is pleased with her house, when referring to a dream-house she describes "a bigger house with 2 bedrooms, one living room and a courtyard". Other comments on the size of the house include CHIC-5:F's, currently sharing a house with 4 other relatives. CHIC-5:F states that she would like her house to be bigger, not because it is too small for the current number occupants but rather because it is important so that she can receive guests comfortably.

This issue is however a different case for participants who are renting a house. To those, although also making reference of lack of space to accommodate all occupants (as mentioned by CHIC-22:M: "yes, when they come here they are forced to sleep here in the living-room. When they come on holidays they are forced to sleep in the living-room (...) they disassemble the table and sleep here"), the fact that larger areas may entail higher rents means that more space is not necessarily a priority.

As far as aspects of aesthetics with relation to their home in bairro Chicala, findings imply that a house can be considered aesthetically pleasing depending on a myriad of different aspects, ranging from layout, practical use of space, the type of materials, finishes, and decoration. CHIC-1:F explains how her feelings towards the appearance of her house have been changing over time. Her house - pictured in figure 8.1 - built more than 30 years ago, was one of the first houses in this neighbourhood. It was built with timber for the walls and, according to her, in that time impressed the neighbours due to its beauty, good quality materials and finishes. Today however, after many years of lack of maintenance, she regrets that the house no longer causes the same visual impact on others nor herself. In her words:

"Now it's all damaged, there is no beauty anymore. What am I going to like now? The timber is rotting away... I'm even lining the walls with cardboard". CHIC-1:F

She further revealed that the appearance of the house, particularly the type of building material used became associated with social status. This fact eventually contributed for the gradual discontinuation of timber. The participant further explains that following the independence in 75, only those who could not afford concrete blocks continued using timber as a main building material to build a house. "The first houses were made with timber (...) When 75, 76, 77, 78 came, (...) one says 'you are in this house, you are poor.' So they have started making block houses". She carries on saying "So when they have

started to build the timber houses and they became out of fashion they started to make cement block houses. They have maintained this ever since."

CHIC-12:M is also owner of one of the few remaining wooden houses in the bairro. This house, which was inherited from his parents, is not however his residency as he lives next door in a concrete block house and rents out the timber house to two families. Being fully aware that the overall appearance of houses in the neighbourhood has been changing he nevertheless opposes to the idea of demolishing the timber house in order to build another concrete block house, as he fears this might contribute towards the loss of the bairro's identity. He states:

"For me this is a question of identity (...). The neighbourhood has lost the characteristic that had. It is not what it used to be, so I prefer to conserve it for a bit longer as a question of identity." CHIC-12:M

Based on other participants' accounts, it is possible to understand that the shift from materials such as wood/timber and earthen building materials for example, may have happened due to perceptions of what is or not aesthetically appealing. CHIC-4:M elaborates on this and says that although burnt adobe bricks can be durable he says that from an aesthetics point of view hollow bricks or blocks are more attractive. He further states that traditional building materials are not as visually appealing as blocks or bricks. CHIC-1:F reinforces this idea and states that traditional construction techniques such as adobe or wattle and daub are being abandoned because they are not aesthetically pleasing. According to her, even those houses are plastered so that it's smooth and straight to replicate the block houses.

With regards to the appearance of his house, CHIC-3:M proudly admits that neighbours have noticed and commented how beautiful his house looks. "Yes, people talk (...) All who come here say this is a very beautiful house". CHIC-3:M's house stands out from the neighbouring houses due to its plastered and painted external walls and carefully maintained plants by the front door (see figure 8.2). Nevertheless, despite liking the house as it is, he would still like to provide something else for his family. "I do like it [the house], but this is not what I wish for my beautiful wife and children". An argument often reiterated by other residents, who stated that despite feeling generally satisfied with how the appearance of the house they would still prefer changing/adding something else. This was the case with CHIC-2:F, who states that she too likes her house, although would like to make some modifications. However, as she subsequently emphasises that is not likely to happen due to the lack of financial means.

CHIC-18:M's house (figure 8.3), with the internal walls fully decorated with African art (sculptures, paintings and fabrics) says the house is popular in the neighbourhood. He is pleased with the aesthetics aspects of his house and is claims to be aware that the

neighbours or people visiting feel the same way toward the house. Associating aesthetics to more practical aspects of everyday life, CHIC-10:F - in figure 8.4 -, who is generally pleased with the appearance of her house, believes that part of what makes the house attractive is the fact that it has a bed, a cooker, a table and a television. Similarly, CHIC-5:F too makes reference to how her house is perceived by the neighbours, who she claims attribute beauty to the fact that she has a courtyard shaded by zinc sheets.

The permanence factor was also mentioned in relation to satisfaction in relation to aesthetics. This emerged during the interview with CHIC-17:F. She expressed dissatisfaction towards the appearance of her house, a fact that she associates to its temporary nature. She explains that it was built as a provisional construction and erected with scarce financial means. Throughout the interview she refers to the house as unfinished, adding that it is in fact a temporary accommodation, as she plans to move as soon as she finds a job somewhere elsewhere and then built a house which would please her more.



Fig. 8.1 - CHIC-1:F, Type 3a. wooden house built before 1975. Currently decaying due to years of poor or lack of maintenance. Case Area One. Photo by Célia Macedo, 2011



Fig. 8.2 - CHIC-3:M, Type 1a. External view, main entrance. Use of colour and plants to adorn the façade. Case Area One. Photo by Célia Macedo, 2011

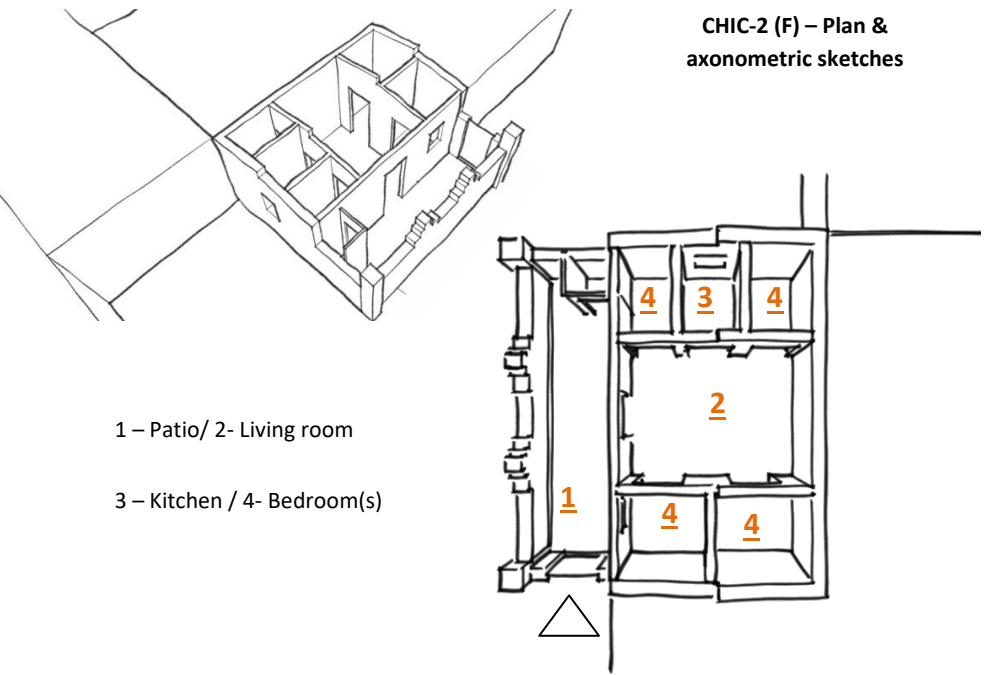


Fig. 8.3 - CHIC-20:M, Type 1a. View from the inside (living-room). Sculptures accumulated over the years and used to decorate the house. Case Area One. Photo by Célia Macedo, 2011



Fig. 8.4 - CHIC-10:F, Type 1a. front façade, small garden in front of the house. Case Area One. Photo by Célia Macedo, 2011

Table 8.1 - **PPOA SUMMARY SECTION: SPACE LAYOUT AND AESTHETICS**

TECHNICAL ASPECTS	OBSERVED	REPORTED	STORIES
CHIC-2 (F) – Plan & axonometric sketches  1 – Patio/ 2- Living room 3 – Kitchen / 4- Bedroom(s)  Example of enclosed covered patio area (top left : CHIC-7 (F)) and examples of space dividers created with fabric (bottom left: CHIC-22 (M), right: CHIC-9 (F))	• No standard type of housing in terms of size or layout. This rather seems to follow spatial constraints and number of occupants. • Dynamic construction process throughout Chicla suggests adaptation to changing occupancy requirements. • Wide range of dwelling size and layout as well as in number of occupants amongst participants. • Dwellings usually composed by private zone (including sleeping area) + a semi-private area, usually a patio or courtyard. • Privacy inside one room houses managed with partitions created with bed sheets or pieces of fabric hanging from the ceiling. • Household activities mostly take place in patio or courtyard (cooking, washing and drying clothes, and eating). • Wide use of public areas (space between houses and streets) especially by children playing. • Dwellings often double as a small shop or business and open to the streets. Part of the dwelling is used for the commercial space. • Variety of colours used in the façades. • Plants or greenery planted by the houses used as ornamentation. • Elements of decoration integrated in façades. Example: a panel made with various empty bottles of beer and painted murals.	• Existing space generally not reported as an issue amongst owners. • However, when commenting on an ideal house, all participants would like to add more space to the house. • Spatial issues seemed to be addressed within a short time frame, given the informal and bureaucracy-free nature of the process (provided there are financial conditions for this). • Occupant satisfaction associated with spontaneous/organic nature of constructive process. • Space and layout defined as a result of occupant control over construction process of dwellings, whereby these can be extended when/if required. • Residents spend more time and socialise in the external semi-private areas (patio, courtyard) and use the internal rooms mostly to sleep in. • When renting occupants are restricted to space and conditions available. Not being able to make changes leads to dissatisfaction. • Perception that if landlords were to make changes to space the rent would increase so they prefer not to. • Change in perceptions of aesthetics over time with materials and forms coming in and out of fashion. • Beautiful also associated with being able to accommodate comfortably occupants (covered patio for example). Also with temporality. • Choice of building materials in favour of perception of status. • Appearance linked to identity and cultural heritage - timber houses.	Box story 7: CHIC-1 (F), 54. Four occupants (family) One of the earliest residents of this neighbourhood. She has moved from across the bay into Chicla as a small child. She has been living in the same house in Chicla since - a one room wooden house - with 3 other occupants (her daughter and 2 grandchildren). When the house was built during the colonial period it was considered very beautiful and was admired by the neighbours, she was very proud of the house. It was built at a time when wooden houses were a fashion brought by the settlers. Wooden houses replaced the reed houses which were locally built. A fashion that was replaced soon after by the concrete block and hollow brick houses, from which the settlers' houses in the formal areas of the city were built.  <i>"Now it's all damaged (...) The timber is rotting... I'm even lining the walls with cardboard."</i> At present her house is in a very poor condition mostly due to lack of maintenance. From a structural point of view it appears very unstable and in risk of collapsing. The floor is crumbling apart, the walling material (wood) is rotting and the house is not weather tight as the roof and walls have large openings and holes, some of which she has tried to cover with pieces of cardboard - the holes across the walls and ceiling are also a point of entry for rats and/or insects, which constitute a risk for health and wellbeing. She is aware of this problem and states that it is dangerous to have any kind of electrical wiring because of the constant presence of water or moist. She has not got a job and no source of income to improve the house, so it is likely that the precarious situation of the living space is not going to improve. CHIC-18:M: Referring to his house: "I think they [the neighbours] like it because it [his house] is a slightly different. You will not find a house decorated the way I decorated, you will not find one every day. So I think it is because of the differences" CHIC-2:F: "I like my house very much (...)I am here so I have to like it (...) But the way it is, had I have the money I should make a few modifications in the house. It is the way it is because the money is lacking, because if I had it the house would not be like this" CHIC-15:F: On the investment towards building the house: "StartinFoi. Comecando pelo terreno. Foi um grande sacrifício, imenso. Custou muito cara. Na altura o salário so+ era 200 dólares. Dos 200 dólares tinha que dividir para a alimentação, para a saúde, para construir... Foi muito, muito caro. Coisa que até agora foi muito cara. Mas valeu para ter a minha própria casa. Aqui é fácil e não ter casa. CHIC-20:M: "these are things made in a rush so that we do not lose our space. I like it, as it is my house I have to like it. However I could have an idea for a nicer layout if I wanted, but as it is built so quickly I cannot do it.

8.2.2 – Safety, security and sanitation

Participants' views and satisfaction towards safety aspects in Chicala were captured through the questions "do you feel safe in your house?" as well as through "do you feel safe in this bairro" included in the SSIs, thus exploring aspects relevant to the dwelling but also to its context. This also intended to provide an insight into current conditions of an informal settlement in which demolitions have been gradually taking place and from where population has been displaced towards other areas of Luanda - particularly the outskirts and developments such as Zango. Furthermore, obtaining this information would also later allow for comparisons to be established between the perception of safety in an informal bairro and in the recently built residential areas, where many of the people are being displaced to.

With regards to safety (absence of danger), Chicala was generally portrayed by the residents interviewed as being a quiet and safe area. As the following illustrates, this sense of safety within the bairro is expressed by the participants in various ways, who attribute this to a myriad of factors ranging from proximity to Luanda's centre to architectural features within their houses.

CHIC-2:F explains that she feels generally safe, adding "... What makes me feel safe is the fact that people can walk around safely". Despite the fact that this was a perception demonstrated by other participants, there was also a sense of change and increase in criminality reported by those who had been living in the bairro the longest. In relation to this, CHIC-5:F, a resident for more than 30 years, explains that the fabric of the neighbourhood has changed over the years, with density increasing with time. Pointing to the surrounding houses she says: "these houses opposite did not exist". A description also made by CHIC-9:F, who remembers from her early years in the neighbourhood that "there were no houses here, only bush. We occupied the land". According to , CHIC-5:F, these changes in the urban fabric had an impact on the safety of the area: "before one was free here on the beautiful sand. Now there are robbers and we have to remain here with the robbers". The same point was raised by CHIC-1:F, 54, who moved from across the bay to Chicala as a child. She explained that in the bairro's early days they could leave clothes hanging outside overnight to dry without fear of getting robbed but that is no longer possible. This sense of increasing criminality is also reinforced by CHIC-3:M and his wife who, despite making the case for the safety of Chicala, stating that as far as they are aware thefts have never occurred, CHIC-3:M's wife reports having noticed a change in this respect. A change that as she explains is visible in a younger generation: "The children being born now are the ones with banditry".

Other residents, such as CHIC-7:F, who has lived in Chicala for 20 years, also acknowledges the existence of a certain degree of criminality. However, this does not seem to affect her

overall perception of safety in the bairro, as she classified it as being tranquil and safe. That seemed to be especially the case because in her view Chicala is considered safer than other neighbourhoods in Luanda - an opinion shared by CHIC-18:M, who has lived in other bairros of the capital before moving to Chicala, and by CHIC-17:F. The latter, despite perceiving an overall feeling of safe environment is aware that it is not free of the occasional problem: "I know that this neighbourhood is usually not a neighbourhood of banditry, I feel. It really has little banditry. I mean, there is always some right? But it is a neighbourhood that has no banditry." In relation to this, as CHIC-7:F further explains, compared to other neighbourhoods the criminals there "practically do not kill anyone", she continues by saying that they can only get into the houses "if people are distracted or the house is locked and empty", hence implies a tolerable degree of criminality that does not impact on her general perception of safety.

The above touches upon what has also been raised by various participants, the role of the house itself as an element that contributes to the feeling of safety. From observation the researcher has noted that from all the participants interviewed, only four did not have a high solid wall facing the street. These walls, an architectural pattern observed throughout this and other neighbourhoods in Luanda (informal settlements), fully enclose the front courtyard thus providing a private area for the residents, where they cannot be seen from the outside. Other more uncommon architectural elements associated with a safety strategy observed, and mentioned during SSIs, are metal railings on the windows and/or in the gap between the high wall and the structure of an external roof, and more infrequently, mirrored glazed windows hiding the contents of the house.

All of the above elements were mentioned by Angelina CHIC-2:F. The glazed and mirrored windows according to her was key in one occasion to stop a burglar to enter the house, as she could see from the inside someone jumping through the wall into the courtyard attempting to steal a motorcycle. This was also the incident that led her to think that the high wall enclosing the front courtyard and compound - currently roughly at eye level - does not in itself provide protection against intrusion as the contents can still be seen from the outside. Probably it does not therefore constitute a surprise that amongst her top priorities of what needs improving in the house is raising the wall so that it can completely block the view from the street level. In addition to raising the wall CHIC-2:F would also like to completely enclose the courtyard with metal railing. Something that, as she points out, would be dependent on her financial means.

Nevertheless, and despite the visible wide spread of the architectural elements abovementioned, particularly the high wall, their use as a means to guarantee safety does not apply to all participants in the same way. CHIC-15:F called attention for the danger that metal railing on windows might entail in case of fire, as they might block a potential fire escape. With regards to high walls, CHIC-16:M and CHIC-13:M for example,

mentioned that they prefer to have visual interaction with the street instead of enclosing the whole plot. All these three however stated feeling safe in Chicala and in their homes. Alongside the above architectural elements, other factors that contribute to enhance the feeling of safety raised in the SSIs include the construction technology used, in particular the building materials that compose the walls. To CHIC-10:F, the current concrete block house is an improvement to the very first house she erected when first came to this neighbourhood; In her words "because I was really bad, I was in a tin house and now I am in a better house and therefore feeling happy, I am well" CHIC-10:F.

As mentioned previously, the concerns towards security of tenure were also raised when participants were asked whether they felt safe in their houses. Overall the distinction was made between those who consider themselves owners and those who were renting the house. CHIC-16:M is included in the first group. He claims feeling safe in his house because he owns it. However, despite the fact he might not need to pay a monthly rent for the house he inhabits with his family, CHIC-16:M confides that there was always a rumour that people would eventually be displaced from the neighbourhood. He further adds that this insecurity towards the future did not stop Chicala's residents from building their houses with what he defines as "permanent building materials", i.e., concrete blocks. In respect to those renting, the concern falls on the fear of being expelled from the house without notice being given by the landlord, thus not feeling safe for not being a house owner. This is for example CHIC-19:M's case who having previously stated feeling generally safe in the bairro, does not feel the same with regards to security of tenure of his house since he does not own it. Hence, he fears that he doesn't have a say if the landlord suddenly decides to change arrangements as he pleases.

Apart from the three participants who were renting a house, all the others claimed to be legitimate owners as their house or land in which the houses were built was bought from someone else. As far as the previous owners were concerned, some referred for example to an influential woman who owned large portions of land locally and starting selling portions of it in the 1980s (CHIC-15:F, CHIC-26:F). Others made reference to fisherman who sold their houses and plots in the same period (CHIC-14:M). However, according to one of the residents CHIC-15:F these titles do not fall into the preambles of the law. As she explains:

"We did not buy from the government because this land is not legal. It belongs to the government, but the population who lives here, their houses are not legalised. This was a result of anarchy of the ones who lived here first. After them the land was invaded and was sold to whoever was in need of land. I bought from a lady who has died seven years ago and then built my house. " CHIC-15:F

The absence of legally recognised titles also leads to cases such as that of CHIC-20:M, who bought his plot to the former proprietor who already also previously sold it to another person, causing a dispute difficult to resolve without a legal documentation.

In relation to the above STK-1 points out that proving security of tenure is a key issue to resolve some of the main issues observed in the musseques today.

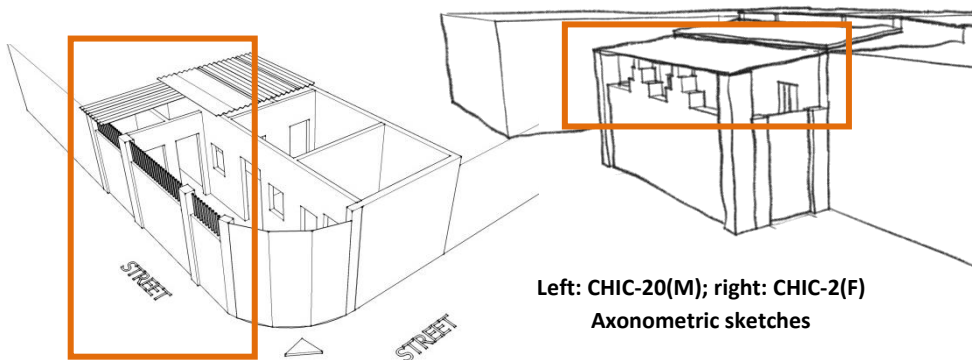
"The key, I think is actually related to land tenure. To the fact that people living in the musseques have no security of tenure. So, they're reluctant to invest in improving their properties and the local government is reluctant to invest in improving the basic services like water and sanitation, because these areas are consider to be impermanent. But, as long as that happens, as long as there is no investment, as long as there is no secure of tenure, these will remain slums. But we've seen all over the world that slums can be transformed very simply without eradicating them, By supplying basic services, by providing social amenities like schools and health facilities. And by providing secure of land tenure." (STK-1 - director of local NGO)

Regardless of the approach towards the informal settlements, according to the architecture students (FG-1) it should be a sustainable solution ("building thinking of the future"). They further state that "If we want to modernise the musseques, let us not implement a project today to then break it and renew it (...) we cannot build today and build tomorrow again".

With regards to sanitation, no public toilets were observed in the neighbourhood. Participants' houses all had a designated space for toilet, usually located externally to the body of the house in the courtyard or patio space. This was for example observed in CHIC-1:F, CHIC-2:F, CHIC-7:F, CHIC20:M and CHIC-9:F, where given the lack of running water or plumbing system this consisted of a hole on the ground that would lead directly to the water level beneath the houses. However, in the case of the latter there was no hole or opening but rather a designated area with soil floor which was used as toilet. In other cases such as CHIC-18:M the toilet space was inside the main house with the toilet would discharge directly to the bay as the house sits adjacent to the water.

In addition to the solutions above, it was also observed that black and grey waters were being discharged directly to the streets. With no water drainage system in place these remained as exposed stagnated liquid, exposed to people generally but especially to children playing in the streets, as well as animals such as stray dogs and cats. All of the methods abovementioned can potentially represent risks to health, either by infiltration in the soil and the waters that people extract from under their houses, or because it may create an environment where colonies of insects such as mosquitoes can thrive.

Table 8.2 - **PPOA SUMMARY SECTION: SAFETY, SECURITY AND SANITATION**

TECHNICAL ASPECTS	OBSERVED	REPORTED	STORIES
 Left: CHIC-20(M); right: CHIC-2(F) Axonometric sketches	- Dense organic urban fabric, especially in between main streets. Access works in an organic system of narrow (sometimes less than one metre wide). Access would be difficult in case of a fire, accident. - Certain architectural features and elements seem to imply need to hide houses from view and access, metal bars, high walls (above eye level), mirrored glazed windows. - From 25 participants interviewed only four did not have a high wall in front of their house. - Metal bars on windows and other openings blocks exit in case of emergency. - High walls limiting interaction with people passing. - High walls limiting interaction with people passing.	Residents: - Participants describe the bairro as quiet and safe area, as a result of proximity to Luanda's centre. - Reported increasing in criminality over the last years, especially driven by the younger generation. - Perception of change in levels of safety was especially felt by those who had been living in the bairro the longest. - Even so, existing criminality within the bairro at tolerable levels. - Construction methodology based on permanent materials contributes to overall feeling of safety against burglaries for example. Metal sheet houses are more fragile and easier to break into. - In addition to the above, specific architecture elements contribute to enhance feeling of safety - high walls, metal bars on openings, etc. - Land/housing purchase methods not supported by a legal framework and lead to uncertainties and conflicts. - Security of tenure associated with ownership. - General awareness that the bairro might be demolished contributes to a feeling of uncertainty and insecurity of tenure. - Feeling of hopelessness in face of a possible displacement, awareness that current titles do not provide security of tenure. External actors: - Providing security of tenure in informal settlements may be the way forward in terms of upgrading slums. as it would provide sense of permanence more encouragement to improve in their property.	CHIC-4:M: "I will have my own house and will do something better (...) don't touch anything else because that [the house] is temporary" CHIC-10:F: Feels safe "because I was really bad, I was in a tin house and now I am in a better house and therefore felling happy, I am well" CHIC-15:F: "We did not buy from the government because this land is not legal. It belongs to the government, but the population who lives here, their houses are not legalised. This was a result of anarchy of the ones who lived here first. After them the land was invaded and was sold to whoever was in need of land. I bought from a lady who has died seven years ago and then built my house. " Chic-13:M: "we are close to the presidential residency, here there are no criminals" Box story 8: CHIC-20 (M), 53. Three occupants (nephew + another child, not family) He bought the plot from a friend, and after building the house realised that his friend had sold the plot to another person before. Following a period of conflict they came to an agreement, as the other owner understood Manuel was unaware of this. He now considers himself the owner of the house which gives him a feeling of peace associated with the security of tenure. A feeling which he says he would not have had he been renting a house instead, as he knows of cases where tenants are evicted by the landlords without notice or explanation. The feeling of safety against eventual burglars is enhanced by the high concrete block wall enclosing the covered patio space, further complemented by metal railings up to the roof. Although claiming to prefer a solution without such high wall he feels that is the only way to feel safe as it prevents people from looking into the contents of the house. "One has to raise the wall more to avoid the worse. Often someone passes by outside and peeks here inside and is interested in something and will try and make attempts to take it" He also values his privacy and does not feel comfortable with leaving the gate open, avoids as much as possible to have people looking inside. 
Use of metal bars and high walls to enhance feeling of safety			
Absence of waste management strategy		- Participants' houses all had designated areas for toilets, inside or outside the main core house. Usually consisted of a hole dug up to water level, discharged straight to the bay or to the streets. - Potential risks to health due to water contamination and stagnant block and grey waters exposed.	
Water storage cisterns adjacent to toilet discharge location.		- Waste accumulated and rats observed amongst the piles of waste in the immediate vicinity of the houses. - Bathing usually done outside the main house in a area with some privacy or with large plastic containers inside the house.	STK1 (Director local NGO): "To the fact that people living in the musseques have no security of tenure. So, they're reluctant to invest in improving their properties and the local government is reluctant to invest in improving the basic services like water and sanitation, because these areas are consider to be impermanent.

8.3 – SOCIAL ASSESSMENT: CASE STUDY TWO (ZANGO)

This section comprises the findings resulting from the Social Assessment of the PPOA process carried out in case study two, Zango. It looks specifically at two groups of data, respectively: 1) space, layout and aesthetics, and 2) safety and security. Each subsection closes with a table (PPOA subsection summary) which pinpoints the main issues encountered and presents evidence according to its source, overlapping the technical assessment and information collected through interaction with participants.

8.3.1 – *Space, layout and aesthetics*

In the case of Zango, the size of houses in relation to number of occupants has been often mentioned in press releases and publicly criticised for being insufficient to accommodate the average Angolan family ("The standard dimension of new houses, not always sufficient to accommodate large families..." (Carvalho, 2014). This is further supported by a local NGO - SOS Habitat - who calls attention for the cases where up to 10 families are sharing the same house, after being displaced from informal settlements where each family previously owned their own house (SOS Habitat, 2013).

Such statements are in line with concerns on cultural adequacy of the resettlement programme raised during SSIs to local stakeholders and professionals of the built environment. These concerns focus on what is perceived as the authorities' failure to consider cultural context and profile of the population when designing and implementing the NHUP, in which Project Zango is included. Anthropologist STK-5 argues that "this programme did not take into account social aspects" and that "anthropologists, sociologists and psychologists were not consulted" during the conception stage of the programme, which was rather only "made with lawyers and economists". Therefore, despite believing that the programme "can solve some aspects, may be a palliative", STK-5 nevertheless is of the opinion that it will not in itself be a permanent solution, as it lacks the cultural dimension of development in order to be sustainable. In favour of this view and distrust towards the NHUP, STK-10 declares that in his opinion the programme will not be successful as it "does not respond to any social pattern, anthropological, economic, cultural, nothing ... has nothing to do with how people live." (STK-10)

fieldwork findings emphasise participant's dissatisfaction towards the size of the house, for the same motives mentioned above. The perception that the house they were provided with is too small was expressed for example during the men's focus group (ZNG-11:FG) and shared by ZNG-6:M. Again, touching upon cultural issues, the latter states that the "house is not big enough for the typical Angolan family". In his case a household of

seven people live in a three bedroom house, which he claims to be insufficient to accommodate all occupants:

"We are an extensive family and a house with three bedrooms that we were given... If it had been a seven or eight bedroom house it would have been ideal. Three is not enough".

The argument of typical extensive families was also raised during the women's focus group (ZNG-10:FG): "us who have a family think the space is scarce, despite the extensions we already built. But the house is composed of 3 bedrooms, one kitchen, bathroom and corridor". ZNG-2:M, a young father of one and already thinking of having more children, argues that providing people with such houses and plot may restrict the future growth of families.

Zango is characterised by a vast array of similar looking buildings, which are part of a unit consisting of a dwelling (with variable sizes, depending on typology) and an external area or courtyard. When expressing their satisfaction towards spatial configuration participants tended to refer to both the courtyard and house separately. As far as the house alone is concerned, as abovementioned, the main dissatisfaction relates to the ratio of space to number of occupants. Despite positive remarks made to the internal room configuration and layout (for example the benefits of having a corridor as an element to distribute and organise internal space was pointed out (ZNG-10:FG), some participants claim that the house fails to meet current spatial needs, and should therefore be larger so that it could accommodate all occupants comfortably. As illustrated above this issue has been raised by participants residing in the full base house (three bedrooms) but also by those living in a partially complete or "incremental house" (one bedroom). In reference to the latter type, one of the occupants (ZNG-15:F) emphasises this issue and explains that as a consequence of shortage of space for the whole family of six she is currently sleeping with the children and further describes how occupants inhabit the space:

"they have only built two rooms and a bathroom, the living room, another bedroom and the kitchen you complete yourself. If you have got the money you finish yourself, If you do not it stays like that. (...) In those two rooms there is a smaller room which is the cupboard. The bigger room is the living room and the kitchen, the parents sleep in the bigger room. The children sleep in the smaller room." (ZNG-15:F)

Although participants widely agree on lack of space within the house, the views on the external area were generally more positive and focused on highlighting the improvement from previous living conditions in bairros. The sense of improvement is mainly due to extra space allocated to each house and lower density as well as spatial organisation of urban fabric in Zango ("we like the plan, the yard and the extra space" (ZNG-10:FG). Similarly to what is observed and reported by participants in bairro Chicala, the problem of lack of space seems to be overcome by extending the house into the external area of

the plot (ZNG-12:M: "the space of the base house is insufficient. if you notice the tendency is for the people ground floor and first floor."). That being the case, and considering that the priority seems to lie with increasing covered area through building extensions on the current external area allocated to each plot, it is likely that the element that participants so promptly pointed as positive may suffer a significant change in a near future as it gets reduced with time.

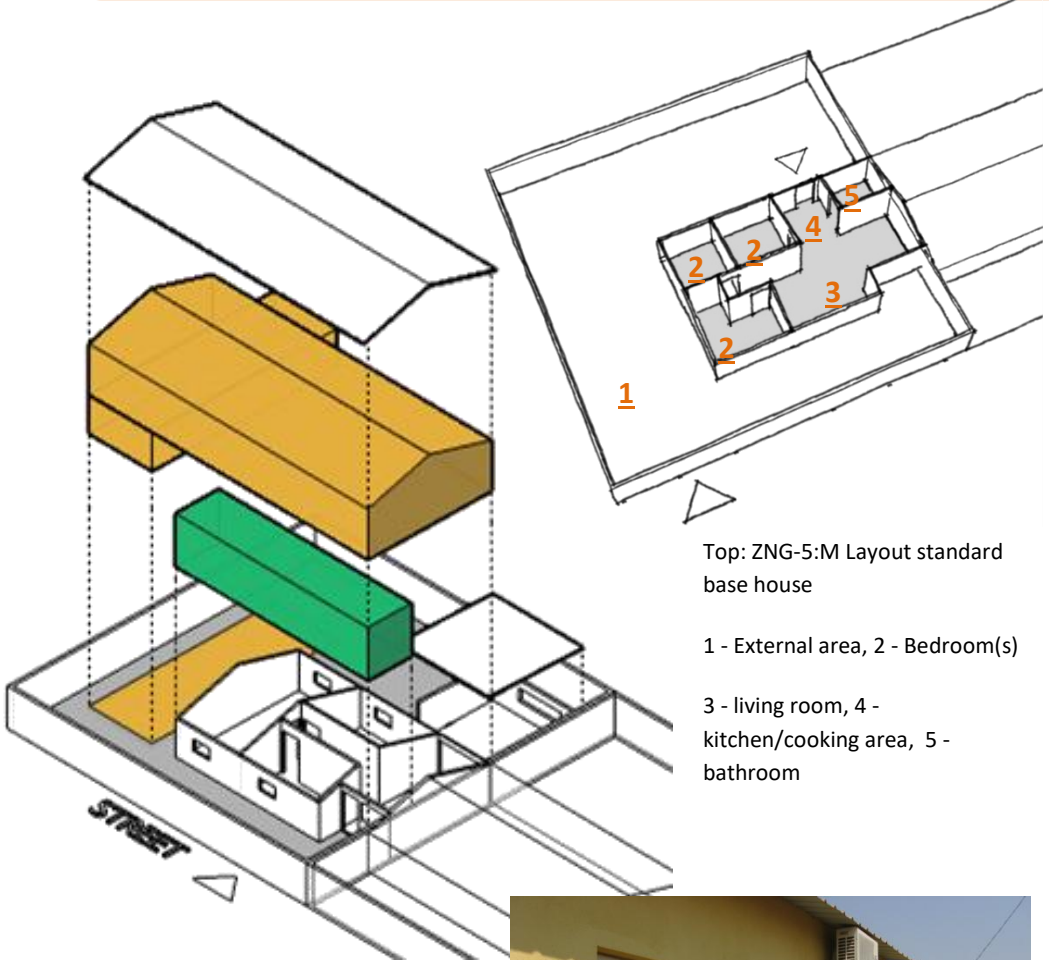
With regards to aspects of aesthetics in Zango the absence of finishes in the houses (internal/external walls and floors) upon delivery was pointed out as the main aspect contributing to dissatisfaction associated with aesthetics and appearance of dwellings. An issue particularly relevant to beneficiaries of the resettlement programme, since self-builders are not initially provided with a finished house, and are therefore responsible for completing their own. Consequently, this issue was not raised by the participants who built their house under the assisted self-building programme, as they had control over the construction process, including choice of materials and finishes. Nevertheless, in terms of appearance (layout and design) self-builders were nevertheless required to maintain visual homogeneity within Zango and not to "differ too much from the project" (ZNG-14:F). Therefore in terms of initial appearance, regardless of how houses are acquired all houses follow the same layout, or as a participant self-builder explains "we have raised these walls, but the configuration, they require that the structure of the house is the same [as the other houses]" (ZNG-12:M). According to observation however, this was not always the case and in addition to distinct designs, architectural differences found included ornamental elements in façades.

The dissatisfaction towards the lack of finishes in the houses was associated with a perceived idea of unfinished and poor quality houses. A dissatisfaction further enhanced by other often incomplete works such as the electrical installation. The lack of exterior and interior finishes (bare external and internal walls as well as bare cement floors) was observed throughout Zango in houses that were part of the resettlement project, although towards the more recent zones (namely Zango 4 and 5) the external walls were more frequently either painted or plastered and painted, which according to participants from Zango 1 and 2 had not happened in earlier Zango. This fact supports statements of perceived improvement of quality in dwellings as Zango expands. In ZNG-12:M's words: "If one notices the houses from Zango 3 and 4 are much better. Because these ones do not even have plaster, these ones from the resettlement project. Those are paint on block". Despite the above, this improvement does not seem to be felt by all residents in the areas of Zango ZNG-12:M refers to. For instance, ZNG-15:F who, after being displaced from a house in bairro São Paulo in Luanda, now resides with her family in Zango 4 expresses a sense of dissatisfaction similar to participants in Zango 1 and 2:

"These houses that we were given, if you get inside you will see that it already has a crack. It is not plastered on the inside. The government has given the house like that." ZNG-15:F

Although findings show that this issue was gradually addressed by some who were able to "finish" and beautify the houses either with construction works or planting of greenery and trees outside, the lack of financial means was also mentioned frequently as an obstacle to carrying out further construction works such as plastering walls and tilling floors. The following statements illustrate the above: In relation to the above, ZNG-1:F (Zango 1) states "It had nothing, it was only walls, no finishes, nothing". A similar dissatisfaction towards the way house delivered is expressed during the women's focus group who generally expressed dissatisfaction towards the incomplete state of the dwellings (ZNG-10:FG).

Table 8.3 - **PPOA SUMMARY SECTION: SPACE LAYOUT AND AESTHETICS**

TECHNICAL ASPECTS	OBSERVED	REPORTED	STORIES
 Top: ZNG-5:M Layout standard base house 1 - External area, 2 - Bedroom(s) 3 - living room, 4 - kitchen/cooking area, 5 - bathroom Top Left: ZNG-12:M, spaces that resident plans to add to the base house in the future. Orange: 1st floor living area; green: pharmacy Right: Use of greenery and plants to adorn spaces. Top: Front garden: ZNG-14(F), Bottom: participant from ZNG-10  	• Low density fabric, wide repetition of similar looking dwellings • Repetitive nature of design in all sections of Zango, regardless context specific aspects such as orientation or environmental conditions. • Standard and rigid dwelling type scheme • Original scheme based on a plot constituted by external area and a covered living area (100 m2 house). • Visible appropriation of space by residents which resulted in profound changes of original design. • Building of extensions and addition of covered area reducing external area of plot. • Physical expansion of houses suggests different requirements amongst residents. • Changes also occur at the level of colour, materials, shapes and ornamentation, planting of greenery and trees. • Layout of base standard house: three bedrooms, a living room, bathroom and cooking area. • Visible difference between self-building houses and those built under the resettlement programme. Changes mostly in the layout and distribution of space inside the house. • Some houses remain without finishes. • Elements of ornamentation added to houses (both resettlement and self-built).	• Satisfaction towards the external area as it allows to plant greenery and tress. Planting of greenery and trees beautify the otherwise bare plots. • Satisfaction towards internal arrangement of the house. • Dissatisfaction towards ratio of space to number of occupants. Issue raised amongst residents of resettlement project living in standard base house (3 bedrooms) but also be those in an incremental house - reported children sleeping in storage areas as well as lack of privacy • Questioned whether cultural aspects were taken into consideration when conceiving these houses. • Extensions built to overcome this problem, but even so not enough. Feeling that the rigid nature of plot and house restricts the growth of the family. • Tendency to alter space and tailor to spatial requirements or to create a livelihood (renting, commercial space). These changes are usually built informally so no fees are paid. • In resettlement project, residents were relocated to the same house type regardless of household size and previous conditions. Sense of injustice felt when new conditions do not reflect the same space they had before. • Absence of finishes contributed towards general negative perception in terms of appearance of dwellings and aesthetics. • The above is particularly relevant to beneficiaries of the resettlement programme, as self-builders are not initially provided with a finished house and are therefore responsible for completing their own. • Houses from more recent areas of Zango (4 and 5) perceived as having of better appearance and quality than the first houses (1 and 2) as these incorporated finishes.	ZNG-10:FG: "As the houses were delivered I am not satisfied. They had no plaster, no [electric] installation, with no conditions. A house should be proper, it was not made in such a way that a person should be inside the house." / ZNG-3(F): "When we moved here the house was just walls and floor." ZNG-6:M: "When we arrived there was supervision and we could not build a wall without being asked to provide documents (...) If we wanted a tank we used to pay 4 thousand Kz, an extension 4 thousand Kz, septic tank 3 thousand Kz" ZNG-11:FG: "House is not big enough for the typical Angolan family." / ZNG-12(M): "The idea is to raise the first floor because the houses are small, the rooms are small. Everyone here does alterations. Maybe if you only have one child, but that is rare to find, the families are large so we will make alterations." ZNG-10:FG: "This could be the house of my dreams, just need to make some changes." ZNG-12:M: "The project here in itself is good because it comes to eliminate a problem. Because it is said that here people have no postal address, in these neighbourhoods created in an unorganised way. Today we have something structured. Zango is organised, it has streets." Box story 9: ZNG-2(M). Three occupants (family) He lived centrally in Luanda until his house was marked by the government to be demolished as it was located in an area to which a new road was planned. He was given a house as compensation in Zango. "Here they do not give you the option, regardless of your house. This is your house and this is the house where you will stay!" Being very critical of the house he was given in exchange of the previous one in Luanda, he argued that it was not a fair replacement as he was left off worse than before. For example, he felt the layout of the house did not take into consideration the reality of large African families and it is too small for growing families and being constrained by this plot does not leave room for flexibility or adaptation. He works in the construction industry and claimed to understand construction process hence he does not trust the new house from a structural point of view, as it lacks structural elements including foundations, pillars, beams. Moreover, the absence of finishes and the poor quality of windows and doors (which cannot be locked) made him think he will have further work to do in the house in order to bring it to a better standard and better conditions. He will move once conditions are created and the house meets his satisfaction and requirements. This work had already started and so far he had ordered new aluminium window frames for better protection. In addition to replacing the windows, future plans include closing up the plot with a wall and add a bedroom.  STK-10(Lecturer in Constructions, local university): In relation to housing design "Does not respond to any social pattern, anthropological, economic, cultural, nothing ... has nothing to do with how people live."

8.3.2 – Safety security and sanitation

The perception of safety amongst participants, and therefore satisfaction levels, differs according to the area of Zango in which they reside. In this respect, the data collection tools revealed that although a feeling of safety in one's own area was generally expressed, participants tend to indicate other parts of Zango as unsafe. This is the case with ZNG-5:M, a Zango 1 resident, who subsequently to affirm feeling safe in Zango 1 was prompt to indicate Zango 2 as unsafe. However, participants from Zango 2 expressed the same feeling of safety in their area, but pointed Zango 3 and 4 as unsafe. The exception being ZNG-15:F, who considers her area of Zango 4 as unsafe. With reference to the effort made by her family to get water she states "waking up at 4am is risking your life. There are many criminals here", and further carries on "a few days ago there was a house where the neighbour was burgled (...) Carry water at 4 or 5am is to risk one's life (...) This is a problem that we have."

The personal perception of safety mentioned above often rested upon factors such as the presence of police and closeness to police stations, architectural features of dwellings, street layout, and origin of displaced population. In addition to those, ZNG-8:F rather than referring to police or criminality mentions the lack of safety she felt for having to abandon her house during the raining season.

With ZNG-5:M argues that certain areas of Zango become unsafe when the recently relocated population was originally from neighbourhoods of Luanda previously regarded as unsafe. However this does not seem to be a problem that applies to where he is currently living, as he claims "here in Zango 1 everyone knows each other". The suggestion that different levels of safety may be associated with where the relocated population lived previously is also raised during the women's focus group (ZNG-10:FG). When further to expressing an overall feeling of safety within the area of Zango 2 - now predominantly inhabited by former residents of Boavista ("people who moved here were in Boavista, an area with low criminality, so it is quieter here as well") - one participant states that:

"When people were being displaced, there were certain areas where there was much criminality. For example in Cazenga there is much criminality, so if they displaced people from Cazenga to Zango 3 now there is criminality there." ZNG-10:FG

The idea that levels of safety decrease as Zango continues to absorb population displaced from informal neighbourhoods of Luanda is further supported by ZNG-12:M. He explains that as people are being relocated from areas that he designates as "conflictive", the same crime patterns will be observed in the areas where they move to. In his words:

"In Cazenga and Sambizanga we know that they are neighbourhoods with the crime rate is very high (...) So today Zango 3 and 4 has many criminals and they do not steal there, they come and steal here." ZNG-12:M

Despite the above, ZNG-12:M considers that overall "Zango is a quiet place, without much confusion". A statement repeated by other participants, whom attributed Zango's safety to various factors, amongst which the street layout. During the men's focus group (ZNG-11:FG) for example, it was mentioned that the streets' orthogonal arrangement contributes to increased safety. According to them the regular orthogonal planning of streets, as opposed to a labirintic and random arrangement previously experienced in informal settlements, promotes safety as it provides fewer places for criminals to hide.

Nevertheless, although Zango is perceived as a relatively safe area, some of the houses display architectural elements that seem to reflect otherwise, namely high perimeter walls, metal bars on the windows, etc.. This is observed for example in ZNG-12:M's house, a dwelling type 1d with one of the most noticeable feature's being a high wall surrounding the plot and blocking the view from street level. An element that he claims to have built for safety reasons, as it allows him to choose who comes in or out and provides a safe environment for children to play next to the house. A similar argument to the one raised by Sandra (zg-14), another house type 1d, with regards to her children's safety.

Although ZNG-14:F acknowledges the existence of a certain degree of criminality within the neighbourhood, she thinks it is still not as serious as in the city. She claims however that there is not enough policing to deal with problems within the secondary streets of Zango, as they tend to mostly patrol the main road (*Estrada do Zango*):

"here in the neighbourhood it is rare [to see police]. The problems sometimes take place inside the neighbourhood. Until you run and reach the main road to get to the police it has already happened" ZNG-14:F

This view is not shared by ZNG-5:M who believes that the noticeable presence of security officers makes Zango a safe location for children. Equally, ZNG-6:M after saying there are various police stations in Zango states:

"Our area is safe. I can say that criminals exist in all areas, they are our children (he laughs). Even here for example, around me is tranquil. Even certain children when they come here they say that it is isolated, but I think it is good..." ZNG-6:M

With regards to sanitation, the layout of the standard base house does include a bathroom. There is access to running water, however it was still often observed that participants would have a large container full of water inside the toilet which was used to flush, rather than using the flush incorporated in the toilet.

According to participants, there was a waste management strategy in place which included regular collection, although not on fixed intervals. Even so, piles of waste were sometimes observed in public areas especially in squares or large empty spaces.

Table 8.4 - PPOA SUMMARY SECTION: SAFETY , SECURITY AND SANITATION

TECHNICAL ASPECTS	OBSERVED	REPORTED	STORIES
	• Low density urban fabric as well as general street orthogonal and regular arrangement and allow visual contact. • Low density of fabric also contributes to a lower risk of spread of fire. • The integration of certain architectural features such as high walls, metal bars, barbed wire suggest intention to enhance protection. This is resulting in considerable physical changes in the standard base house. • Obvious presence of armed police going up and down Estrada do Zango. • Permanence and sturdiness apparent in the standard base house, contrasts with some of the extensions built or even with the temporary "tin houses". The latter mainly being characterised by their fragility and potentially unsafe.	• Feeling and perception of safety varies according to area of zango - participants often perceive their own area as safe but not others. • Walking early in the morning (5am) to fetch water or to get the bus to town is risky as there are reports of assaults and attacks which take place. • Children walk to and from school unaccompanied. • Perception of safety mentioned above often rested upon factors such as the presence of police and closeness to police stations, • Others rather than referring to police or criminality mention the lack of safety felt for having to abandon her house during the raining season. • Perception that areas of Zango become unsafe when the recently relocated population was originally from neighbourhoods of Luanda regarded as unsafe, thus bringing similar patterns of insecurity. • Streets' orthogonal arrangement contributes to increased safety. According to them the regular orthogonal planning of streets, as opposed to a labirintic and random arrangement previously experienced in informal settlements, promotes safety as it provides fewer places for criminals to hide • Official ownership of the house contributes to overall security and stability. • Increase of housing prices, creating speculation. • Sanitation: sewage system in place. Septic tanks included in the design of the houses. Some participants pointed out that they were not large enough.	ZNG-14:F: <i>"here in the neighbourhood it is rare [to see police]. The problems sometimes take place inside the neighbourhood. Until you run and reach the main road to get to the police it has already happened"</i> ZNG-15:F: <i>"waking up at 4am is risking your life. There are many criminals here", and further carries on "a few days ago there was a house where the neighbour was burgled (...) Carry water at 4 or 5am is to risk one's life (...) This is a problem that we have."</i> ZNG-10:FG: <i>"When people were being displaced, there were certain areas where there was much criminality. For example in Cazenga there is much criminality, so if they displaced people from Cazenga to Zango 3 now there is criminality there."</i> ZNG-10:FG: <i>"And now with the organisation, because houses there before were too close together, the whole thing mixed up, there were no well-coordinated streets. So here each person has their own house with their own yard, it has more organisation and therefore it is more difficult for the bandits ."</i> ZNG-12:M: <i>If it is to have your corner, it does not matter if is 100Km away, as long as it is yours!"</i> ZNG-12:M: <i>"I could have bought a plot of land in another place (...) but we discussed this (...) why would we buy in another place if tomorrow they come and demolish our house?"</i> ZNG-6:M: <i>When we arrived it was slightly cheaper. Back then we sold for 12thousand USD. Some were selling for eight thousand, seven thousand. Others even for four thousand, in the first stage. Currently they are asking for 60 thousand USD."</i>
Top (ZNG-13:F) and right (ZNG-12:M): Examples of physical elements incorporated in housing design to enhance safety.			
Fragile materiality and building envelope in temporary accommodation (ZNG-9)			
see Box Story 10			
Plastic recycling facility in Zango 4			
	• Poor assembly of elements of the building envelope such as the roofs represent a risk during windy days. This can be especially grave given the exposed obstacles free area of ZAngo. Put into place using concrete blocks loosely put onto the roofs. • Windows and doors were often observed to be fragile and with no proper shutting systems (Osvaldo). Adding to this the absence of a window frame the physical access to houses was made easy. • Although the secondary streets were traffic free and quiet, the main road that splits both sides of all areas of Zango was very busy and with few designated pedestrian crossing areas. • Zango generally associated to access to legal home ownership and security of tenure, as opposed to previous situation in informal settlements. Given the extensive building of extensions being used to rent out to tenants, it is not clear whether those renting were covered by a legal framework.		Box story 10: ZNG-2(M). tin houses residents Two participants part of group of residents who formerly lived in an informal settlement in Luanda called Lixeira (meaning landfill). As the name suggests this bairro was built around a large landfill where waste constituted the livelihood for many of the residents. These would wait for the waste trucks to arrive so they could collect any objects they could sell or reuse. As a consequence of a privately driven process, since 2002 a programme was put into place in order to relocate population from Lixeira to Zango. This was to be done in conjunction with the government who was responsible for providing the land and infrastructure to the population. This has however been a slow process and at the time of the fieldwork in 2013, only just over 340 families of the 500 who were to be beneficiaries of this programme had been moved into Zango. Moreover, all of these were still living in the temporary site located a few hundred meters away from the final site, subject to poor conditions, lack of sanitation, overheating shacks, no running water and limited access to energy. Additionally, although claiming that this move was an improvement from their previous life in the informal settlement, they still live in tin houses whilst waiting for the right to move to a permanent house. A move due to happen in an uncertain date and time. "we are here since November 19thth 2005. From 2005 to 20008 Chevron gave us metal sheets . We were in tents before, it is much better than the tents now that we have sheets (...) first we are waiting for the authorization. Until we have the notion that it will place an evolving house, then myself as an owner will increase the house"

8.4 – SUMMARY

Chapter Eight comprised the outcomes of the latter section of the PPOA process and therefore focused on the findings which have arisen from the social assessment carried out in both case study areas. Unlike the previous chapters, the findings herein were mostly driven by participants' input thus the technical background brought by the researcher played a secondary role in the data gathering process. It was influenced principally from the background of the PRA approach. In addition to encapsulate the residents' views it also captured the external actors/stakeholders perspective on the issues under discussion.

Following the same structure as the previous two chapters, it demonstrated separately the findings relating to the social assessment, namely in terms of 1) space, layout and aesthetics, and 2) safety and security. Each of the subsections above included a detailed description of the findings and finishes off with a PPOA section summary highlighting the main issues

Section E - **Analysis and final considerations**

CHAPTER NINE – Analysis and Discussion

‘Adequate housing must provide more than four walls and a roof’

*UNHCHR and UN-Habitat (2009) The right to adequate housing - Fact sheet no. 21,
Rev. 1. P. 3*

9.1 - INTRODUCTION

The purpose of Chapter Nine is to critically reflect on the main findings which emerged from the data collection and analysis carried out as part of this research, in light of the aim and objectives listed in Chapter One (section 1.5). Moreover, this chapter intends to create a better understanding of the extent and complexity of aspects observed and raised by participants in relation to their houses and context, all of which have been complied in the empirical section of this thesis (Chapters Six, Seven and Eight). Furthermore, it also reflects on the viability of implementing PPOA framework as a tool to assess occupancy satisfaction of participants residing in an informal settlement and in a low-cost mass housing project.

Chapter Nine follows the organizational structure of the conceptual framework and is divided into seven sections, also the same sections found in the empirical chapters. These are respectively: dwelling variations and typologies; building fabric, adequacy and appropriateness; structural stability and construction process; infrastructure, services and accessibility; space, layout and aesthetics; safety, security and sanitation. Within each section the specifics of the findings are discussed and placed in the wider context approached in the earlier background sections of this thesis. Furthermore, each subsection concludes with a 'Findings and Feedback Principles Card', which consists of a summary of the main findings of assessment stages and three correspondent action points to address issues found and take forward to future projects.

9.2 – MAIN FINDINGS SUMMARISED

In order to meet the aim and objectives, this research began by looking into issues associated with the past and current housing situation in Luanda, focusing on the impact of rapid urban growth and expansion of informal settlements on inhabitants of the low-cost housing sector. Moreover, it explored theories informed by a literature review process that attribute this phenomenon to a combination of factors, namely changes in demographics patterns (growth and migrations) and lack of, or inefficient policies on urban management and planning. It then followed to provide an insight into strategies and measures developed and implemented as a response to said housing issues looking at these in light of international guidelines put in place to improve lives of slum dwellers worldwide - such as the MDGs and the SDGs. Considering the context of Luanda, it subsequently explored how exploring the relationship between the occupants and their homes can potentially contribute to better assess improvement in quality of life. This resulted in the development of a framework (PPOA) that guided the research design and methodological approach used throughout this work. PPOA incorporates existing approaches, namely PRA, widely used in development research, and a well-established framework used to appraise performance of buildings and occupant satisfaction - POE.

The discussion raised in this section does not intend to be representative of Luanda's housing situation in its entirety, but rather hopes to contribute towards it by providing a rich insight into particular areas of the city. The 'Findings and Feedback Principles Card' found at the end of each subsection in this chapter highlights the main findings relating to the various assessment stages of PPOA. Moreover, and in line with the feedback component incorporated in the PPOA framework, these also feature three correspondent action points to address issues found and take forward to future projects. These cards were developed as a visual element that added to the PPOA summary sections from Chapters Six, Seven and Eight, can act as a summary of the overall assessment and a deliverable report and stand-alone element.

9.2.1 – Contextual aspects

The context framing this research tells the story of country undergoing a post-war nationwide reconstruction process. One which contemplates the shaping of a renewed capital, where thousands of new houses destined to the low-income population continuously stretch the limits of its urban periphery. This process emerged in parallel, and perhaps influenced by contemporary international initiatives towards rethinking the

urban agenda, encompassing the improvement of living conditions in slums worldwide³¹. Furthermore, as mentioned in Chapter Three, the post-war reconstruction of Angola also created room for discussions around topics such as urban growth, homelessness, adequate housing conditions, amongst others. Such considerations have been gradually translating into national policy-making on development of infrastructure, including provision of housing and improvement/upgrading of urban fabric, all of which contemplated in the NUHP, a national flagship for reconstruction.

Despite the NUHP's intentions, findings arising from this research raise questions regarding challenges associated with the low-cost housing sector and its resident population in Luanda. The empirical chapters highlight residents' perceptions of poor housing conditions, potentially unsafe structural solutions, lack of infrastructure to serve existing (and future) population and building stock, but also an apparent failure to consider aspects of socio-spatial integration within wider strategies for urban development.

9.2.2 - Dwelling variations and typologies

A first observation resulting from the implementation of PPOA's Stage 1 as part of the spatial assessment, focused on the nature of the urban fabric and current conditions of dwellings in both case study areas. This initial survey looked at dwellings from a technical perspective, against previous criteria for adequate and appropriate housing (UNHCR and UN-Habitat, 2009). It also intended to provide an overall understanding of the case studies areas' fabric and dwellings' key features, highlighting the most common variations found within each dwelling.

As far as case study Area One is concerned, it was difficult to identify and define typologies, given the immense diversity in building elements and approaches to construction. The survey thus looked at specific elements within the dwellings such as number of storeys, layout/arrangement, construction methodology, existence or not of an external area within the plot, visibility of the main house from street level, type of roof and type of openings (windows). Considering the above, the dwellings were categorised into three building typologies, attributed according to main construction methodology (concrete block, hollow brick, and timber) as well as the degree of exposure (visibility) from street level, grading from no external area (front door facing the street directly), low level enclosure of external area, and lastly view blocked by a high level solid wall. This

³¹ Expressed for example in the former MDGs Target 7D (Have achieved by 2020 a significant improvement in the lives of at least 100 million slum dwellers (United Nations, 2014a) and the newly formed SDGs Goal 11 (Make cities and human settlements inclusive, safe, resilient and sustainable (United Nations, 2015b)).

information set up a baseline information in which participants were associated to a specific type of building, thus promptly identifying its overall physical characteristics. The majority of participants reside in a concrete block house with limited visual exposure to the street, as the main core of the house was mostly hidden from street level view due to the use of high concrete block walls enclosing the space.

In case study Area Two, the formal nature of the urban fabric in Zango, characterised by repetition of a standard model of house throughout its extension, asked for a completely distinct approach in terms of identifying key features and variations of dwellings. Nevertheless, despite sharing most features, certain architectural elements do differ depending on the area of Zango in which the houses are located. These changes refer for example to colour of façades and/or subtle variations in layout and design. They do not affect however greatly the overall homogeneity observed throughout Zango. Furthermore, it is also common to find houses that have been built the longest - especially the ones in Zango 1 - that today display significant (occupant driven) modifications made to the initial typology. The extent of changes made to some of these houses means that in some cases it becomes practically impossible to visually trace the original base house.

FINDINGS AND FEEDBACK PRINCIPLES CARD: DWELLING VARIATIONS AND TYPOLOGIES

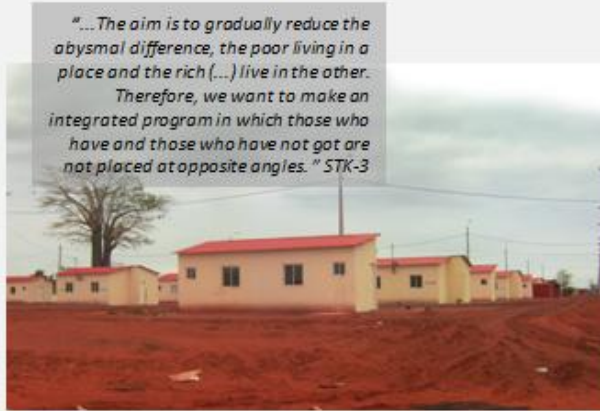
Case one - SPATIAL ASSESSMENT	MAIN FINDINGS		TO TAKE FORWARD	
	VARIATIONS AND TYPOLOGIES			
	• Difficult to identify typologies given the immense diversity in building elements and approaches to construction. • Main construction methodology: concrete block, hollow brick, and timber. • Typologies attributed according to main construction methodology, the degree of exposure (visibility) from street level, and lastly view blocked by a high level solid wall. • The majority of participants lived in a concrete block house with limited visual exposure to the street, as the body of the house was mostly hidden from view from the street level thanks to the use of high concrete blocks walls enclosing the space.		1. Technical support/advice/training towards owners/builders and professionals on aspects of construction. <i>Authorities, NGOs, local universities, community organisations/associations.</i> 2. Introduction of measures of quality control of materials and components. <i>Authorities, Industry, community</i> 3. Introduction of building regulations and/or guidelines, inclusive of informal construction practices <i>Authorities, NGOs</i>	
Case two - SPATIAL ASSESSMENT	MAIN FINDINGS		TO TAKE FORWARD	
	VARIATIONS AND TYPOLOGIES			
	• Standard core house, replicated through the extension of Zango. • Certain architectural elements differ (colour, subtle variations in layout and/or design) • Main construction materials: concrete block, corrugated iron sheets. • Due to homogenous appearance, typologies devised firstly according to construction methodology and then by modifications made to the base core house. This ranges from no modifications to major modifications. • Common to find houses that have been built the longest that today display significant modifications made to the initial typology.		1. Technical support/advice/training towards owners/builders and professionals on aspects of construction. <i>Authorities, NGOs, local universities, community organisations/associations.</i> 2. Introduction of measures of quality control of materials and components. <i>Authorities, Industry, community</i> 3. Introduction of building regulations and/or guidelines, inclusive of informal construction practices <i>Authorities, NGOs</i>	

Fig. 9.1 - Summary of findings and feedback principles for Spatial Assessment: Dwelling Variations and Typologies on both case study areas.

9.3.3 - Building fabric, adequacy and appropriateness

With regards to building fabric, adequacy and appropriateness, in case study Area One findings reveal that the shaping of the bairro's built environment has undergone significant changes over time, and that social perception associated with materials and construction practices have been playing an important role in this process of metamorphosis. Based on accounts provided by participants who lived in Chicala the longest, particularly CHIC-1:F, CHIC-5:F and CHIC-12:M - aged 54, 50 and 44 respectively all living in the area for more than 30 years -, building materials and construction methodologies used in the bairro have suffered a notable change in the last four decades. Starting with "luando" (reeds) houses built and inhabited by fishermen in the early 1970s, to timber houses which after the independence eventually succumbed to the now widespread concrete block. Presently, the range of most commonly observed materials that make up the building fabric include blocks (mostly concrete) used as walling material, cement (floors, mortar, wall plaster), corrugated iron sheets and fibrocement (for roofing), and ceramic tiles (as finishing material for floor or walls).

Despite complaints of overheating felt in internal rooms and accounts of deterioration of material as a consequence of proximity to the sea, when enquired on preferred construction methodologies, the choice amongst participants fell almost unanimously on concrete block due to its perceived enhanced durability and strength when compared to other materials which are not seen as appealing. It is likely that a variety of factors contributes to this, including those of appropriateness raised by participants who firmly advocate that other materials would not be strong enough nor appropriate to the context and location. Materiality was also found to be intrinsically connected with perception of durability, and in its turn with sense of permanence and temporality of dwellings. Occupants referred to their houses as permanent due to the use of concrete blocks, with no concern being raised towards the quality of these. Such claims are based on personal perceptions of what these concepts represent to the occupants and often bear a history of previous contact with other materiality and types of housing at some point in their lives. CHIC-20:M and CHIC-10:F for example both lived in tin houses before being able to finally build a house using concrete blocks, a milestone which they both associate with improvement of conditions and quality of life. These cases are also strengthened by the fact that existing houses built with other materials such as wattle-and-daub, adobe blocks or timber are either associated with rural areas (therefore with poverty) or currently only found in advanced state of decay within the bairro (a pattern also observed in other urban informal settlements in Luanda visited by the researcher), whilst concrete block houses stand and seem to be resilient and relatively easy to repair or maintain.

Adding to the above, given the easy accessibility to locally made concrete blocks (sourced from a small scale local plant or other informal and formal materials markets) or

possibility of self-production in-situ, seems to also be contributing for this preference. From a technical point of view, this potentially raises a problem associated with quality of materials as well as of skills and knowledge of labour involved in construction. For example, some of the participants who, despite acknowledging the higher quality of factory made blocks claimed to have produced blocks used in the walls of their houses themselves, did not have a background nor significant previous experience in construction. Nevertheless, with the economic aspect playing an important role in the decision process, it was claimed that making their own blocks brings the costs of construction down whilst contributing towards a rapid building process, a fundamental factor when the pace of construction guarantees a spot, hence taking priority over other considerations such as quality of materials or overall construction. Adding to the above, the 'user-friendliness' of this construction material and technique also lends itself to fit in within the organic production of space in the settlement and seems to be perpetuating the continuous ongoing construction mind-set reported by participants who described their house as unfinished products. The overall positive occupants' satisfaction regarding construction materials is not however always supported by the component of physical assessments carried out as part of PPOA. These suggest that good quality and appropriateness of materials used to form the building envelope as well as the skilled labour employed during manufacture and construction, all play an important role towards enhanced durability of dwellings.

Looking at appropriateness in this context also touches upon issues of identity and cultural heritage. CHIC-12:M for example, the owner of one the last three timber houses in the *bairro* surviving as an island surrounded by concrete block houses, deliberately chose to hold on to it as a symbol of identity and history. On this matter, and especially with regards to future of this case study area, which has been under pressure in light of recent demolitions and clearing out operations, some of the stakeholders interviewed have different views. Whilst a group of architecture students called out for the acknowledgment of *musseques* as a part of Luanda's culture and history, it is likely that such appeals will have very limited influence on the views of the government officials and policy makers interviewed. The latter oppose to this interpretation of culture and openly advocates a renewed vision of urban space that does not include informal settlements.

Criticisms of inappropriateness are also directed to case study Area Two. These focus mainly on two distinct aspects: failure to accommodate social and cultural habits of the population (which overlaps with section 9.3.1 on space, layout and aesthetics) in dwellings and overall scheme, and from a dwelling scale the inability to effectively protect against elements and extreme climatic events such as heavy rain and flash floods. The latter applies to particular areas of Zango, namely Zango 1, which was planned on what according to ZNG-7:M was a well-known flood plain. This results on housing contents

damaged on a yearly basis, and the inconvenience of having to temporarily move out when this happens and living with the uncertainty of not knowing what will be found when occupants are back. Moreover, and still on environmental aspects, findings revealed that satisfaction towards the houses' indoor thermal environment generally differ amongst participants living in houses provided as part of the resettlement project and those who built their houses (assisted self-building). Nevertheless, in either case, participants mostly show concern towards keeping the house comfortable during the hot season, as it can cause overheating and thus discomfort. Measures to increase satisfaction put in place in order to achieve indoor comfort also differ depending on whether occupants had any control over the construction process, which is more relevant to houses built under the assisted self-building programme. However, as shall be discussed in the following section, the beneficiaries of the resettlement programme (who did not have an input in the construction of the house) also tend to make additions or alterations to their houses in order to increase satisfaction.

Resettlement project's participants expressed an overall dissatisfaction towards the building fabric of dwellings. This applies generally the whole house, but is especially directed towards particular building elements or components. In terms of building elements, participants referred for example to the metal doors and windows as being of low quality, fragile and unable to provide enough safety for the occupants. Discussion on durability of dwellings in Zango will have to have into consideration the fact that the earliest dwellings date back to the early 2000s (Zango 1), unlike Chicala in which some of the dwellings observed had been originally built in the 1970s. Nevertheless, a similar issue to that observed in case Area One regarding the low quality of building materials and poor labour skills/know-how is already visible at this stage in Zango. This is particularly the case on extensions built by occupants - as the occupant input regarding material selection and layout in the base house of the resettlement project is inexistent or minimum. Furthermore, a general sense of dissatisfaction and perception of poor quality and less durable dwellings was expressed amongst residents who had been delivered houses as part of the resettlement project, in relation to the lack of finishes in walls and floors.

To take forward:

This subsection's 'Findings and Feedback Principles Card' suggests the following principles to address the issues highlighted above:

CASE ONE:

1. Participatory and inclusive processes towards design and production of urban fabric
2. Technical support/advice/training towards owners/builders and professionals on aspects of construction.
3. Introduction of measures of quality control of materials and components.

CASE TWO:

1. Participatory and inclusive processes towards design and production of urban fabric
2. Technical support/advice/training towards owners/builders on housing design for comfort and environment (passive and low-cost strategies).
3. Introduction of measures of quality control of materials and components and monitoring and evaluation processes

FINDINGS AND FEEDBACK PRINCIPLES CARD: **BUILDING FABRIC AND APPROPRIATENESS**

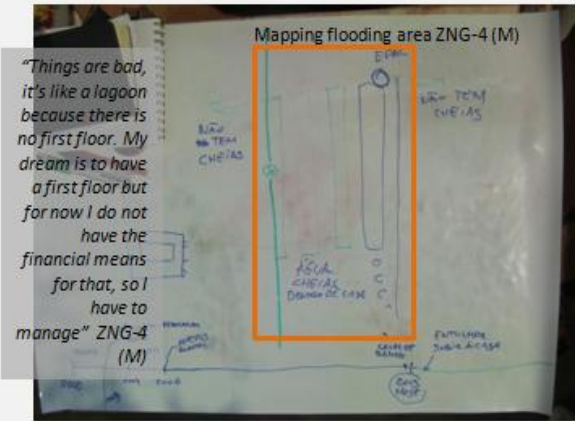
Case one - PHYSICAL ASSESSMENT	MAIN FINDINGS BUILDING FABRIC, ADEQUACY AND APPROPRIATENESS • Building fabric choices conditioned by financial circumstances, perceptions of permanence and improvement of quality of life; • Discomfort indoors associated with inappropriateness of materials to environmental conditions (overheating and noise levels); • Flexibility of space, responsive to changing needs and requirements of families and likely to accommodate different generations under one roof (informal nature of settlement); • Feeling of loss of identity and cultural heritage associated with depreciation of traditional construction practices and clearance of settlements.  "I built a few rooms to help students that have no place to stay, so they rent and study. And I rent to families as well". CHIC-25 (M)	TO TAKE FORWARD 1. Technical support/advice/training towards owners/builders on housing design for comfort and environment (passive and low-cost strategies). <i>Authorities, NGOs, local universities, community organisations/associations.</i> 2. Periodic documentation and mapping of construction practices and methods. <i>Local universities NGOs, community</i> 3. Introduction of measures of quality control of materials and components. <i>Authorities, industry, community</i>
Case two - PHYSICAL ASSESSMENT	MAIN FINDINGS BUILDING FABRIC, ADEQUACY AND APPROPRIATENESS • No (or limited) owner input in aspects of design or construction (standard house); • Housing design and envelope disconnected from environmental (discomfort: thermal, noise), socio-cultural context (overcrowding, issues of privacy); • Occupant-driven adaptation strategies: to increase thermal comfort (air conditioning, false ceiling, size of windows) and visual diversity. • Local indigenous knowledge not taken into consideration to decide upon location (some areas flooding on a yearly basis); • Lack of spatial diversity – repetition of same house, lack of green areas; 	TO TAKE FORWARD 2. Participatory and inclusive processes towards design and production of urban fabric <i>Authorities, NGOs, local universities, community organisations/associations.</i> 1. Technical support/advice/training towards owners/builders on housing design for comfort and environment (passive and low-cost strategies). <i>Authorities, NGOs, local universities, community organisations/associations.</i> 3. Introduction of measures of quality control of materials and components and monitoring and evaluation processes <i>Authorities, community</i>

Fig. 9.2 - Summary of findings and feedback principles for Physical Assessment: Building Fabric, Adequacy and Appropriateness on both case study areas.

9.3.4 - Structural stability and construction process

With regards to aspects of structural stability and construction process, findings demonstrate that absence or poor quality of overall dwelling structural frame or elements, potential risk associated to poor assembling of building elements, poor workmanship/ low-skilled labour, are present in both case study areas. This fact seems to suggest that the variable of a formal built environment in itself does not necessarily entail improved structures or buildings. As described in Chapter Six, the built environment in Chicala is mostly composed by concrete block construction methodology. Although there were cases where a structural frame was present (particularly in houses with two or more storeys), it was more often the case that concrete blocks were being used to form external and internal load bearing walls, which in their turn were punctured by openings (windows) thus potentially compromising the structural capacity. Moreover, due to the *bairro's* particular location in close proximity to the sea (bay), houses tend to be built on unstable platforms composed by piles of construction debris and waste, which following stabilisation with poured concrete, also serve as foundations, a practice also acknowledged as problematic by residents but that did not stop its perpetuation.

Despite the widespread absence of structural elements such as pillars, columns or beams, heavy elements such as large water tanks (1000 litres or larger) were observed on top of roofs, hence putting extra pressure on load bearing walls. It is likely that cracks and fissures observed on the walls of various dwellings may be a consequence of all the above as well as of poor workmanship (mostly self-built or through locally sourced labour) and seldom maintenance and repairs. It is also common that roofs are not attached to walls and are rather kept in place through the use of heavy elements such as rocks or broken concrete blocks placed directly on top of the roofing materials.

Like in case study Area One, concrete block is also the main construction methodology in case study Area Two. However, the (core) house that populates Zango follows a specific layout and in the case of the resettlement project is built through the use of skilled labour. Despite the formal nature of these dwellings, similarly to what was observed in the informal settlement, concrete blocks are used to form load bearing walls with insufficient or absent structural elements. This approach to construction is also observed in the majority of extensions adjacent to the base standard house, these being usually built by owners/occupants in a manner that resembles construction practices observed in Chicala, i.e, informally and following current requirements of space. As far as the houses build under the assisted self-building programme are concerned, although the overall tendency is to consider and incorporate a structural frame and/or elements, this was ultimately be dependent on whoever was carrying out construction works and their level of skills or knowledge in construction. As pointed out in one of the field visits by STK-10, architect

and university lecturer, this can potentially lead to inadequate (under or over) dimensioning of structures for the purpose, which in its turn may result on raw material being wasted, therefore an unnecessary financial input. Furthermore, and perhaps more seriously, an incorrectly dimensioned structure may also result in the collapse of the building, thus being a risk for occupants.

Participants in Zango were prompt to identify structural problems and pointed out aspects such as the lack of structural frame or elements and the poor quality of construction as a negative aspect and thus a source of dissatisfaction towards the houses. This was not the case in Chicala. Instead, herein occupants expressed a general satisfaction and trust towards the structural safety of their houses. Moreover, even when cracks or fissures were acknowledged, these were referred to minor problems that could be easily fixed. A view which despite in line with advocates of an upgrading approach of informal settlements in Luanda, was not shared by government officials interviewed, who were keen to call attention to risks resulting from what is perceived as poor structure in such areas. The stance in favour of a strategy based on clearance stated by the latter was often supported by arguments of a perceived lack of structural safety in informal settlements.

To take forward:

This subsection's 'Findings and Feedback Principles Card' suggests the following principles to address the issues above:

CASE ONE:

1. Technical support/advice/training towards owners/builders and professionals on aspects of construction.
2. Introduction of measures of quality control of materials and components.
3. Introduction of building regulations and/or guidelines, inclusive of informal construction practices

CASE TWO:

1. Participatory and inclusive processes towards design and production of urban fabric
2. Technical support/advice/training towards owners/builders and professionals on aspects of construction.
3. Introduction of measures of quality control of materials and components.

FINDINGS AND FEEDBACK PRINCIPLES CARD: **STRUCTURAL SAFETY AND CONSTRUCTION PROCESS**

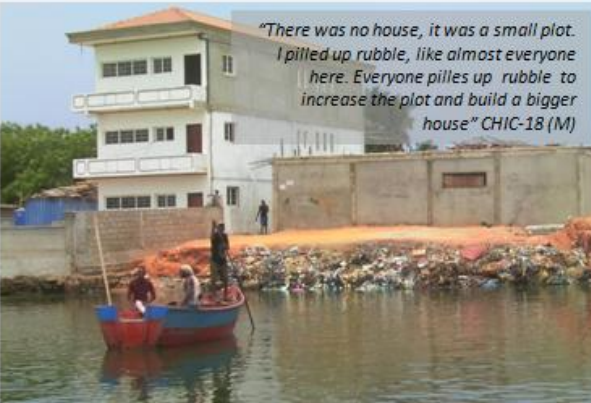
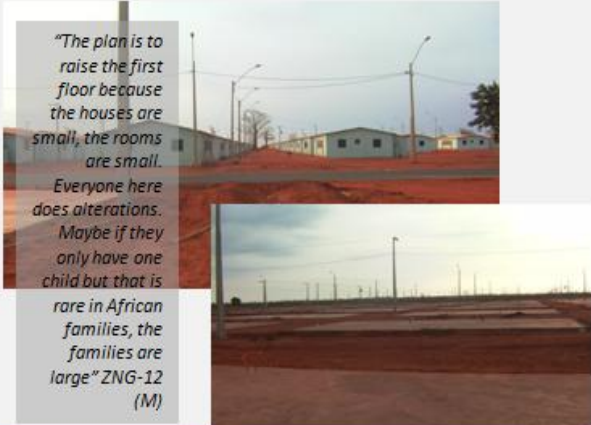
Case one - PHYSICAL ASSESSMENT	MAIN FINDINGS STRUCTURAL STABILITY AND CONSTRUCTION PROCESS • Owner-driven construction process responsive to household requirements – empowerment • Preference for materials made in-situ (no quality control) • Overall poor quality of dwellings characterised by absence of structural elements and/or poor quality of structure – Risk of collapse; • Construction over unstable ground (stabilised waste and rubble) • Low-skilled labour and construction knowledge limited to particular methodologies (concrete block, fibrocement and metal sheet) • Lack of building regulations or guidelines for informal practices	 <i>"There was no house, it was a small plot. I piled up rubble, like almost everyone here. Everyone piles up rubble to increase the plot and build a bigger house" CHIC-18 (M)</i>	TO TAKE FORWARD 1. Technical support/advice/training towards owners/builders and professionals on aspects of construction. <i>Authorities, NGOs, local universities, community organisations/associations.</i> 2. Introduction of measures of quality control of materials and components. <i>Authorities, Industry, community</i> 3. Introduction of building regulations and/or guidelines, inclusive of informal construction practices <i>Authorities, NGOs</i>
Case two - PHYSICAL ASSESSMENT	MAIN FINDINGS STRUCTURAL STABILITY AND CONSTRUCTION PROCESS • Scarce or absent structural elements (currently load bearing concrete block walls); • Structural strategy of base house not dimensioned for (vertical) expansion; • Concept of house as finished product challenged by occupants – addition of extensions; • Extensions: poor construction quality, low-skilled labour, owner-driven; • No technical assistance, lack of monitoring and evaluation and supervision; • High adaptability, depending on financial conditions • Pockets of informal settlements emerging (house as an asset)	 <i>"The plan is to raise the first floor because the houses are small, the rooms are small. Everyone here does alterations. Maybe if they only have one child but that is rare in African families, the families are large" ZNG-12 (M)</i>	TO TAKE FORWARD 1. Participatory and inclusive processes towards design and production of urban fabric <i>Authorities, NGOs, local universities, community organisations/associations.</i> 2. Technical support/advice/training towards owners/builders and professionals on aspects of construction. <i>Authorities, NGOs, local universities, community organisations/associations.</i> 3. Introduction of measures of quality control of materials and components. <i>Authorities, community</i>

Fig. 9.3 - Summary of findings and feedback principles for Physical Assessment: Building Structural Stability and Construction Process on both case study areas.

9.3.5 - Infrastructure, services and accessibility

With regards to a wider scale of urban form, dwellings in Chicala emerge with no repetition or pattern, and no apparent orientation determining where and how much to build. The inter-depend relationship between the physical expansion/growth of dwellings and the wideness and direction of streets/roads is evident, with dwellings built in close proximity of each other (usually adjacent to each other) and expanding horizontally, rather than vertically - although some cases of houses with more than one floor were observed. These exist amongst a network of streets and accesses which seem to develop as a function of the built form and not the other way around. Whilst primary roads can be more than three metres wide, secondary and tertiary streets can be as narrow as one metre wide or narrower (alleys). In terms of road access, compared to other informal settlements in Luanda, bairro Chicala is easily accessible from the main road (mainly due to being located within the centre of Luanda, and therefore shares access to road infrastructure), however, once within the neighbourhood the circulation by car or foot is challenging. This is the case due to overall poor quality characterised by absence of pavement, and lack of maintenance which results in large pot holes (often filled with contaminated water from sewage and/or rain water), cars randomly parked or just left abandoned, and other large objects blocking the way. Whilst the condition of the road was not associated as a problem by participants, the *bairro's* location in close proximity the city centre and therefore the easy access to all services in walking distance to town, was a source of satisfaction amongst participants

The spatial organisation in Zango is perhaps what stands out as the most striking difference between the informal Chicala and the formally planned Zango. In the latter, rather than continuous and dense strips of organically placed dwellings, there are rows of plots - only partially occupied with construction - meticulously placed next to each other and cut through by an orthogonal network of roads and streets. A modular system composed by house plus external area and road that is being repeated as Zango expands. Primary roads are paved, whilst secondary and tertiary roads are left unpaved and already showing signs of deterioration due to lack of maintenance. Although not at a scale found in the informal settlements, a condition that the residents attributed to insufficient or absent rain water drainage systems.

With regards to electricity and water, Chicala is served by the national power grid, however its provision is intermittent and power cuts are frequent. These can extend for days leaving in the dark those who cannot afford a diesel powered generator. This issue was also raised in relation to the use of appliances and conservation of food which is also affected by the blackouts. The problem of unreliable provision of electricity was not specific to this bairro but rather applies to Luanda generally - and also extends to Zango.

As far as water is concerned, with exception of some of the houses integrated in the formal urban fabric which faces the main road (Rua Agostinho Neto), Chicala is not serviced by piped water. Nevertheless, participants would resource to various strategies in order to collect and store water in their houses. Such dissatisfaction contrasts with positive remarks made on the bairro's privileged location in relation to the city centre and all its services and equipment (including work opportunities, health services, government departments, assistance, etc.). The latter was pointed out as poor in Zango, which despite being provided with infrastructure (although often not fully functional), was seen as too distant from the centre and lacked services to which people would have had access when living within Luanda. Although access to different services and equipment differs depending on the area of Zango, the participants widely agreed that the greatest gap is in healthcare and education. For them, the lack of a large hospital and public primary schools represents a major concern for the population. A tendency which was nevertheless reported as evolving and improving in parallel with Zango's growth.

Zango's houses contemplate access to water and electricity - a fact widely promoted as a flagship of the project and as a factor contributing to an improved quality of life. However, as mentioned above the provision of power was not continuous and was generally allocated to different zones in different days. Moreover, findings also show that in some areas the water supply was not fully functional and in those cases participants reported still using 1000 litres tank or other smaller containers to guarantee access to water.

To take forward:

This subsection's 'Findings and Feedback Principles Card' suggests the following principles to address the issues above:

CASE ONE:

1. Introduction of low technology measures to collect rain water from roof surface
2. Electricity generation through individual or communal renewable energy strategy to reduce impact of black outs.
3. Drainage ditch in primary and secondary streets

CASE TWO:

1. Implementation of monitoring system in place to record and take action on problems in infrastructure
2. Energy production through renewable sources (individual or communal).
Introduction of low technology measures to collect rain water from roof surface
3. Implementation of a sustainable planning strategy based on a combination of technical and participatory process, responsive to context specific constraints and

requirements, encouraging diversity of spaces and land use and access to a variety of services and equipment.

FINDINGS AND FEEDBACK PRINCIPLES CARD: **INFRASTRUCTURE, SERVICES AND ACCESSIBILITY**

Case one - PHYSICAL ASSESSMENT

MAIN FINDINGS

INFRASTRUCTURE, SERVICES AND ACCESSIBILITY

- Overall poor or absent infrastructure, made more difficult by high density settlement fabric;
- Electricity from national grid but unreliable, generators being the reliable source of power, but not affordable to all (cause sound pollution);
- Absence of water provision strategy leaves residents open to exploitation from private sellers;
- Small shops and markets available within the settlement;
- No waste water drainage strategy in place results in accumulation of stale water after rains.
- Difficult access due to poor condition of internal roads;
- Proximity to Luanda's services and work opportunities

TO TAKE FORWARD

1. Introduction of low technology measures to collect rain water from roof surface
Community, NGOs
2. Electricity generation through individual or communal renewable energy strategy to reduce impact of black outs.
Authorities, NGOs, local universities, community organisations/associations.
3. Drainage ditch in primary and secondary streets
Authorities, NGOs, community

Case two - PHYSICAL ASSESSMENT

MAIN FINDINGS

INFRASTRUCTURE, SERVICES AND ACCESSIBILITY

- Infrastructure in place (electricity and water) but still unreliable;
- Problems with water provision lead to alternative ways to access and store water;
- Lack of communal areas and play areas for children;
- Internal roads showing signs of decay;
- Some dwellings have been adapted to house businesses, shops;
- Distance from Luanda's centre impacts on access to work, health, schools;
- Commuting: leaving home at 5am and returning later in the evening;
- Financial implications: 3 (private) taxis to reach Luanda, heavy traffic, stress, impact on social connections.

TO TAKE FORWARD

1. Implementation of monitoring system in place to record and take action on problems in infrastructure
Community organisations/association, authorities, NGOs
2. Energy production through renewable sources (individual or communal). Introduction of low technology measures to collect rain water from roof surface
Authorities, NGOs, local universities, community organisations/associations
3. Implementation of a sustainable planning strategy based on a combination of technical and participatory process, responsive to context specific constraints and requirements, encouraging diversity of spaces and land use and access to a variety of services and equipment.

Fig. 9.4 - Summary of findings and feedback principles for Physical Assessment: Infrastructure, Services and Accessibility on both case study areas.

9.3.6 - *Space, layout and aesthetics*

Aspects of space, layout and aesthetics were found to play an important role in terms of occupant satisfaction towards participants' houses. Moreover, it was also observed that these have a direct impact on building form and change. In line with this, findings suggest that the ability of dwellings to respond to (often changeable) contextual requirements such as variable number of occupants or household change in needs and requirements throughout time determines satisfaction levels of occupants.

Dwellings in Chicala ranged from a single room of approximately 10m² to larger multi-roomed houses, occasionally with more than one floor. Moreover, as identified previously when defining dwelling typologies, the majority of houses had access to external private courtyards, usually enclosed with a wall, either completely or partially blocking view from street level. On participants' satisfaction towards current space/size of their houses, findings revealed that adequate or satisfactory space depends on a balance between space available and number of occupants in the house, however existing space in relation to the number of occupants was rarely referred as a problem. This issue tends to be addressed by increasing the living area of the dwelling when required, through construction of extensions or an extra floor, space and financial conditions allowing. This was not however applicable to participants renting as they could not make changes to the house themselves and were rather dependent on the landlord to make such alterations.

As far as Zango is concerned, a different urban approach which focuses on the replication of a finished product regardless of location or number of occupants, entails a limited flexibility of use and adaption by occupants. The failure to accommodate and respond not only to the diversity of households but also to changing circumstances was criticised by participants who regard this as a negative feature of the dwellings. In addition to the above, they further demonstrated discontent towards a mismatch between space (area) provided in the base core house and concepts of traditionally extended Angolan families. Faced with a tight room for diversity imposed by the homogenous urban fabric in Zango, evidence nevertheless suggests that occupants have been gradually finding a way around it by replicating the space increasing strategy in a manner resembling practices in the informal settlements, with perhaps the only difference at this stage being the restriction to a delimited plot. Although providing extra living covered area, these additional elements tend not to follow the same standards found in the base house and are frequently poorly built.

Although participants widely agree on lack of space within the house, the views on the external area were generally more positive and focused on highlighting the improvement from living conditions in previous residence, especially when the comparison is made in relation to informal settlements. The sense of improvement is mainly due to extra

external space allocated to each house and lower urban density as well as spatial organisation of urban fabric in Zango. However, and considering the gradual increase of covered area due to the addition of extensions on the current external area allocated to each plot, it is likely that the aspect that participants so promptly pointed as positive may suffer a significant change in a near future as it gets reduced in proportion to the built area of the plot.

As far as aspects of aesthetics with relation to their home in bairro Chicala, findings imply that a house can be considered aesthetically pleasing depending on a myriad of different aspects, ranging from layout, practical use of space, the type of materials, finishes, and decoration. Walls and other building elements on which finishes were not applied, revealed signs of deterioration due to exposure to the elements and general wear and tear, as opposed to plastered walls which were in better condition. The occupants were generally aware of this problem and demonstrated intention to plaster walls, tile existing bare cement floors, and/or replace roofing material (usually from corrugated metal to fibrocement) in order to prevent deterioration due to exposure to sea breeze, therefore intending to extend the lifespan of dwellings.

In Zango the absence of finishes in the houses (internal/external walls and floors) upon delivery was pointed out as the main aspect contributing to dissatisfaction associated with aesthetics and appearance of dwellings. An issue particularly relevant to beneficiaries of the resettlement programme, since self-builders are not initially provided with a finished house and are therefore responsible for completing their own. Consequently, this issue was not raised by the participants who built their house under the assisted self-building programme, as they had control over the construction process, including choice of materials and finishes. The dissatisfaction towards the lack of finishes in the houses was associated with a perceived idea of unfinished and poor quality houses. A feeling further enhanced due to other often incomplete works such as the electrical installation. Although the lack of exterior and interior finishes (bare external and internal walls as well as bare cement floors) was generally observed throughout Zango in houses that were part of the resettlement project, towards the more recent zones (namely Zango 4 and 5) the external walls were more frequently either painted, or plastered and painted, and had a more 'complete' appearance.

Although findings show that this issue was gradually addressed by some who were able to finish and beautify the houses either with construction works or planting of greenery and trees outside, the lack of financial means was also mentioned frequently as an obstacle to carrying out further construction works such as plastering walls and tilling floors. This also meant that not all occupants would have the opportunity to increase satisfaction levels in relation to this aspect.

To take forward:

This subsection's 'Findings and Feedback Principles Card' suggests the following principles to address the issues above:

CASE ONE:

1. Technical support/advice/training towards owners/builders on housing design for comfort and environment (passive and low-cost strategies).
2. Periodic documentation and mapping of construction practices and methods.
3. Implementation of a community based mechanism to liaise between landlords and tenants in various matters including advice on rights.

CASE TWO:

1. Participatory and inclusive processes towards design and production of dwellings
2. Technical support/advice/training towards owners/builders on housing design and construction.
3. Implementation of a community based mechanism to liaise between landlords and tenants in various matters including advice on rights.

FINDINGS AND FEEDBACK PRINCIPLES CARD: SPACE, LAYOUT AND AESTHETICS

Case one - SOCIAL ASSESSMENT	MAIN FINDINGS		TO TAKE FORWARD	
	SPACE LAYOUT AND AESTHETICS			
	• Gradual construction process linked to spatial needs; • Space/Occupants not an issue for residents but 'dream-house' would be larger; • Layout and space use: private, semi-private and public; • Highly dense fabric, limited access to available land. • House as a livelihood: spare rooms to rent out, integration of shops facing the street; • Aesthetics linked to use of decoration and capacity to accommodate comfortable occupants and visitors; • Trends determining notions and perceptions of aesthetics • Renting vs owning impact on efforts towards improving space and aesthetics.	<i>"You cannot find a house here like this one that I decorated" CHIC-18 (M)</i> 	1. Technical support/advice/training towards owners/builders on housing design for comfort and environment (passive and low-cost strategies). <i>Community organisations/associations,, NGOs, local universities, authorities.</i> 2. Periodic documentation and mapping of construction practices and methods. <i>Community, local universities NGOs.</i> 3. Implementation of a community based mechanism to liaise between landlords and tenants in various matters including advice on rights. <i>Community, community organisations/associations, NGOs, authorities.</i>	
Case two - SOCIAL ASSESSMENT	MAIN FINDINGS		TO TAKE FORWARD	
	SPACE LAYOUT AND AESTHETICS			
	• Base-house: Low flexibility or capacity to adapt to changing needs. No control over production of space causing dissatisfaction; • Size of base-house as delivered considered not in line with traditional Angolan family (large families); • Legal framework in place for changes/additions but not followed by all as it entails cost; • Feeling of security enhanced by orthogonal and wide (formal) arrangement of streets; • Increase of housing prices creating speculation; • Renting takes place in extensions built within the plot, not covered by a legal framework.	 <i>"[in previous settlement] in that place you could have three or four people, the houses were too close together. Not here, here is beautiful" ZNG-10 (F)</i>	1. Participatory and inclusive processes towards design and production of dwellings <i>Authorities, NGOs, local universities, community organisations/associations.</i> 1. Technical support/advice/training towards owners/builders on housing design and construction. <i>Authorities, NGOs, local universities, community organisations/associations.</i> 3. Implementation of a community based mechanism to liaise between landlords and tenants in various matters including advice on rights. <i>Community, community organisations/associations, NGOs, authorities.</i>	

Fig. 9.5 - Summary of findings and feedback principles for Social Assessment: Space, Layout and Aesthetics on both case study areas.

9.3.7 - *Safety, security and sanitation*

Home ownership was undoubtedly the main point of satisfaction raised in Zango, as it meant leaving behind the fear of insecurity associated with displacement or evictions - which was what brought some of the participants to being residents of Zango in the first place. As opposed to the above, residents in Chicala mentioned insecurity of tenure as a major problem and source of concern. A feeling enhanced by the awareness of the fact that population is being displaced from Chicala to the periphery of Luanda into areas such as Zango. Despite an overall wish to stay in Chicala, if option was given between having to be relocated or staying (with some evoking the generational attachment to the area), there is a general sense of hopelessness and resignation with regards to current events of population displacement and clearing out operations. The situation is further aggravated when people are renting, as in addition to the above, they also fear that landlords can raise the price as they please or evict them without notice. Regardless of fear of displacement, there is nevertheless a sense of permanence demonstrated through continuous construction works and application of permanent building materials observed throughout the *bairro*, including cases of complete demolition and rebuilding from scratch when houses no longer meet household requirements.

With regards to safety (absence of danger), Chicala was generally portrayed as being a quiet and safe area. Even so, satisfaction towards safety in participants' houses is mostly found to be associated with the incorporation of certain building elements that shape dwellings and increasingly enclose these from the outside. From all the participants interviewed in Chicala, only four did not have a high solid wall facing the street. These walls, an architectural feature observed throughout this and other neighbourhoods in Luanda (informal settlements), fully enclose the front courtyard thus providing a private area for the residents, where they cannot be seen from the outside. Other more uncommon architectural elements associated with a safety strategy observed are metal railings on the windows and/or in the gap between the high wall and the structure of an external roof, and more infrequently, mirrored glazed windows hiding the contents of the house from view. This spatial intervention indicates a reaction to a perceived increasing level of criminality, associated with escalating densification of the urban fabric.

Similarly to what is observed in Chicala, the role of the house itself as an element that contributes to the feeling of safety was a phenomenon observed and reported in Zango. Although not being part of the original base standard house, some of the houses were modified and display architectural elements such as high perimeter solid walls, metal bars on the windows, etc. In addition to architectural features, personal perception of safety seems to also rest upon factors such as the presence of police and closeness to police stations, street layout, and origin of resident population (which informal settlements they

were relocated from). In Zango, the perception of safety amongst participants differs according to the area in which they reside. In this respect, findings revealed that although a feeling of safety in one's own area was generally expressed, participants tend to indicate other parts of Zango as unsafe. This was expressed for example in relation to the provenance of the relocated populations and whether or not they were originally from neighbourhoods of Luanda previously regarded as unsafe.

The formal arrangement of urban space in Zango was considered a general improvement in terms of quality of life and an aspect that promotes safety. Participants claim that the regular wide and orthogonal streets, as opposed to a labirintic and narrow random arrangement previously experienced in informal settlements, promotes safety as it provides fewer places for criminals to hide and is therefore easier to secure and police.

To take forward:

This subsection's 'Findings and Feedback Principles Card' suggests the following principles to address the issues above:

CASE ONE:

1. Technical support/advice/training towards owners/builders on housing design for comfort and environment (passive and low-cost strategies).
2. Implementation of waste and sanitation strategy, including public toilets and waste disposal and recycling point.
3. Energy production through renewable sources to minimise impact of black-outs (to street lighting).

CASE TWO:

1. Technical support/advice/training towards owners/builders on housing design for comfort and environment (passive and low-cost strategies).
2. Energy production through renewable sources to minimise impact of back-outs (to street lighting).
3. Implementation of a sustainable planning strategy based on a combination of technical and participatory process, responsive to context specific constraints and requirements, encouraging diversity of spaces and land use and access to a variety of services and equipment.

FINDINGS AND FEEDBACK PRINCIPLES CARD: SECURITY AND SANITATION

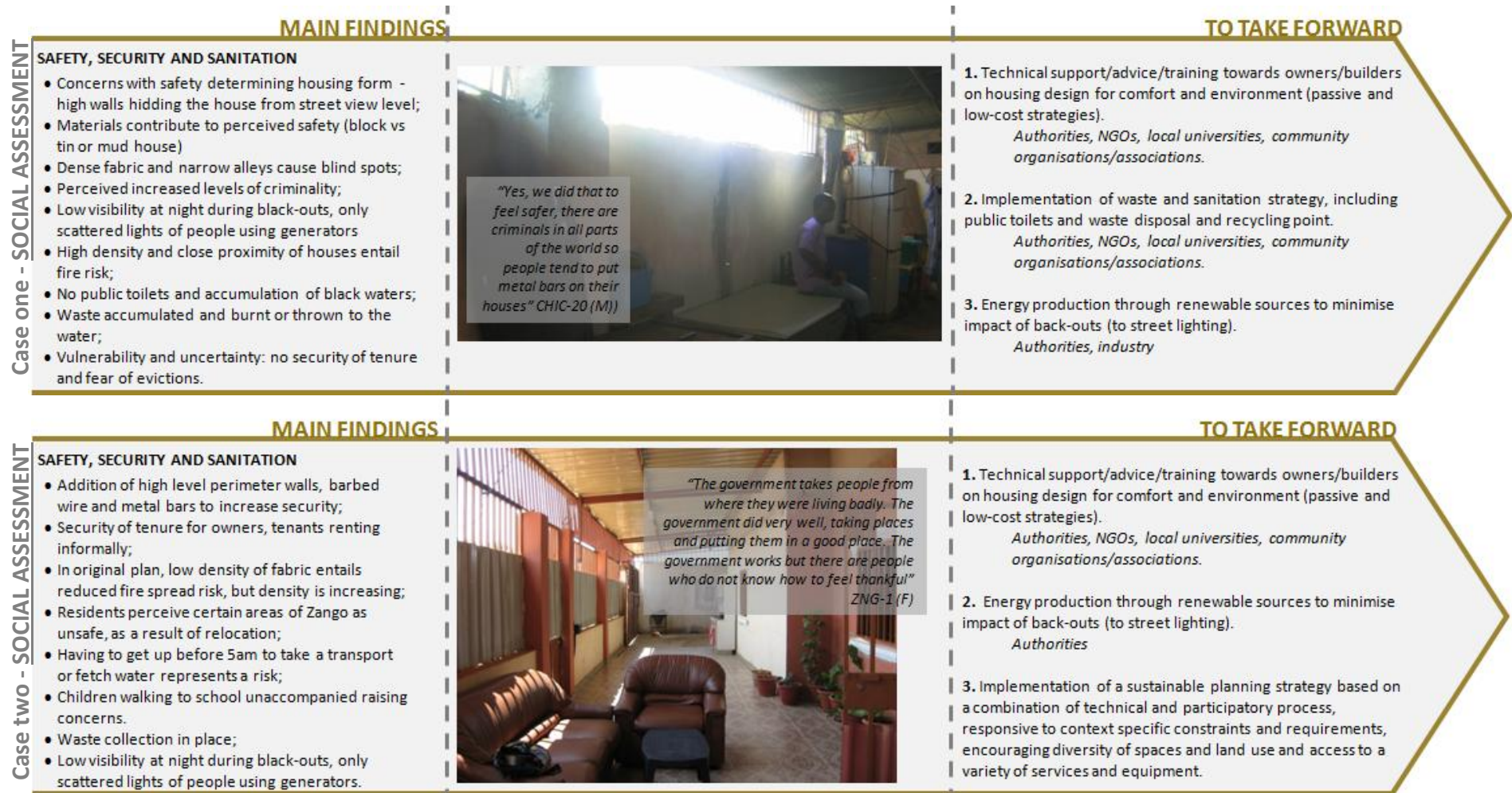


Fig. 9.6 - Summary of findings and feedback principles for Social Assessment: Safety, Security and Sanitation on both case study areas.

9.6 - SUMMARY

Chapter Nine analysed the main findings which emerged from the implementation of the PPOA framework. In addition to test the framework, it fulfilled the final stage of the PPOA process through the production of a succinct set of relevant information pinpointing the main issues found amongst participants and the relationship to their houses and context in a post-occupancy stage. This was achieved through reflecting on the findings of the empirical sections of the thesis (Chapters Six, Seven and Eight) and discussing these in light of the aim and objectives set for this research listed in chapter one, section 1.5.

Chapter Nine was structured into seven sections that follow the arrangement of the previous empirical chapters (Six, Seven and Eight). These are respectively: dwelling variations and typologies; building fabric, adequacy and appropriateness; structural stability and construction process; infrastructure, services and accessibility; space, layout and aesthetics; safety, security and sanitation.

CHAPTER TEN – Conclusions

Those who arrive at Thekla can see little of the city, beyond the plank fences, the sackcloth screens, the scaffoldings, the metal armatures, the wooden catwalks hanging from ropes or supported by sawhorses, the ladders, the trestles. If you ask "Why is Thekla's construction taking such a long time?" the inhabitants continue hoisting sacks, lowering leaded strings, moving long brushes up and down, as they answer "So that it's destruction cannot begin." And if asked whether they fear that, once the scaffoldings are removed, the city may begin to crumble and fall to pieces, they add hastily, in a whisper, "Not only the city." If, dissatisfied with the answers, someone puts his eye to a crack in a fence, he sees cranes pulling up other cranes, scaffoldings that embrace other scaffoldings, beams that prop up other beams. "What meaning does your construction have?" he asks. "What is the aim of a city under construction unless it is a city? Where is the plan you are following, the blueprint?"

"We will show it to you as soon as the working day is over; we cannot interrupt our work now," they answer.

Work stops at sunset. Darkness falls over the building site. The sky is filled with stars. "There is the blueprint," they say

Calvino, I. (1997) *Invisible Cities*, p. 127

10.1 - INTRODUCTION

Chapter One posed the question of whether people's housing aspirations and needs are being met through current policies and government-led strategies that favour a mass-housing approach as a means to mitigate high demand for housing in Luanda. This question emerged in relation to said strategies which seem to imply promises of fulfilment of "dreams" of ownership and adequate living conditions, as part of a response to rapid urban growth and post-war reconstruction. In addition to setting the overall conceptual course of this research, the question above also highlighted a challenge in relation to methodological approaches to be used in this context. Questions were raised with regards to appropriateness of methods to capture participants' stance on intended vs actual provision of 'dream-houses' and their views as occupants on matters of quality of life.

In light of the above, Chapter Ten revisits the background setting from which this study emerged. It then elaborates on this research's contribution to knowledge, one of methodological nature and that of contextual content. The former consisting of PPOA as a replicable framework and its potential as a tool to collect data on built environment and occupant satisfaction in a development context, whereas the latter sheds light into people's appropriation of space in two case study areas in Luanda, thus also creating knowledge around the wider process of socio-spatial urban transformation in Luanda.

Chapter Ten brings together and critically reflects on the findings (Chapter Nine), matching these against the aim and objectives set for this research outlined in Chapter One. It further discusses the ethical implications of this work and suggests scope and topics for further work.

10.2 – REVISITING THE RESEARCH PROBLEM

The literature portrays Luanda as one of the fastest developing cities in Africa. A view of economic development to which is frequently associated a sharp population increase and subsequent physical expansion of cities' footprint. As seen in Chapters Two and Three, this phenomenon is also observed in Luanda, especially as a result of successive rural-urban migration waves which occurred during the many years of war. Although the armed conflict ceased in 2002 this upward demographic trend remains present today, putting extra pressure on an already saturated infrastructure. Luanda, a city which still partially relies on services and infrastructure dating back to the 1970s when it was planned for an approximate number of 475,000 inhabitants, now accommodates more than 6.5 million people. Nevertheless, a renewed Luanda is taking shape whilst contemplating thousands of new houses destined to the low-income population, some of whom relocated from informal areas (*musseques*). Focusing on dwellings provided under the NUHP's framework, but also looking at informal settlements, this research explored whether current proposals to mitigate high demand for housing are meeting people's aspirations and needs, and ultimately improving their quality of life.

On this subject, a literature review indicates that such understanding of development, although in line with established definitions of the term³², was found to be strongly challenged by some sources. Hence, when referring to Luanda's context, rather than considering population or city growth as criteria to assess development, these tend to highlight aspects including inequality, poor living conditions, accentuated social contrasts and various actions put which affect negatively the most vulnerable resident population. All of which suggest a path inversely proportional to that of 'development' aforementioned. Such distinct perspectives thus demonstrate that even though in 2015 Luanda was considered and celebrated as the world's most expensive city for the third year in a row (Mercer, 2015), displays a skyline populated by modern high-rise buildings, and is becoming ever more attractive for national and foreign (including real estate) investment: the fact is that 54.3% of its population still live below USD 1.25 per day (UNDP, 2015a) and more than 70% is inhabiting in slum or extreme poverty conditions with limited or no access to services and basic infrastructure (Cain, 2014; Development Workshop, 2011a). This is also the fringe of population potentially most affected by an understanding of development which relies upon continuous shifting of people from A to B, relocation or (frequently forced) displacements, carried out under the pretext of a myriad of claims and promises of improved quality of life and urban fabric upgrades. A government-led beautification strategy resulting from the implementation of policies

³² The Oxford Dictionaries defines development as "A specified state of growth or advancement"

towards development of infrastructure, provision of housing and improvement/upgrading of urban fabric, where no room is left for informal practices and settlements.

This strategy encompasses for example the article 85.⁹ of the revised Constitutional Law of Angola ("every citizen has the right to appropriate housing and to a decent quality of life" (República de Angola, 2010a)), and various initiatives that share the same direction, including the MDGs and SDGs (Section 3.2). Also of particular relevance for the purpose of this work is the NUHP, a nation-wide programme set up in 2008/9 with the aim of addressing housing scarcity. This programme draws inspiration from mass housing programmes implemented elsewhere in the world with different degrees of success (section 3.5.1). The NUHP has been also known by other names, namely "One Million Houses Programme" and later as "My dream, My house". A phrase which in this context is used (often interchangeably) in relation to other terms such as 'dignified', 'appropriate' or 'adequate' housing.

During the course of the fieldwork, it was possible to get an understanding of the physical outcomes of the NUHP in terms of provision of low-cost housing in the outskirts of Luanda. Thousands of completed dwellings - and an undetermined number of others more in the pipeline -, now populate the landscape in the periphery of Luanda, occupying what up until the late 1990s was an extension of land that apart from agriculture had no other use. Looking closely at people who inhabit these dwellings through the implementation of the PPOA framework provided a rich insight into how such 'dream-houses' are being appropriated by occupants, and how these bring life to the recent periphery of Luanda.

In light of the above, this research has investigated the low-rent housing sector of Luanda, as experienced by the inhabitants/occupants themselves and also as perceived by the researcher. It explored issues of occupant perceptions and acceptability regarding the quality of dwellings in informal settlements as well as in a newly built low-cost mass housing development located in the outskirts of Luanda. This was achieved through the use a methodological strategy that draws from two well established research methodologies, which although originating from distinct disciplines - POE and PRA - have much to offer to each other. A combination of a technical framework of a building appraisal tool with an approach based on a participatory strategy. Together these provided an entry point into the occupants' satisfaction and performance of low-cost housing in Luanda.

10.3 – CONTRIBUTION TO KNOWLEDGE I: METHODOLOGICAL CONSIDERATIONS

Given the methodological component of this research, one of contributions to knowledge emerging from this research consists of PPOA as a replicable framework and its potential as a tool to collect data on built environment and occupant satisfaction in a development context. This section critically reflects on the experience of developing and implementing PPOA considering the context of this research. Additionally, it identifies shortcomings and ethics implications of its use.

10.3.1 - An alternative framework for assessing post-occupancy in Luanda

PPOA engages with Turner's vision of what housing means and intends to provide an holistic view of people as occupants of their homes that encapsulates more than their houses (section 3.3). Moreover, it also reflects Chambers' discussions on whose (and how) reality is represented with the 'normal professionalism' of research, and how can the ones who are usually left out from these processes be included (section 4.4).

The methodological approach developed for the purpose of this research proposes an appraisal method informed by two established approaches, which as demonstrated in Chapter Four have been successfully tried and tested in their respective fields (POE and PRA). Reflecting on Chambers' question 'Whose reality counts?', the researcher suggested that a method based on the principles of POE, which used in conjunction with PRA emphasises people as active participants in reflecting their own account of the dwellings and context in which they currently inhabit. Whereas POE can be limited in terms of providing the holistic view aforementioned, PRA often lacks the technical dimension that POE can offer.

Although important, when isolated a technical assessment of housing, could potentially lead to mismatches between people's needs and the actual housing provided. Any issues or conclusive analysis raised based solely on information gathered through a technical perspective would disregard residents' input to creation of knowledge. Turner's view that the practical use of a house is limited or inexistent if it does not take into consideration a wider range of aspects - usually of social nature - is further emphasised by the notion that a home/shelter/house encompasses more than four walls and a roof. Nevertheless, the above does not necessarily mean that a technical appraisal of dwellings should be disregarded. In fact, and revisiting the objectives of this thesis, bridging the gap between technical analysis and participatory occupant feedback was vital to get an insight into

participants' views as occupants and thus obtain an holistic picture of the current state of built environment in the case study areas. It was through this combination that problems and opportunities were identified and information that can be passed on to future project or developments was produced.

With Luanda facing systemic and complex housing problems, a framework such as PPOA could bring the possibility of a genuine engagement and subsequent best use of limited resources. An approach much in line with the aim of making "cities and human settlements inclusive, safe, resilient and sustainable" (United Nations, 2015). The active inclusion and contribution of people (in this case residents/occupants) throughout the process - including analysis of findings - as well as an assessment criteria responsive to context-specific requirements separates PPOA from existing built environment appraisal methods. When carrying out this research, PPOA has proven to be a valuable tool to better understand dwelling performance and occupancy satisfaction after occupation and whether in the case study areas. In addition to that, the implementation of PPOA also provided a rich insight into the process of urban transformation in a rapid growing capital of the Global South. The latter will be developed further ahead in this chapter as part of the contextual contribution of this research.

10.3.2 - Ethical considerations: Power relations and levels of participation

This section critically self-reflects on ethical implications which emerged during the course of this research, covering in particular those in relation to the development and application of the PPOA framework. It looks at issues of power relations, acknowledging that these may be implicit in the process and therefore potentially contribute to shape the outcomes and knowledge produced through participatory research processes of this nature.

The process of development and implementation of PPOA highlighted the complexity of 'participation' as a multi-layered and multi-dimensional concept. It also uncovered different types of participation as well as gradations of people involvement (e.g. Arstein, 1969; Pretty, 1995). All of which emphasise the challenge of managing levels of participation within this research and potential implications and impact, not only on the process but also on outcomes.

From the outset, the initial driver of this research (designing a framework which drew methodologically, at least partially, from a top-down assessment tool which does not necessarily contemplate participation) posed in itself a conceptual and structural challenge in terms of integrating participation consistently throughout the research process. Moreover, due to various programmatic and institutional constraints (e.g.

existing structure of doctoral programme and location of researcher), it was not always possible to have a consistent participant involvement during the entirety of the research. However, efforts were made to engage participants as much as possible in equitable and inclusive discussions in order to capture their views on the topic being investigated. Although participants were actively during the data collection, in part of the preliminary analysis and dissemination stages, they did not contribute towards the initial planning stage. Although this fact may be regarded as a failure to uphold all of Israel et al.'s (1998) 'principles of participation' or to rank up on the 'participation ladder' (Israel et al, 1969), it is also revealing of the fluidity of participation as a concept. Furthermore, it suggests that pre-defined standard structures of knowledge or linear framework approaches such as the latter, do not always recognise the complexity of participant involvement in research processes or the different ways of carrying out research with the same goal. The above also feeds into a wider debate around participation, one that explores the role of academic institutions in participatory research and power unbalances between researcher and subject of research. Although it is not in the scope of this work to engage in this debate, the researcher acknowledges that power relations or tensions emerging from power imbalances and privilege might have had an impact on the overall research process and therefore the outcomes, even if unintended by either party and despite all efforts made to neutralise these. This was particularly the case with regards to a potential power imbalance between researcher and participants, as a consequence of the researcher's personal and professional affiliations. Even if addressed through careful management of expectations, transparency and clarity in relation to aims and objectives, the following were nevertheless amongst the factors that might have influenced the participatory nature of this study: being a white woman, a citizen original from Angola's former colonial power, coming to Luanda for a limited period of time and bearing the weight of an institutional framework.

As a result, despite intentions to attribute 'participation' the primary role in this research, the process suggests that the integration of participation in PPOA calls for a case-specific and flexible approach to the concept. One that acknowledges the underlying factors resulting from aspects of power relations and other contextual constraints. Considering the experience acquired through this research, replicating PPOA would benefit from exploring the role of the researcher (the entity implementing PPOA) and their degree of involvement as a variable within the framework. For instance, designating community members as assessors could potentially move the component of participation in PPOA closer to 'interactive participation' or even 'self-mobilization' in Pretty's (1995) 'typology of participation model'. However, it is worth pointing out that one of the strengths of PPOA is the input of technical expertise alongside the use of participatory research. Depending on the availability of skills and resources, this may entail an approach more in

line with co-assessment, where researcher and participants/community work towards co-production of knowledge.

10.4 – CONTRIBUTION TO KNOWLEDGE II: CONTEXTUAL CONTRIBUTION

In addition to the contribution of methodological nature, findings emerging from the application of PPOA contribute to a better understanding of people's appropriation of space in two case study areas in Luanda. It further sheds light into the wider process of socio-spatial urban transformation in Luanda, through the lens of residents in a context of informal settlement and within a government-led mass-housing programme.

10.4.1 - More than 'Dream-houses': meeting real-life

Luanda's urban fabric is undoubtedly changing. In the midst of post-war reconstruction, Luanda faces the pressures of increased urbanisation and population growth, with its periphery being gradually populated with thousands of mass produced houses targeting the low-income population. These peripheral settlements absorb some of the people displaced from (in-city) informal settlements, but are also open to those who would not otherwise be able to afford living closer to Luanda's centre, nor in one of the 'new centralities' cities built around Luanda. Zango, a low-cost government-led mass housing development located in the capital's fringe, is closely associated with the NUHP, the governmental programme that aims to gradually reduce the housing deficit whilst aiming for social justice and well-being of the Angolan population (Gameiro, 2015). This settlement also highlights a paradigm of city making in which people's driven production of built environment is replaced with a top-down prescriptive interpretation of adequate and decent housing. One that comes with a brief of 'dream-houses' and promises of ownership and improved living conditions for those on a low-income. As the following demonstrate, evidence seems to suggest that from the occupant perspective and from a technical point of view, the NUHP's 'dream-house' as a means to improve quality of life is not necessarily reflected in occupant satisfaction, nor in increased quality or performance of dwellings when compared to the people's driven informal settlements.

Apart from vague statements referring to adequate and dignified housing as well as guarantee of security of tenure, not much was known in terms of brief on the low-cost housing for the masses populating Luanda's outer fringe. Although at first impression this could potentially make the comparison between *predicted* and *delivered* outcome

challenging, it rather pointed towards a gap between intentions and actual capacity of the NUHP's 'dream-houses' to satisfactorily meet resident's aspirations.

Security of tenure, expressed in terms of feeling of safety from displacement, stability, and/or loss of access to housing in relation to home ownership, was the one aspect that if looked at in isolation, would suggest a successful accomplishment in terms of occupant satisfaction (Sections 8.2.2, 8.3.2 and 9.3.7). Regardless of having settled in Zango as part of the resettlement project or as buyers and self-builders, the research indicates that a formal title securing tenure was undoubtedly the main point of satisfaction raised in Zango. For many, this meant leaving behind the fear of insecurity associated with displacement or evictions - which was what brought some of the participants to being residents of Zango in the first place. For some, having a title also meant having an asset that was inexistent before, and therefore some financial security. It was not uncommon to hear about houses that were sold shortly after delivery and how this pattern was contributing towards the dynamics of the property market and speculation in Zango. Furthermore, security of tenure also seemed to override other less positive aspects, suggesting the existence of a 'forgiveness factor' (Leaman and Bordass, 2007), in which home owners are prepared to overlook and forgive other points of dissatisfaction with regards to the relationship with their home and context. A factor also widely reported in POE literature with users of 'green buildings' in relation to inadequacies in their thermal environment (Deuble and de Dear, 2012).

As opposed to the above, residents in Chicala, despite claiming a 'de facto' ownership of their homes, raised insecurity of tenure as a major problem and a source of concern in their lives. A feeling enhanced by the awareness of the fact that population was being gradually displaced from Chicala to the periphery of Luanda into areas such as Zango. Despite the personal attachment to their houses and the wish to be given the option to stay, there was an overall expression of hopelessness and inevitability of change, fuelled by rumours rather than facts. The lack of factual information further contributed to a feeling of exclusion in the process, but also translated into the perpetuation of the continuous construction processes in Chicala, regardless of potential threats of displacement. As clearly demonstrated by one of the participants who had just demolished his house only to start building an improved and larger version from scratch, in the same plot (see profile CHIC-4:M in Appendix Four); as well as various claims that rent was increasing suggesting a successful renting market. The renting aspect adds another dimension to this debate. Zango, a project praised for bringing the dream of home ownership closer to people, now also accommodates tenants. These either live in the core base house or share the plot by renting rooms in extensions built by the property owner after occupancy. These spaces are occupied informally and are dependent on the landlord's decision as far as rent cost and maintenance are concerned. Such renting

agreements entail an uncertainty in terms of stability and permanence, an issue that does not seem to differ between Chicala and Zango.

With regards to aspects of structural stability and construction process, findings suggest that absence or poor quality of overall dwelling structural frame or elements, potential risk due to poor assembling of building elements, and use of poor workmanship/ low-skilled labour, are present in both case study areas. This demonstrates that the variable of a formal built environment in itself and as a concept does not necessarily lead to improved structures. Despite the forgiveness factor aforementioned, participants in Zango were prompt to identify structural problems in their houses and pointed out aspects such as the lack of structural frame or other structural elements and the overall poor quality of construction as a negative aspect and thus a source of dissatisfaction towards the houses. This was raised especially amongst those who received the house as finished product since, unlike with self-builders, there was no input in the construction of the core house.

With regards to the assisted-self building programme, despite the mention of provision of technical assistance towards construction in literature about the NUHP - as well as during interviews to government officials - this was not reported by participants (Section 3.4.3). The latter rather sourced their labour from local networks and connections, thus relying on their experience and knowledge to carry out construction works. Considering the absence of adequate building regulations and standards, as well as the lack of a supervision and monitoring strategy in place, this can potentially raise a problem of incorrect dimensioning of structures which can ultimately result in risk for the occupants.

From the participants' perspective, structural stability was not raised as an issue in informal Chicala. Herein, instead occupants expressed a general satisfaction towards the structural safety of their houses. Apart from cracks or fissures being acknowledged, but referred to as minor problems that could be easily fixed, occupants generally trusted the right choices had been made with regards to structural strategy and materiality in their houses. A view which despite in line with advocates of an upgrading approach of informal settlements in Luanda, was not shared by government officials interviewed who supported clearance of informal areas due to risks resulting from what is perceived as poor structures in such areas. Although evidence seems to suggest that a control over the construction process may increase occupant trust (and thus satisfaction) in the structural integrity of the dwelling, the PPOA technical assessments nevertheless challenged this and raised problems found in dwellings at structural level. As seen in section 7.2.2, there were clear examples of construction practices that could compromise the integrity of the house and put the occupants at risk. This was particularly the case with construction on unstable ground or load bearing concrete block walls made in-situ with random ratio of components which in its turn support a considerable amount of weight. This is valid not

only in Chicala, but also in Zango. In the latter, the extensions built after occupation in order to increase the living area of the plot are usually of lower quality than the initial core house and of similar standard of those found in Chicala.

Referring to the particular case of case Area Two - Zango - although some aspects defined in the criteria for adequate housing referred to in section 5.6.3 are indeed addressed through the provision of formal housing, evidence point to an absence of preliminary site assessment and people consultation/participation in the process of programme development. As observed on the ground, this had a direct impact for example on the houses and occupants in Zango 1 who are left defenceless against heavy floods that hit that area every year during the rainy season, damaging their houses and contents beyond repair (Section 7.3.3). Moreover, this further implies the disregard of lessons learnt from programmes of similar nature implemented elsewhere in the world, such as Sri-Lanka's Million Houses Programme, criticised for lack of people's involvement in the planning process. The absence of participation in this programme, as pointed by Joshi and Khan (2009) compromised the ability to meet people's real needs and requirements. Also, it also ignores earlier urban plans put in place to address housing shortage and to reduce the proliferation of informal settlements in Angola in the 1960s. These have been criticised by Amaral (1968), who called attention to structurally unsound buildings, with a design which did not accommodate people's cultural context as well as to an urban layout of monotonous streets where landscape was scarce (section 2.6.1).

In line with the above, the same apparent lack of acknowledgment and integration of contextual cultural aspects is raised with regards to issues of space and layout at the dwelling scale. The inability to cater or accommodate traditionally large families was pointed as a major obstacle to occupant satisfaction in Zango, where a standard solution composed by a plot including a core house (full or incremental) is used throughout regardless of household size or cultural use of space (Section 8.3.1). The PPOA assessment suggests that the ability of dwellings to respond to (often variable) contextual requirements such as number of occupants or change in household circumstances throughout time determines satisfaction levels of occupants. This was further validated in Chicala, characterised by a continuous construction process that seemed to organically develop in function of a variety of household circumstances, ranging from household size, to uses of space (layout of house), or financial situation.

Access to infrastructure, which as seen in section 3.2.1, is a vital aspect of inclusive and sustainable cities as well as adequate housing, although in theory an integral part of Zango is still often inefficient and unreliable. However, this is the result of a cross-cutting problem with energy generation at city scale which has a direct impact on occupants, regardless of location and nature of settlement within Luanda. As a result, diesel

generators - often working continuously for days - are used by those who can afford this measure, as a backup strategy to overcome deficient electricity supply. A problem which also affects street lighting in public space during night time whilst black outs occur. This adds to other issues of personal safety pointed out by participants, namely the fear of having to fetch water from afar in the early hours of the morning because the water supply in the house is not functional. This was not however a general problem in the different areas visited in Zango, but nevertheless a fundamental source of dissatisfaction for those who had to live with it.

The priority of the NUHP on providing houses in a short timeframe, and the focus on quantifiable and tangible outcomes, favours an unbalanced preference towards large extensions of residential areas. This fails to accommodate essential basic services that as evidence showed are fundamental for inclusive and sustainable life of the resident population. Participants raised concerns about access to hospital and healthcare facilities, more schools so that children do not have to walk alone to and from distant schools, communal spaces and leisure areas. Moreover, with Luanda's centre still providing the majority of employment, the inconvenience and financial implications of a daily commute involving three taxi rides each way and many hours in a chaotic traffic was also a source of dissatisfaction amongst participants. This was referred to as an obstacle not only by those who could not support the daily costs but also in relation to the impossibility of leaving children alone all day while the parents are away in Luanda to work.

Nevertheless, and despite the aforementioned distance from Luanda, there was a general feeling of safety in Zango amongst participants. The regular orthogonal grid of urban space, low density, and wide streets that dictates the urban fabric in Zango, was regarded as an improvement comparing to more informal and dense settlements. In the latter, according to participants, an accident in one of the houses (e.g. a fire) could very quickly spread onto the adjacent and so forth. Even so, the tendency towards erecting high perimeter walls enclosing the plots, hiding the house and patio from street view, seems to gradually become part of the urban fabric. A practice in line with patterns found in Chicala, where the houses enclosed by these architectural elements are said to provide safety and privacy to occupants. An occupant driven strategy which, as shall be discussed in the following section, also contributes to increased satisfaction.

10.4.2- Adaptive environment: occupant driven measures to increased satisfaction

Given the demographic patterns of Luanda presented earlier in section 2.2.2 it is likely that the tendency for urban population growth will continue in years to come. This stance is also acknowledged by the State who has given steps towards addressing

housing shortages throughout the country, but with particular emphasis in Luanda. With regards to housing the low-income population, considering that the current approach is based on an open-ended large scale mass housing programme, findings suggest that this process could benefit from incorporating the implementation of a framework that could access successes and failures of current projects. Therefore, applying PPOA approach at a large scale in Angola could potentially provide an entry-point to learn from failures and successes in order to inform and benefit the making of future housing programmes. However, mainstreaming this approach in low-cost housing as part of project delivery process in a context lacking a fully functional planning structure and regulatory framework covering the building industry may prove to be a challenge. It may be difficult to formally implement it as a stage of building design and construction in itself when these are not clearly defined in the first place – and where usually construction carries on after delivery. Even if surely relevant, not having a structure in place in order to facilitate continuous feedback of information within the industry and occupants could result in one-off PPOA studies with very little impact on future projects and therefore on improving people's quality of life. Nevertheless, having an insight to the relationship between home occupancy and building satisfactory performance has the potential of generate a body of knowledge relevant to inform future housing programmes that more responsive to people's actual needs and aspirations, thus paving the way towards materialising dream houses into reality. Considering the particular context of this research, in which the NUHP contemplates the provision of technical assistance to those engaging in self-building activities (República de Angola, 2008), the outcomes can be further incorporated as an element of technical assistance benefiting self-builders.

Despite the inversion of power found in relation to the provision of housing in Zango whereby, unlike what is observed in case Area One, people lose control over the production of their own built environment, the most obvious finding to emerge from this study is that such tendency is bound to be only temporary. This emerges from the fact that various participants in Zango have claimed to be doing, or having done, minor or/and major alterations to their houses without supervision or control and without having been approached by authorities after works' completion. Although such actions may not lead to an improved performance of dwellings (from a technical point of view), these nevertheless can contribute towards increasing satisfaction levels towards their houses as they are tailored to meeting occupant's needs and requirements. If on the one hand the execution of a monitoring and evaluation strategy could be a way to guarantee the implementation of good quality construction practices, the absence of such measures suggests an alternative path towards increased occupant satisfaction. Moreover, it also allows residents to gain back control of the creation/modification of the built environment in which they inhabit - thus emulating people's driven approaches and practices found in the informal settlements.

The occupant's input in increasing satisfaction towards their own living environment in Zango is also visible in other fronts, such as changes to architectural space to reduce the impact of flood water inside the house, changes in the building envelope to increase thermal comfort, strategies to store water (which also often impact on the physical space of the house), changes in layout to meet users' preferences (for instance, bringing cooking space and toilets to the outside of the house), and so on. Furthermore the same applies to incremental changes towards diversity of land-use and offer of various services and commercial spaces (either accommodated by the space of the house or as a stand-alone structure), which also highlights the emergence of business and entrepreneurial initiatives to bridge gaps of needs. Although this suggests that some of the aspects that at the moment are causing dissatisfaction amongst occupants can be solved through this process, it does not cover the problems that are beyond people's control, such as infrastructure or access to healthcare and schools for example. Without the input of the planning authority, these occupant led adaptive strategies can only occur up to a certain point.

10.4.3 - Feedback Principles to take forward

Maginn et al. (2008) remind that although it is fundamental to identify the scale and extent of housing problems, responses based solely on increasing supply of housing in order to meet requirements and needs, only covers part of the solution. The authors further state that it is necessary that policymakers "recognise the contextual and cultural underpinnings of the housing problem in order to address specific issues at the heart of the housing problem" (Maginn et al., 2008 p.9). Amongst other aspects, this includes understanding what home means to individuals and households.

In light of the above, and considering the spatial outcome of Zango in terms of housing as delivered, evidence suggests a mismatch between social/contextual requirements and what is actually being provided: an end product consisting of a de-contextualised model of dwelling, often criticised by its occupants, repeated any given number of times regardless of context-specific conditions of implementation or target population. In addition to the above, and given that with regards to this programme the same approach has been followed since its early stages at least since 2000 up until the present day (hence anticipating that the same will apply to the future) findings further suggest that construction and delivery are not followed up by monitoring and evaluation procedures. As a consequence, a failure to capture observed problems (as well as potential good practices) and not considering occupants' participation through feedback may result in poor or absent knowledge transfer to following projects.

This research thus suggests that the fulfilment of the NUHP goal to bring adequate and decent houses to people, relies on an holistic approach to housing that takes into account the complexity and variety of factors beyond the dwelling as a structure. One that also contemplates and acknowledges owner-driven adaptation strategies, whilst guaranteeing the contextual conditions and support of a fully functional planning and legal framework. On the latter, evidence from this research but also from the literature (Section 3.5.1) suggests that the implementation of policies based on radical approaches such as clearance of informal settlements and an approach relying upon the repetition of a single typology of dwelling regardless of specific environmental conditions, social and cultural precedents - both assumed as the most appropriate solutions towards improvement of quality of life of their residents - may be leaving out views and occupant satisfaction of those inhabiting dwellings in informal settlements. In addition to reveal an unclear and vague concept of a 'dream-house' as put forth by the NUHP, such measures raise the question on whose 'dream' the production of these mass housing developments is intending to fulfil.

Such plans further imply that urban space produced through informal practices does not meet standards of life and must therefore be reversed. However, according to occupants enquired in informal and formal areas, adequacy and appropriateness of dwellings are not necessarily dependent on four walls and a roof, as the combination of these elements alone does not compose a "dream-house". In addition to a sound structure, this research showed that occupants prioritise a house well integrated with its environment which provides them with opportunities and access to services and is able to accommodate changing needs and cultural background of a household, as well as provide protection from extreme climatic events and against criminality.

Mass housing programmes such as Zango would benefit from a strategy based on a continuous monitoring prior, during and post implementation (occupation) working on a feedback loop of information. This includes the need for the development of site assessment in order to determine appropriateness to construction (mainly environmental factors) prior to construction; the provisional of technical assistance or training to self-builders in order to avoid structural issues in new construction or extensions during construction phase; and implementation of monitoring and evaluation system, namely a participatory post-occupancy assessment at a large scale. The latter would allow for a better understanding of issues associated with programmes of this nature and avoid or reduce the occurrence of future problems.

Based on the outcomes of the PPOA assessments stated above, Chapter Nine (subsections of section 9.2) suggests the following measures as principles to take forward and inform future housing development strategies in Luanda:

- Participatory and inclusive processes towards design and production of urban fabric (including dwellings)
- Implementation of a sustainable planning strategy based on a combination of technical and participatory process, responsive to context specific constraints and requirements, encouraging diversity of spaces and land use and access to a variety of services and equipment.
- Technical support/advice/training towards owners/builders and professionals on aspects of construction.
- Technical support/advice/training towards owners/builders on housing design for comfort and environment (passive and low-cost strategies).
- Introduction of measures of quality control of materials and components.
- Introduction of building regulations and/or guidelines, inclusive of informal construction practices
- Introduction of low technology measures to collect rain water from roof surface
- Electricity generation through individual or communal renewable energy strategy to reduce impact of black outs (at the dwelling scale).
- Energy production through renewable sources (individual or communal). Introduction of low technology measures to collect rain water from roof surface
- Drainage ditch in primary and secondary streets
- Implementation of monitoring system in place to record and take action on problems in infrastructure
- Periodic documentation and mapping of construction practices and methods.
- Implementation of a community based mechanism to liaise between landlords and tenants in various matters including advice on rights.
- Implementation of waste and sanitation strategy, including public toilets and waste disposal and recycling point.

10.5 – POTENTIAL FOR FUTURE RESEARCH

The objective of this thesis is neither to generalise its outcomes nor to be statistically representative of the whole housing sector in Luanda. It rather provides an insight into the

lives of the participants in specific case studies and the particular circumstances of their lives. However, increasing the sample size as well as case studies would allow for a better understanding of how occupants perceive the universe of housing in Luanda. Moreover, scaling up the application of PPOA would also allow for the quantification of qualitative data and ultimately generate benchmarks for cases analysed. In addition to potentially generate more data, this would also open the possibility to put emphasis on the iteration aspect and adjust the PPOA framework as required to better and more accurately respond to the reality being investigated.

Having access to a larger structure and resources could also explore the full potential of the framework as a participatory tool. This could be achieved through a long-term engagement strategy, perhaps through partnering with local NGOs and universities. Furthermore, as already touched on section 10.3.2, the researcher also identifies potential room for exploring strategies for development of capacity building of individuals, communities, or organisations and thus encourage the co-implementation of PPOA in different contexts.

Another potentially relevant issue to explore in future research associated with the use of this framework is the suggestion of a forgiveness factor associated to home ownership. In POE studies this is usually associated with occupants' tendency to be more acceptant towards buildings with 'green credentials'. In this case the findings seem to suggest that security of tenure overrides other less positive aspects in people's houses. A more in-depth research looking into how the 'forgiveness factor' can impact on occupants' satisfaction in low-cost mass housing projects could potentially contribute to develop a better understanding of what occupants are prepared to overlook and forgive. It could also contribute to gauge how this is weighted in relation to other aspects of their home. Furthermore, having access to such data could also potentially provide an entry-point to challenge and discuss the application of universally established concepts of appropriateness and adequacy of housing.

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Section F – **APPENDICES**

APPENDICES LIST

Appendix 1 - Full list of MDGs and targets

Appendix 2 - SDG full list and targets

Appendix 3 - Extended version of data tables

Appendix 4 - Residents/Participants profiles and stories

Appendix 1 - Full list of MDGs and targets

	GOAL 1 - ERADICATE EXTREME POVERTY & HUNGER Target 1.A: Halve, between 1990 and 2015, the proportion of people whose income is less than \$1.25 a day; Target 1.B: Achieve full and productive employment and decent work for all, including women and young people; Target 1.C: Halve, between 1990 and 2015, the proportion of people who suffer from hunger
	GOAL 2 - ACHIEVE UNIVERSAL PRIMARY EDUCATION Target 2.A: Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling
	GOAL 3 - PROMOTE GENDER EQUALITY AND EMPOWER WOMEN Target 3.A: Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015
	GOAL 4 - REDUCE CHILD MORTALITY Target 4.A: Reduce by two thirds, between 1990 and 2015, the under-five mortality rate
	GOAL 5 - IMPROVE MATERNAL HEALTH Target 5.A: Reduce by three quarters the maternal mortality ratio; Target 5.B: Achieve universal access to reproductive health
	GOAL 6 - COMBAT HIV/AIDS, MALARIA AND OTHER DISEASES Target 6.A: Have halted by 2015 and begun to reverse the spread of HIV/AIDS; Target 6.B: Achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it; Target 6.C: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases
	GOAL 7 - ENSURE ENVIRONMENTAL SUSTAINABILITY Target 7.A: Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources; Target 7.B: Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss; Target 7.C: Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation; Target 7.D: <u>Achieve, by 2020, a significant improvement in the lives of at least 100 million slum dwellers</u>

GOAL 8 - DEVELOP A GLOBAL PARTNERSHIP FOR DEVELOPMENT

Target 8.A:

Develop further an open, rule-based, predictable, non-discriminatory trading and financial system;

Target 8.B:

Address the special needs of least developed countries;

Target 8.C:

Address the special needs of landlocked developing countries and small island developing States;

Target 8.D:

Deal comprehensively with the debt problems of developing countries;

Target 8.E:

In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries;

Target 8.F:

In cooperation with the private sector, make available benefits of new technologies, especially information and communications



MDGs list. Adapted from (We can end Poverty 2015 - Millennium Development Goals, 2013)

Appendix 2 - Full list of SDGs and targets

Goal 1.	End poverty in all its forms everywhere
Goal 2.	End hunger, achieve food security and improved nutrition and promote sustainable agriculture
Goal 3.	Ensure healthy lives and promote well-being for all at all ages
Goal 4.	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
Goal 5.	Achieve gender equality and empower all women and girls
Goal 6.	Ensure availability and sustainable management of water and sanitation for all
Goal 7	Ensure access to affordable, reliable, sustainable and modern energy for all
Goal 8.	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
Goal 9.	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
Goal 10.	Reduce inequality within and among countries
Goal 11.	Make cities and human settlements inclusive, safe, resilient and sustainable
Goal 12.	Ensure sustainable consumption and production patterns
Goal 13.	Take urgent action to combat climate change and its impacts [*]
Goal 14.	Conserve and sustainably use the oceans, seas and marine resources for sustainable development
Goal 15.	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
Goal 16.	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
Goal 17.	Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

SDGs: and targets. Adapted from (UN-HABITAT, 2015)

Appendix 3 - Extended version of data tables

Case Area One (Chicala)

Code	Gender	Age group	Previous residence	When moved	House		Occupancy		Services				Main problems	Main benefits
					Typology	Brief description	Number	Relationship	Water	Strategy	Electricity	Strategy		
CHIC -1	F	45-54	Opposite side of the bay, but close (Luanda)	Always lived in the area	3a	Good access; One room, built during the colonial period; Toilet area outside; Very advanced state of deterioration.	4	Relatives	N	Buys water from a house by the main road that has piped water. Keeps water in containers	N	Uses candles. No generator	The poor state of the house, wood is rotting away. Cannot even have electric wiring. Feels that has power over decisions made to be displaced from there.	Safe neighbourhood, previous generations grew up in the same area.
CHIC -2	F	35-44	Bairro Prenda (Luanda)	1993	1b	Wide access; Enclosed patio in the front - high wall; Rendered walls; Zinc roof; Good condition.	13	Relatives	N	Buys water from a house by the main road that has piped water. Keeps water in containers. Uses water for washing and cleaning taken from a hole in the ground - sea water	Y	Connected to the grid. Backup generator.	External courtyard wall not high enough. Poor condition of zinc sheet on the roof and inappropriate material - overheating and too noisy.	Safe neighbourhood. School for small children nearby (walking distance)
CHIC -3	M	45-54	Rented house in the same bairro (Luanda)	1990	1a	Narrow access; Zinc roof; No patio but access to the house paved with tiles; rendered and painted walls; Plants on main façade.	7	Relatives, Husband, wife and 5 children	N	Buys water from a house by the main road that has piped water. Keeps water in containers Uses water from washing and cleaning taken from a hole in the ground - sea water	Y	Connected to the grid. No backup generator	Performance of materials - not happy with zinc roof (too hot and noisy)	Safe neighbourhood
CHIC -4	M	25-34	Chicala, lived there with grandfather (and previously in another rented house) (Luanda)	2010	1a	Narrow access; one room house, rendered on the outside. Extension of the main house that belongs to the landlord.	2	Him and wife	N		Y	Connected to the grid.	Physical structure of the house, not good enough; high rent, Would like the courtyard to be covered	Safe neighbourhood
CHIC -5	F	45-54	opposite side of the bay, but around there (Luanda)	More than 30 years	1c	Good access, left exposed in patio but rendered on the outside; Closed compound - Main house plus extension. Patio covered with zinc roof.	5/6?	herself, daughters and grandchildren	N	Buys water from a house by the main road that has piped water. Keeps water in containers	Y	Connected to the grid but disconnected from lack of payment	No electricity for lack of payment.	Feels safe because she owns the house.
CHIC -6	F	25-34	house opposite (Luanda)	2009	1c	Wide access; Closed compound, rendered on the outside. Main house plus extension. Covered patio	7	herself, husband, brothers and child	N	Buys water from a house by the main road that has piped water. Keeps water in containers	Y	Connected to the grid.	Unreliable electricity supply. patio cover too low.	Safe neighbourhood
CHIC -7	F	45-54	Yahenda bairro (Luanda)	1991	1c	Narrow access; Closed compound, rendered on the outside. Main house plus extension. Covered patio	11	herself, children, grandchildren and sister	N	Buys water from a house by the main road that has piped water. Keeps water in containers	Y	Connected to the grid. No generator	Dislikes the most the lack of piped water and unreliable energy provision	Safe and tranquil neighbourhood
CHIC -8	M	45-54	Coqueiros (Luanda)	1992	?	Narrow access; Closed compound.	6	himself, children	N	Kept in containers.	Y	Connected to the grid.		Being an owner
CHIC -9	F	55-64	Malange (Luanda)	1982	1a	Wide access; Main one bedroom house facing the road.	8	family, children and 3 stepsons	N	Buys water from a house by the main road that has piped water. Keeps water in containers. Uses water from washing and cleaning taken from a hole in the ground.	Y	Connected to the grid.	Lack of space for herself and her family. Lack of water. No cooker	Calm neighbourhood

Code	Gender	Age group	Previous residence	When moved	House		Occupancy		Services				Main problems	Main benefits
					Typology	Brief description	Number	Relationship	Water	Strategy	Electricity	Strategy		
CHIC -10	F	35-44	Kwanza Norte	2007	1a	Wide access; Main one bedroom house facing the road.	6	herself, children, grandchildren and niece	N	Buys water from a house by the main road that has piped water. Keeps water in containers. Disinfects the water after 2 days in containers	Y	Connected to the grid. No generator	the current roof is leaking, needs changing but she can't afford it	She is now in her own house; Good area, close to town. Having all her family with her;
CHIC -11	M	45-54		around 1989	NA	Wide access; Has just demolished to rebuild another house.	6		N	Buys water from a house by the main road that has piped water. Keeps water in containers	Y	Has generator	cracks from time to time due to poor structural stability	
CHIC -12	M	35-44	Bairro popular (Luanda)		1c	Wide access; External front and back patio; Back patio large and partially covered; Very good condition.	6	family	N	Buys water from a house by the main road that has piped water. Keeps water in containers	Y	No generator	No water. Increase perception of lack of safety, loss of identity accentuated by the change in construction types	
CHIC -13	M	45-54	Sagrada Família (Luanda)	1989	1b	Wide access; External front and back patio. Visible from outside. Good condition.	4	family	N	has a 1000l tank in his house that is refilled by a truck that comes to the neighbourhood. Buys that water	Y	No generator	Sense of hopeless with regards to the future of his condition resident in Chicala	Safe area, mostly because of its location (close to Luanda centre and not distant from the presidential palace).
CHIC -14	F	35-44	Benguela	1993	1c	Wide access; rendered on the outside. Front and side open patio; High wall, house not visible from outside.	13	family and adopted children	N	Buys water from a house by the main road that has piped water. Keeps water in containers	Y	No generator	plan was not thought properly and now she is not happy with the location of the kitchen. Issues of safety in the neighbourhood (built a high wall to prevent people from getting in)	does not need to pay rent anymore
CHIC -15	F	35-44	Bairro Coqueiros, (Luanda)	when she was 20	2c	Wide access, plastered outside; Open side patio; High wall, house not visible from street	4	family	N	has a 1000l tank in his house that is refilled by a truck that comes to the neighbourhood. Buys that water or from the house near the road	Y	No generator		
CHIC -16	M	35-44	Another bairro (Luanda)	1988	1b	Wide access; Low-level wall, house visible from outside	8	family	N	has a 1000l tank in his house that is refilled by a truck that comes to the neighbourhood. Gets better prices in water than other people because he knows those who are supplying the water	Y	No generator	Started building the house knowing he would eventually have to move	Feels safe because it is his own house. He likes the house. Likes the neighbourhood because it is close to work and close to town
CHIC -17	F	25-34	Another bairro (Luanda)	2009	1a	Wide access; room in compound of several rooms; No external wall blocking the view, room visible from outside.	3	family (2 children)	N	Buys water from a house by the main road that has piped water. Keeps water in containers	Y		Thinks the room is small for her and her children. Main problems with the neighbourhood is the lack of services - water, problems with electricity provision, no taxis.	Safe neighbourhood
CHIC -18	M	35-44	Another bairro (Luanda)	2000	1a	Wide access; External walls plastered; External area by the side of the house; House visible from outside.	3	family (2 children)	N	has a 1000l tank in his house that is refilled by a truck that comes to the neighbourhood. Buys that water. Uses water from the bay for toilet flush	Y	Generator		Safe neighbourhood. Close to town
CHIC -19	M	25-34	Another neighbourhood (Luanda)	2006	1c	Wide access; 1 bedroom house; External patio covered with corrugated iron sheet;	3	family (wife and children)	N	Buys water from a house by the main road that has piped water. Keeps water in containers	Y	Generator	It is a rented house he does not feel safe in the house	Safe, quiet neighbourhood. Close to town.

Code	Gender	Age group	Previous residence	When moved	House		Occupancy		Services				Main problems	Main benefits
					Typology	Brief description	Number	Relationship	Water	Strategy	Electricity	Strategy		
CHIC -20	M	55-64	Another neighbourhood (Luanda)	1992 (to Chicala)	1c	Wide access; External patio open; High wall, house not visible from the street	3	family and another child(not family)	N	Has a 1000litre cistern under the patio that he sometimes fills up with water. Has been empty for some time and now uses smaller containers that he fills up with water	Y		Windows and door need fixing	Feels safe in the house as he claims to own it.
CHIC -21	M	18-24	Curimba, Samba, another neighbourhood in Luanda	2005	1c	Wide access; External patio covered; High wall, house not visible from the street	1	NA	N	.				
CHIC -22	M	55-64	Vila Alice (Luanda)	2006	1a	Narrow access; Small one room concrete house; blocks left exposed; Poor conditions	4	Family	N	Buys water from a house by the main road that has piped water. Keeps water in small containers	Y	Has generator	Lack of space for himself and his children. House overheats because of roof. Unreliable provision of electricity and no water.	
CHIC -23	M	25-34	Another neighbourhood (Luanda)	2009	1a	Narrow access; Small one bedroom house; Walls plastered inside; No external area	3	family, wife and child	N	Cement tank, cistern dug up in the ground (9thousand litres). Filled up by water truck	Y	Has generator	Temporary house, not the best materials. House small for his child to play	Does not have to pay rent as house belongs to father in law. Can save for towards the construction of the house
CHIC -24	F	35-44	Cabinda	1989	1c	Wide access; External patio covered; High wall, house not visible from the street	3	family	N	gets drinking water from one of her apartments in another neighbourhood in town. Water for housework gets from a well in Chicala	Y		Overheating of space	Has the family together
CHIC -25	M	55-64	Praia do Manu (Luanda)	1977 to Luanda, 1995 to Chicala	2b	Wide access; 2 storey house; Walls plastered outside and inside; High external wall; house partially visible from the street	3 + 30 rented	family and tenants	N	does not have tank. Stores water in containers	Y	generator	Unreliable electricity supply. House not prepared to be built on unstable ground (on the water) because it results in cracks. Lack of space	Safe neighbourhood; proximity to city centre, amenities and services.

Case Area Two (Zango)

Code	Gender	Age group	Previous residence	When moved	House		Occupancy		Services				Main problems	Main benefits
					Typology	Brief description	Number	Relationship	Water	Strategy	Electricity	Strategy		
ZNG-1	F	55-64	Luanda centre	To move soon	1c	Base house, plus extensions on the back of the house. (Resettlement programme)	7	Relatives	Y	pipd water	Y	Not continuous	Flooding and consequences. Lack of finishes in the house when they were given it.	Owning the house
ZNG -2	M	25-34	Ilha de Luanda	around 2006	1a	Base house only. (Resettlement programme)	3	Relatives	Y	pipd water	Y	Not continuous	Small house for his household, does not allow for family growth. Young couple want to have more children and cannot see how they will fit.	-
ZNG -3	M	55-64	Ilha de Luanda	around 2006	1c	Base house, plus extensions on the back of the house (Resettlement programme)	6	Relatives	Y	pipd water	Y	Not continuous	Flooding and consequences	Quiet area
ZNG -4	M	35-44	Boavista	2001 (tents), 2003 (house)	1c	Original house plus extensions (2 separate living areas and bathrooms outside). Wall around the plot. Construction works in progress (Resettlement programme)	9	family, plus 1 person renting	Y	pipd water	Y	Not continuous	Flooding and consequences. Period spent in tents before moving to the permanent house.	Safe area
ZNG -5	M	25-34	Boavista	finally moved in 2009	1b	Base house, low wall around the plot. Few alterations. (Resettlement programme)	6	relatives	Y	pipd water	Y	Not continuous	Floods, no action from authorities to solve tis problem. lack of space for growing family	Safe area, child friendly area, no longer in a risk area, Zango offers more services than before
ZNG -6	M	45-54	Boavista	2006	1a	Base house only. (Resettlement programme)	7	relatives	Y	pipd water, but does not working well. Keeps a 1000l tank as a backup	Y	Not continuous	Houses poorly built, lack of structural elements. Irregular water and electricity; no primary school; No markets nearby	Quiet area, some small shops nearby
ZNG -7	M	35-44	Boavista	2001	1b	Original house plus extensions. Wall around the plot. Construction works in progress. (Resettlement programme)	12	relatives	Y	pipd water	Y	Not continuous	Floods. Stress and discomfort from problems of flooding.	Moved from a risk area in town.
ZNG -8	F	45-54	Boavista	1999 (tents), 2001 (house)	1b	Base house only. (Resettlement programme)	10	relatives (herself and children)	Y	pipd water	Y	Not continuous	Floods, site unsuitable for construction, floods damage belongings; too far from markets and has to take taxis to go shopping - but has no money to take taxis	She owns the house
ZNG -9 (x2)	M	45-54	Lixeira (Golfo)	2008	2	Temporary tin house. Private initiative will resettle these residents, still in tin tents though.	-	-	N	no water	?	no electricity, some are connected to grid	they have been in this transitional situation since 2005 and don't know when they will move. The houses overheat because of the materials used	improvement from previous residence; they moved together with former neighbours, they will be hpme owners in new project
ZNG -10 (x6)	F	various (25-64)	Boavista (mostly)	various (mostly 2007)	Mai nly 1b	Base house, low wall around the plot. Few alterations	various	-	Y	pipd water	Y	from the grid but not reliable	no schools nearby; no hospitals, electricity is not reliable. People die because hospitals are far, need more leisure areas	courtyard space; the layout of the house
ZNG -11 (x3)	M	Various (35-54)	Chechenia (prédio)	various around 2006	Mai nly 1b	Base house, low wall around the plot. Few alterations	various	-	Y	service not fully functional	Y	Not continuous	Houses too small for families, poor finishes and materials	Organised urban fabric, makes them feel safe.

Code	Gender	Age group	Previous residence	When moved	House		Occupancy		Services				Main problems	Main benefits
					Typology	Brief description	Number	Relationship	Water	Strategy	Electricity	Strategy		
ZNG -12	M	35-44	Vila de Viana		1d	Self-built. Base house, structured altered, extensions. High wall around the plot. House not visible from the street (Assisted self-building programme)	7	Relatives	Y	pipd water	Y	Not continuous	Distance from Luanda.	Believes Zango is improving. Sense of safety associated with ownership
ZNG -13	F	55-64	Centre Luanda	2009	1d	Self-built. 2 Base houses together, structured altered, extensions. High wall around the plot. House not visible from the street (Assisted self-building programme)		Relatives	Y	pipd water	Y	Not continuous	Distance from Luanda.	More space, all house at the same level, provision of water
ZNG -14	F	25-34	Luanda	2010	1d	Self-built. Base house, structured altered, extensions. High wall around the plot. House not visible from the street (Assisted self-building programme)		Relatives	Y	pipd water	Y	Not continuous	Problems with water provision. Distance from Luanda. Not enough jobs in the area	More privacy, space for children to play. She thinks Zango is improving
ZNG -15	F	55-64	Bairro S. Paulo	2010	1a	Base house only (Incremental house, resettlement programme)	6	Relatives	N	service not fully functional	Y	Not continuous	House too small for family, no financial conditions to increase incremental house. No water, lack of safety	Moved from risk area

Appendix 4 - Residents/Participants' profiles

Her dream house would be larger than the current one and one that included other materials, such as tiles for the floors, but still concrete blocks.

CODE: CHIC **GENDER: M** **AGE GROUP: 45-**
-3 **54**

The house was self-built. It is a concrete block 2 bedroom house. The external and internal walls are plastered and painted with bright colours and in the front facade there is also a plant hanging above the front door. It appears to be structurally sound. He drew from his previous experience of working in construction and apart from a few cracks in the interior walls there are no signs of problems. In

He is now looking to expand further the living space by repeating the same process of creating artificial land behind his house so he can build another house once the ground is stabilized.

He is happy with the house but nevertheless states that it is not the ideal house he would like to provide to his wife and children. He would like to have a bigger house.

The house is connected to the grid, but the electricity is unreliable. For the time when the power is down they rely on a generator. She has no access to running water and buys it in containers from houses in the neighbourhood closer to the main road and carried to the house.

They like living in Chicala, but have noticed an increasing insecurity in the new generation.

With regards to moving to another location, he feels that it would be inconvenient to go through the same process all over again after all the effort put into building this house.

CODE: CHIC-4	GENDER: M	AGE GROUP: 25-34

PROFILE

Professional occupation: manager of stock

Original from the Uíge Province, but moved to Chicala very young. Grew up in his grandfather's house. Lives in the current house with his wife since 2010, it is a rented one bedroom extension. He feels the neighbourhood is generally safe.

In terms of electricity house is connected to the grid, but unreliable.

He plans to build his own house in the near future and then tailor it according to his taste and needs. Believes that bringing electricity to the neighbourhood has contributed to the increase of rents. Therefore thinks that what he pays is too much for the current conditions offered in the house. And also the close location to the city centre.

The house does not have structural elements and uses concrete blocks and zinc (roof) as main materials. He would rather have hollow burnt bricks and structure and tiles or fibrocement instead of the current materials. However, he feels limited regarding the amount of changes and refurbishment work he can do because he does not own the house.

CODE: CHIC **GENDER: F** **AGE GROUP: 45-54**

PROFILE

Original from that area, just across the bay. Moved to Chicala as a child. House has currently 4 occupants, herself 4 grandchildren and 2 daughters (?).

Remembers the houses in her previous location being constantly destroyed by high tide and waves. Moving to Chicala meant moving to a dry area where these problems no longer occurred.

This is a concrete block house, which construction stated more than 30 years ago. It has an enclosed external area, covered with zinc roof, her favourite area of the house. The toilet is a cubicle located in this external area (a hole until the ground water level). The exposed concrete block walls are load bearing and there are no visible structural elements. The existing windows are small and mostly face the internal courtyard, which is covered and therefore limits the natural light reaching the inside.

There are signs of ongoing construction works taking place, confirmed by her who said she felt the house was a work in progress and has been built gradually depending on needs and financial means available. In her future plans are: plastering the walls, finishing the kitchen outside, and tiling the floor. She has not been directly involved in the construction, but rather hired builders who make all the choices regarding materials.

Although her house is connected to grid, due to lack of payment she does not have access to it. As there is no generator, they rely on candles after dark.

Buys and carries water from the houses which have access to piped water, by the main road.

The feeling of ownership enhances the perception of security of tenure. The same is not the case for safety in the neighbourhood. She is one of the first inhabitants of this bairro and points out the change in the urban fabric, highlighting the increased density and population as well as changes in construction practices. The latter being mostly in terms of materials used for construction, which evolved from reeds, to timber, and then to concrete blocks.

Those changes influenced her views and satisfaction towards the bairro in general. As a

consequence, although she is not aware of any plans from the government to displace people from the bairro, she states she'd rather move to another place, provided that she was given a house as compensation.

CODE: CHIC- 6 GENDER: F AGE GROUP: 25-34

PROFILE

She is original from Luanda and shares the house with 6 other people, all family members, including her husband, mother, sister and children. She moved in to this house to join her husband (who already lived there) in 2009. Before that, she lived in a house just opposite.

House located by the water, on plot that has been added through piling up of rubble. It was built by builders, but the owner has input in for example choosing building materials. In terms of layout is composed by a compound of separate individual rooms that open to a central external courtyard or patio space only partially covered (with a large mesh style fabric), where social activities take place - such as eating or washing. These are all enclosed by a high wall adjacent to the street with only a solid gate as opening, which also prevents passersby from looking inside. Main materials are concrete block (walls) and fibrocement sheets (roofing). Floors are exposed concrete. Opening in the rooms consist of doors and sometimes small windows and holes above the doors. These are all in the same façade, which contributes to poor natural light and ventilation.

Use of some structural elements, mainly lintel above doors. Walls however are concrete block load bearing.

The electricity is provided from the grid, but unreliable. Water stored in tanks.

She is happy with the house and feels safe in the neighbourhood. Would however be willing to move to another location as long as the current situation where she does not pay rent remains the same.

CODE: CHIC -7 GENDER: F AGE GROUP: 45-54

PROFILE

She is originally from rural Kwanza Norte Province where she lived until 1985, when she moved to Luanda in order to escape the war. She first moved to a rented house in one of Luanda's bairros and after saving some money whilst working in a hotel, managed to buy a plot in Chicala from a local fisherman - referred to as the coordinator of the bairro - and then built the current house. She became a Chicala resident in 1991.

Perceives the houses in Chicala as more expensive in comparison to other bairros, attributing this to the privileged location in relation to the city centre, which also contributes to higher safety compared to other settlements. The long period of time living in Luanda and the fact that the family left behind at the time are deceased contribute to the fact that she does not intend to return to Kwanza Norte anymore.

She has no job and spends time looking after the children. She used to sell in the local market but stopped when one of her children fell ill. Since then her financial situation is not good, which also is aggravated by the fact that the father is no longer present in the household. When she can she does occasional jobs such as washing clothes.

She lives in a compound style house with 10 other people, including her children and grandchildren. In addition to that, she also rents one of the compound rooms out to a person.

The shaping of the house has been an ongoing and continuous process. As a result she refers to her house as unfinished and even as temporary. However, the construction process of the existing rooms was quick (taking no more than 2 weeks) and started by first guaranteeing an enclosed room and later added the remaining adjacent areas/rooms.

House located in a very dense cluster of houses, with access through a solid metal on a high block wall facing a narrow secondary street, only accessible by foot.

In terms of layout the house is composed by 3 rooms in an L-shape that all open to a central external courtyard or patio space only partially covered (with a zinc sheet roofs), where social activities take place - such as eating or washing. The toilet is an independent block located in this patio and consists of a hole on the ground open until the water level. In front of the toilet there is also another hole where they source water to wash etc.

The walling material is concrete block, chosen due to availability and ease of access as well as perception of robustness and safety - as opposed to timber for example which she explains may be damaged by fire. Zinc is used for the roof, a feature she wishes she could change as it causes the rooms below to overheat, up to the point where they have to sleep outside because it gets too hot

in the rooms. Something she believes could be improved by raising the ceiling height and changing the materials of the roof to fibrocement. However she feels she cannot do this due to lack of financial means.

The electricity is provided from the grid, but unreliable. She has no generator. Water bought from the houses in the bairro that have piped water and stored in tanks.

CODE: CHIC- 8 GENDER: M AGE GROUP: 45-54

PROFILE

Original from Luanda, moved from bairro Coqueiros to Chicala in 1992. Lives now in his house with 5 other people (his children).

He hired local builders to construct his house according to a plan he designed. Having lived in an adobe house before, for the current one he chose concrete block as main material because he believes it is the most universally used and strongest. (concrete blocks: walls; Fibrocement for the roof, and tiled floor). As a house owner he is very satisfied with his house. He also expresses a feeling of safety towards it and states that would not change any aspect of the house. He says however that an ideal house would be a house where the habitability conditions would be firstly defined by the presence of basic features such as access to water and electricity - which the current one does not.

His house is served by the electric national grid, but has no access to water.

CODE: CHIC- 9 GENDER: F AGE GROUP: 55-64

PROFILE

Her household is composed by 4 people - herself, her 3 children. Plus 4 stepsons who live in the extensions in the back.

She is originally from Malange and came to Luanda with her husband in 1992. Their life was difficult as they could not find work so they decided to move to Luanda to find a job and improve their lives. At present though her husband is no longer alive and she has no stable source of income and rather does occasional jobs whenever she has the opportunity. She cannot afford to send the children to school.

They first built the house using metal sheets and only later upgraded it to concrete blocks, a house that she built with her husband. The materials used for the current house were chosen because they were the cheapest available. She considers herself owner of the house.

The house faces a primary road. It is a one room house, divided internally with sheets or large pieces of fabric. The walls are load bearing concrete block and zinc sheets are used for roofing. The roof does not seem to be securely attached to the walls and there large gaps between these two elements. There are various objects being put on top of the roof that may contribute to holding it in place but may potentially also represent a risk during strong winds.

The blocks are left exposed and the floor inside is exposed cement. The walls have visible cracks. The only openings are the door and holes directly above the door. Natural light inside is reduced and ventilation is poor. There is no cooking area, she has no cooker. Buys food from local women selling meals in the street.

There is a sense of discomfort associated with the house. Its size is not sufficient for the number of occupants and it overheats during warm days. The house has a ceiling fan possibly as a way to prevent the latter. With regards to the size, although the extensions built in the back also belong to her, they are presently being used by their step children, who refuse to move out despite the fact that she considers them old enough to find their own house and jobs. She would therefore like to extended the current one room house, possibly up, but she cannot afford to do so.

Inside the house there is a hole covered with a metal lid where water to wash and cleaning is sourced from. It was not clear where the toilet is located and possibly there isn't one in the one room living space as she mentioned this as one of the things she would like to the house if she has financial means to do so. There is a room in the back extensions that was used for toilet, but has no pit, it is rather a room with soil for floor used as toilet.

If she was given a chance she would move to another house, bigger house to fit her all family, even if it were far from Chicala.

CODE: CHIC- 10 GENDER: F AGE GROUP: 35-44

PROFILE

She moved from the province of Kwanza Norte to Luanda (directly to Chicala) in 2007. She now lives in a self-built house with 5 other occupants (herself, children, grandchild and niece).

When in Kwanza Norte she lived in a wattle-and-daub house. Her first house in Chicala was built with zinc roofing sheets (walls and roof), one which she gradually upgraded to a concrete block house over time - depending on the financial means available. In order to keep costs as low as possible she for example instead of buying readymade concrete blocks bought cement and sand separately in a local market and had them done as it was cheaper. The construction process that resulted in the transition from zinc sheets to block took an approximate time of nine months and was often interrupted due to lack of funding.

In terms of layout this is a one room house of approximately 8m², with an overlap of uses in the same space. The cooking area can be found in one corner, the toilet in another, with the remaining spaces (sleeping and living areas) sharing the same space, all of which are separated by polystyrene boards and bed sheets hanging from the ceiling. The walls are load bearing concrete block walls, with the interior plastered and the exterior comprising a mix of plastered walls (main façade) and exposed blocks (side façade). The floor is cement. For the roof there are zinc sheets roughly placed on top of the walls and pressed with concrete blocks to hold them in place. Currently the roof is leaking when it rains.

She is happy both with the location of the bairro, as it is so close to the centre, and with the house. In her view, the concrete block house represents an improvement from the wattle-and-daub and tin house in which she lived in previously. And although acknowledging the fact that it is small to accommodate all the occupants comfortably, and of picturing a dream house with 2 bedrooms and a living room and a courtyard, she is happy because she owns it and also with the fact that the house represents the means to have all her family together. In addition to that it is also where she can have some material belongings she points out as important for her comfort (bed, TV, cooker, table). Although she is happy with her life in Chicala, she would consider moving to another location depending on what the conditions would be there. It is important that there are schools for the children and work close by, and that it is a safe area. She has heard about people who have been displaced and ended up in very distant from their work, and now have to wake up at 5 am in order to get to work.

The electricity is provided from the grid, although unreliable and she does not own a generator. Water is bought from houses that have access to piped water.

CODE: CHIC- 11 GENDER: M AGE GROUP: 45-54

PROFILE

He is a Chicala resident since approximately 1989. When he first built his house around that time the bairro was a different place, a low density settlement with few people, a fishermen community that began to grow after the war with the population influx from the provinces. Household of 6 people.

At the time, he used concrete blocks as walling material and zinc sheets for the roof. Materials that he bought in other bairros within Luanda because they were not available in this one. This house had just been demolished when the interview took place. Hence he was in the process of building a new house, in the existing plot but with some changes, the first being the size of the plot. As it is by the water he has increased the area he can use to build by accumulating construction rubble deposited there by trucks loaded from construction companies clearing sites in town.

He plans to construct the house in no more than three weeks. He plans to use the same materials for the walls and roof, as he believes are the most appropriate - the concrete blocks due to its perceived durability and robustness and the zinc sheets because he thinks are able to resist the abrasion caused by the sea. However, a false ceiling inside will be used to prevent overheating which was a problem previously. He will now buy some of the materials locally, as Chicala now has a small scale plant of concrete blocks.

His dream-house would nevertheless be a bigger house to accommodate his household of 6. One with 4 bedrooms, 2 living rooms, kitchen, and courtyard.

CODE: CHIC-12 **GENDER: M** **AGE GROUP: 35-44**

PROFILE

He was born and spent most of his life in Chicala - except for an approximate period of ten when he lived in another bairro in Luanda. Before building his current house, he lived in the house now next door, a wooden house owned by his parents and built before the independence. He still owns this house and at the moment is renting it out to other people - this is one of the few remaining wooden houses in Chicala.

His household is of 6 people (himself, his wife and their 4 children).

In the late 1980s it took him three months to build the current house with the help of his brother. Today he still considers the house as unfinished and would like to refurbish parts of the house. This is a concrete block house. The house is in a very good condition, especially when compared to other houses visited, this is evident both in the exterior and interior of the house. The finishes appear to be of good quality. The internal and external walls are plastered and painted and the floors inside are tiled. The house is arranged in a compound style layout, comprising enclosed living areas surrounding a central courtyard, partially covered. This develops behind a main façade facing the street.

It is hidden away from the street level due to a high wall in front of the house, which was built in order to increase the perception of safety.

He experienced changes in the bairro since his childhood. These were mostly noticeable in terms of space and the urban fabric. As the population and density increased so did the dry area. The types of houses also changed from reed to timber and finally to concrete block. This is something he does not regard as a positive. Explains that big part of it used to be water and tells that too much concrete is being used there. knows of a house that collapsed because it was too heavy for that soil. Other changes relate to increase perception of lack of safety, loss of identity accentuated by the change in construction types.

Although he is disappointed with what is taking place in the neighbourhood, he feels that there is nothing that they can do - helplessness. Agrees that people living in risk areas are moved. But questions the way this is being done - mentioning especially the displacements to tents. Criticises the lack of planning in the process.

Even so, even if offered a house in another location 10 km away he would prefer not to leave Chicala.

CODE: CHIC-13 **GENDER: M** **AGE GROUP: 45-54**

PROFILE

Moved to Chicala in 1989. He is an economist, is the head of a household of 4 - himself, his wife and 2 children. Other 2 children are studying in the university in Namibia and South Africa.

Has access to electricity from the grid, but no generator to back up when the power is down. He stores water in containers that he buys from the houses close to the main road.

His current house is built on a plot he bought from a fisherman in the late 1980s. This plot originally contained a wooden house in which the fisherman lived that he demolished to build the current house, making it more permanent and tailored according to the household needs.

The house took approximately one year to finish, he says he took it slowly and carefully. Had the help of a friend architect to design the plan, whilst he managed the construction.

The construction process was gradual, and although the walls were put up first fairly quickly, applying the finishes took longer. Although he had planned to have built a first floor he was not able due to financial constraints the financial conditions did not allow.

The investment made towards the house during construction was so demanding in relation to the household budget that sometimes they had no money at the end of the month.

The house is visible from the street along with the patio, as unlike the neighbouring houses there is not a high wall in front of the house. Instead they have see-through metal bars/fence. The covered living area takes approximately half of the plot (composed by house and garage), leaving the other half a large courtyard/patio with room for a car and a garden with trees and other greenery.

Concrete blocks are used for internal and external walls, fibrocement for the roof. The external and internal walls plastered and painted, good finishes and the floor is finished with tiles. According to him, there are no apparent structural problems, He claims never to have had problems, except for the fact that the fibrocement roof over the garage has been broken in a few occasions when coconuts from the coconut tree fall onto it.

He is happy with his house; likes to be spend time outside in the courtyard. Heard comments from people saying he is wasting space that could be built. He also likes living in Chicala and thinks it is a safe area, mostly because of its location (close to Luanda centre and not distant from the presidential palace).

There seems to be a general sense of hopeless with regards to the future of his condition resident in Chicala. He shows awareness of plans from the government to displace residents from this area in order to develop it and, but it all based on rumours. Would sell his house if someone was willing to place what he believes the house is worth.

CODE: CHIC-14 **GENDER: F** **AGE GROUP: 35-44**

PROFILE

Originally from the province of Benguela, she came to Luanda (Chicala) in 1993 where after renting for a short period of time, they built her own house. She lives in a household of 13 people, which includes herself, her husband, and 11 children. She has no formal job, but occasionally sells drinks and other random products informally on the streets of Chicala. Her husband works and was out during the interview.

Buys water from a house nearby that has water. Kept in containers. They have no generator.

This is a single storey house, with a living room, 3 bedrooms and a kitchen. In addition to the house there is an external courtyard/patio area on the front and side of the house (used for washing and drying of clothes and for gathering), enclosed by a high wall that visually hides the patio from the main road. It is noticeable that this wall was initially built up to an approximate height of 1.7m and was later raised with two courses of concrete blocks bringing it to more than 2 metres tall, which according to her is still not high enough. This is claimed to have been done in order to protect the house from the abusive youth of the bairro.

The construction was done in a rush so the end result in terms of layout is not what she would have liked to have in an ideal house. She would prefer to have the kitchen outside for example rather than inside as it is at the moment. She thinks that people in the living room (visitors) should not see what happens in the kitchen (it is inside at the moment).

This house is located by the water, was built over a period of two months in 1993 on what was then an empty piece of land which was bought from someone identified as the neighbourhood coordinator. The building materials used are mainly concrete block and a mix of fibrocement and zinc sheets for the roof in different areas of the house. These materials were chosen at the time of construction for being the cheapest available, and not necessarily because it was what they preferred. External and internal walls are cement plastered and painted, and the floor is cement. In terms of structure, the walls are load bearing, and there were no other structural elements integrated in the house. The roof is supported on the walls and on metal bars placed transversal to the walls.

There are windows in all rooms. The windows are metal framed and have no glass, they close with shutters and one of them with metal bars. Moreover, at least one of the openings for the windows seems to have been done by opening a hole after a finished wall lacking a lintel.

Nevertheless there were no visible structural problems generally. The most common repairs and maintenance work done to the house so far have been infilling small cracks with cement and replacing some of the roof sheets, either because they got damaged from the sea breeze or because the metal sheets cause overheating inside the house.

She however acknowledges that houses in Chicala, especially those built by the water, are prone to have structural problems because they are built on unstable ground that has been built by extending plots by the water with construction rubble and other waste.

Owning the house, as opposed to renting, gives her a feeling of safety. Even so, she has heard that residents of this neighbourhood may be displaced. Although she would prefer to remain in Chicala (even if offered a new house elsewhere), she hopes that if they are to move that this will entail going to a better place, moving to a plot bigger than the current one so that a house can be extended to accommodate occupants comfortably if required. Also she would prefer to live in a ground floor detached house and not a flat in a multi-storey building.

CODE: CHIC-15 **GENDER: F** **AGE GROUP: 35-44**

PROFILE

She was born in the Namibe province but moved to Luanda when she was just 6 months old. She settled in Chicala when she was around 20 years old. Although she trained as a nurse she now sells produce in Luanda she collects from other provinces.

Lives in a household of 4, herself, her 2 children and a nephew, after her husband passed away.

She bought the plot in Chicala from a lady who was selling land in the late 1980s, however is aware that the title she has is not considered legal and that the land belongs to the government.

The construction of the house took approximately 6 months, a time that could have been shortened had they chosen to use materials easier to obtain (eg. block). Using hollow bricks meant having to wait a considerable amount of time between orders and deliveries. Her participation in the construction process of the house was inexistent as an architect and builders were hired to design and build the house. This entailed a big financial effort but one that was worth it because it meant having a house in a context where it was very difficult to have a house.

The house was structurally prepared to add a second floor, as that was the initial plan. However due to a combination of lack of financial means and the awareness of rumours that the neighbourhood could be demolished decided to keep one floor only. Nevertheless the house has been gradually extended and now accommodates one extra room for the children and another area in the back that can be used to rent out.

The house is accessed from one of the primary roads of Chicala and through a solid metal tall gate. It is not visible from the outside as in addition to the gate there is a high wall closing the plot. These elements make her feel safe, especially after she locks the gate. Before reaching the house there is a covered patio area with paved floor.

The main walling material used are hollow bricks, a material she thought was more appropriate than concrete blocks because of the damage caused by sea breeze. She preferred this material even though it was more expensive than the cement block. The house also includes structural elements. The bricks were bought outside Luanda, as at the time of construction it was not common to find these bricks. The materials used for the ceiling is fibrocement, which was selected instead of more affordable cheapest zinc sheets. The latter, she believes is not as durable in that context as it gets damaged by the sea breeze and does not resist to rocks and heavy elements people throw at roof. In addition to that, they are also noisy and heat up during warmer days.

Her house has a plumbing system integrated connected to a 1000l water tank. This tank is filled up when truck selling water comes to the bairro. When the truck does not come she buys water from the houses close to the main road that have access to the water mains. The electricity is connected to the grid, which does not always work. She does not own a generator.

There is a perception that rents have decreased because of rumours that point to the destruction of the bairro very shortly. Although these rumours have been present for more than 10 years, seeing the neighbouring bairros and parts of this one being demolished is, according to her, having an effect on people's interest on future investments in Chicala.

With regards to displacement of current residents, she would prefer staying in her house in Chicala. However is aware that she does not have a choice and fears ending up in a tent or a distant house as a consequence.

CODE: CHIC-16 **GENDER: M** **AGE GROUP: 35-44**

PROFILE

He was born in Luanda, and lived in different parts of the city before moving to Chicala in the late 1980s, when his father bought a plot of land to build a house. The plot was bought from a man who claimed to own a large portion of land in the area and lived in a tin house.

His plot now accommodates a compound style arrangement of houses where 8 people live: two detached houses (one for his father and his family and another one for him, his wife and child) and a separate room to rent out or for friends when they visit. These all face inwards towards the same patio.

The construction process was gradual and began approximately two years after the purchase of the plot. One house was built where the whole family lived, to which later were added two extensions in the back, one where He now lives with his wife and children and a separate room to rent out or for friends when they visit.

The main materials used are concrete blocks, cement for plastering, and fibrocement for the roof. Despite rumours circulating for more than 10 years pointing to people's evictions from Chicala, these were selected because they considered them adequate to build a permanent construction: cement and block. Although houses in Chicala were built already knowing they would leave sooner or later. It was a permanent house, but provisional at the same time.

The concrete blocks were made in-situ, rather than buying in factory. Although his father and himself helped in the construction process they also hired builders, whom they brought from another province because it was cheaper than hiring builders in Luanda.

Electricity from the grid, water strategy relies on filling up 1000l tanks with water occasionally.

Feels safe in the neighbourhood and does not associate that with hiding the house from view by means of using a high wall. In fact prefers interacting with people passing by and having a low wall in front of the house. With regards to the house itself, he is satisfied and feels empowered by the fact he can make decisions as owner. Would like to make some changes but is not sure whether he should do it because of rumours that they might have to move to another location.

CODE: CHIC- 17 **GENDER: F** **AGE GROUP: 25-34**

PROFILE

She was born in Luanda. Lived in different parts of the city including Chicala from where she left on the early 2000s. Moved back to Chicala in 2009 to live in a house where her mother already lived, stayed there after her mother passed away.

Does not work and at the moment is taking care of her baby.

Lives with her two children in a compound formed by various rooms facing a central patio. The rooms are sleeping areas whilst other activities such as cooking and eating are carried outside. She owns her room and the other rooms in the compound are rented out and/or owned by her 3 sisters. This room was built between 1999 and 2000. Her father gave her a space in the compound and she hired builders to construct the room. Materials were sourced from markets in Luanda and some locally in the neighbourhood.

She is not entirely satisfied with her current living conditions, and considers the house as unfinished. Would also like to raise the ceiling. Overall she does not like to live there and only does so because she doesn't have a job or financial means to live somewhere else. This is something she would like to change in the future but is dependent on her getting a regular income, which at the moment she does not. Some problems affect the performance and comfort of the house, the roof leaks when it rains and overheats during warmer days (this is pointed out as what she dislikes the most in the house), the room is small to accommodate herself and her children, and the walls don't insulate from sound. Would change some aspects of the house, mainly to do with materials as she believes the current ones are not appropriate for the environment (sea breeze) and eventually get damaged. Despite the above, she feels safe in the neighbourhood as she perceives the criminality in Chicala to be low. There are however other problems in Chicala at the neighbourhood level such as the lack of services - water, problems with electricity provision, no taxis.

With regards to the population displacement, she would prefer the process would take place in a different manner. Additionally she believes that the current residents should remain in the same location. Fears consequences of displacements - lack of employment, habit, lack of access to transports.

CODE: CHIC- 18 **GENDER: M** **AGE GROUP: 35-44**

PROFILE

He was born in Luanda and settled in Chicala in 2000. Currently lives in a household of 3 - himself and his two sons.

When he acquired the plot, the amount of dry land in it was smaller and has increased since then as a consequence of adding piles of rubble and construction waste and pouring concrete on top, as it is commonly done in the houses by the water in Chicala. This extension of land was an ongoing process at the time of the interview, as he was in the process of increasing the back part of the house to rent out once it is finished. Although he considers the house as unfinished, the current layout consists of a one bedroom, living room, kitchen, and bathroom (the toilet flushes directly to the bay). Next to the house there is a semi-covered external area which used as socialising and eating area, washing

and drying of clothes, and to grow some greenery. This area is visible from the adjacent street to his house and separated only by a 1 metre high wooden gate.

In terms of materials it has concrete block load bearing walls and zinc sheets is used for the roof which is supported by metal bars placed on the walls and by heavy elements on top (broken concrete blocks). The only structural elements used are lintels above windows. Internal walls cement plastered and outside partially plastered and painted and back external wall left exposed. The floor is covered with pebbles. The materials were chosen because they were the most commonly used and easy to access at the time. Bought the metal sheets for the roof in a market in the outskirts of Luanda and some of the blocks were bought in the markets in Luanda, others were made on site. He prefers buying the blocks already made, because the raw materials have to be bought separately, and the cost of labour to make the blocks have to be considered as well. Hired skilled and unskilled labour to build the house, both from within the neighbourhood, but also outside. He also participated in the construction. He would prefer to have a wooden house, but says the skills to make them are no longer available.

Some cracks were visible on the upper section of the walls by the ceiling, but there were no apparent structural problems that could compromise the structural safety of the house. The most common maintenance and repairs works been done on the house were to fill in the gaps left by the small cracks, but only once every two years. This supports his perception of a structurally safe house.

The electricity in his house is provided by the national grid, which does not always During the days there is no power he relies on a generator. In terms of water, he has a 1000 litre tank next to the house which is refilled by a truck that comes to the bairro once a week. Buys that water. Uses water from the bay for toilet flushing. Buys bottled water to drink.

His house is popular amongst his friends and neighbours, who often come to admire the internal walls covered with wooden sculptures, paintings and other art. The external area and the interior arrangement and decoration are the favourite aspects of his house.

He feels safe in Chicala, and perceives this bairro safer than others in Luanda. However, this apparent safety, combined with a central location within Luanda, is also what makes it mre expensive in his view and attractive. He is happy living in Chicala and having heard of plans to displace the population of the bairro he states that if he was offered a house he would still prefer living in Chicala. He has put his name down to receive a house in one of the housing developments in the periphery of Luanda, which is expected to absorb population from informal settlements in Luanda.

CODE: CHIC-19 **GENDER: M** **AGE GROUP: 25-34**

PROFILE

He is originally from Luanda. Lived in other bairros in Luanda before moving to Chicala in 2006.

He currently lives in a rented house in Chicala with his wife and 2 children.

He was studying to become a lawyer but could quit because he could not afford the university fees. He now works in Luanda's Port as dispatcher of goods.

Renting a house brings a feeling of insecurity as he fears the landlord has the power to evict or raise the rent whenever he wishes. They moved in to an existing house, towards which they had no control or input. As a result, he is not pleased with the aesthetics of the house, nor completely satisfied with the structural safety of the house. This is enhanced by the fact that the landlord tends not to take responsibility for fixing problems in the house whilst him on the other hand, feels he should not be the one investing time or money as he does not own the house.

He further states that the process of building houses in such context and conditions prioritise first occupying, raise walls and then they think about the layout and distribution of the space inside. that sometimes results in problems or poor construction.

Comparing to the house he is in at the moment, he would like to live in a bigger house, with at least 3 bedrooms. Says houses are meant to be passed down to children and the only way to do so is by using permanent materials such as concrete blocks which he believes can last 50 years or more, would not therefore use traditional materials for a house.

Despite his low satisfaction towards the house, he enjoys living in Chicala. It is quiet and safer in comparison to others in Luanda and also with the fact that unlike other neighbourhoods, it doesn't flood during the rainy season. However positive, this impacts on the cost of living, including the rents, which in his case he believes is too high considering the conditions the house offers - small space and lack of comfort. He would however prefer staying in Chicala if he were given the option between being moved to a new house in the periphery or staying there. This is the case at least until the structure is set up so that there can be jobs close to these new houses. He is well aware of the

consequences that being displaced might entail - especially with what concerns the journey to and from work.

They buy water from the houses in the bairro that have access to piped water and carry it to their house where they keep it in containers. Electricity provided by the national grid but it is not reliable. Owns a generator he uses for the days when the power is down. Propane gas is used in his house to cook, which for him represents a potential risk of fire given the informal arrangement and high density of the urban fabric in Chicala, which has happened before.

CODE: CHIC-20 **GENDER: M** **AGE GROUP: 55-64**

PROFILE

Was born in the province of Zaire and moved to Luanda in 1978 or 79. Settled in Chicala in 1992.

Household of 3 people, himself, his nephew and another child he looks after but is not family.

He is a sculptor and sells in markets throughout Luanda.

Has a 1000 litre cistern under the patio that he sometimes fills up with water. Has been empty for some time and now uses smaller containers that he fills up with water he collects from houses that have access to piped water.

He bought the plot from a friend, and after building the house realised that his friend had sold the plot to another person before. Following a period of conflict they came to an agreement, as the other owner understood He was unaware of this. He now considers himself the owner of the house which gives him a feeling of peace associated with the security of tenure. A feeling which he says he would not have had he been renting a house instead, as he knows of cases where tenants are evicted by the landlords without notice or explanation.

His first house in this plot resulted from a combination of lack of funding and an urgency to build a structure in order not to lose the spot. It was made using metal sheets for walls, a tin house as he called it, where he lived for approximately 3 years.

As he gathered money to invest in upgrading the house, the metal sheets were replaced with concrete blocks, the ones that he thought would provide more security amongst the available materials. The construction process was gradual but fast and involved an experienced builder from another neighbourhood, who was also a friend. The walls were raised in more or less one month. Doors and windows followed, and after that he raised further the floor to ceiling height of the house.

The labour overall was not expensive and in terms of materials, some choices were made favouring the most affordable ones, especially for the roof. The roof at the moment is composed by fibrocement covering the living area and zinc sheets covering the patio. A solution of a large sheet of material was preferred to individual burnt clay tiles as it was cheaper and it covers the whole roof more easily.

The materials were sourced from a market roughly 15km away, in Kikolo, which required transportation. Accessing these materials was easy provided that there was financial means available not only to buy them but also for transportation.

Small repairs and maintenance works have been done, mainly involving filling in of cracks, replastering and painting. The cement floor often gets covered with salt crystals and needs to be cleared to avoid damage. The first roof sheets he used had been reused from the previous house and those were replaced by new ones due to damage.

The feeling of safety against burglars is enhanced by the high concrete block wall enclosing the covered patio space, further complemented by metal railings up to the roof. Although claiming to prefer a solution without such high wall he feels that is the only way to feel safe as it prevents people from looking into the contents of the house. He also values his privacy and does not feel comfortable with leaving the gate open, avoids as much as possible to have people looking inside.

In terms of layout, the entrance from the street is made into a covered patio, used as storage, and sitting area. The toilet is also in the patio. This is also where the fridge and freezer are kept. The patio is used during the warmer days as it gets too hot and uncomfortable inside. Covers the patio with zinc sheets because he can still use it when it is raining. From the patio there is access to 2 bedrooms, one living room and a kitchen area.

He feels safe in his house

Despite being generally satisfied with his house, he would like to make some improvements, namely changing the roof, raise the height of the house and build a first floor to increase the area of living space, as it is not possible to extend the construction on any of the sides. Such changes, although would bring him closer to his dream house (bigger, more beautiful dream house), will likely remain just as intentions. The rumours of people being displaced from the neighbourhood put a hold on any future investment towards the house.

He likes living in the bairro, and if given the choice he would prefer staying there and improve his house, rather than moving elsewhere, even with a new house. Believes residents should be given the choice of staying in Chicala. However, with regards to rumours of residents' displacement he feels he has no power in deciding whether he goes or stays, and if the government decides people will have to comply with complaining. Nevertheless, the thought of having to adjust to a different spatial arrangement (from his current house to a flat for example) concerns him because it may entail a drastic change in lifestyle, loss of open spaces (patio) within the house, loss of control over issues of cleanliness for example in shared corridors, impact on privacy, etc

CODE: CHIC- 21 **GENDER: M** **AGE GROUP: 18-24**

PROFILE

He is originally from Luanda and settled in Chicala in 2006. Bought an existing house which had been built in 2009 and was made with metal sheets ("tin house") and upgraded it to concrete block.

He is a mechanic and currently lives on his own. Previously lived in a neighbourhood which is considered to be in a risk area and from where people are being removed to go to Luanda's periphery.

His house is adjacent to one of the primary streets of Chicala. It is enclosed by a tall solid metal gate that gives access to an open patio to which the windows the door of the house face. The concern with security is further demonstrated by the metal bars present in all windows and also the door. The main materials of the house are concrete block for the walls and zinc sheets for the roof, used not because he finds aesthetically appealing but because these are, in his view, the basic building materials used for construction. As for his dream-house, he would prefer to have a timber house, bigger, with a terrace and a courtyard.

Although the feeling of safety provided by ownership contributes to high satisfaction towards the house, ongoing construction works indicate action towards increasing satisfaction. A fact confirmed by the participant when he said he was not satisfied with the appearance and interior layout of the house, hence was currently working on plans to have the kitchen and living room together.

His house is connected to the national electricity grid, but is unreliable, and often has peaks of high voltage that destroys (burns) the appliances.

CODE: CHIC- 22 **GENDER: M** **AGE GROUP: 55-64**

PROFILE

He is unemployed and disabled (has only one leg).

Lives in a rented house, pays 100 dollars a month, a price he believes is high due to the bairro's location close to the beach and the centre of Luanda. Household of 4, himself and his sons - one of the sons at the moment is spending most of his time in another province (Benguela) where he studies.

The house is accessed through a narrow alley and is separated from the street by a high concrete block wall and a solid metal gate. It emerges between the exposed concrete block walls of 2 houses - which are also the walls of the living area of his house - in an area of approximately 12 m². The living area (comprising a room and one living room) takes half of this plot and is covered with zinc roof sheets whilst the other half is left uncovered and used as a patio - a refuge for when the covered area overheats.

The roof is supported on a metal structure sitting on wooden poles and the existing walls on each side. Moreover, there is no solid wall separating these two areas, only curtains and a section of fibrocement put upright. In addition to potentially compromise the security of the house, the absence of wall and door also leaves the living area exposed to the elements (temperature, rain) as well as insects (Angola is a malaria zone).

Although there were no reports of structural problems, he pointed out problems which impacted on his satisfaction towards the house. The house is small for the size of the household and the kitchen is also used as a bedroom for the children. Furthermore, the roof sheets were replaced because they used to leak during the rainy season. Since the landlord did not contribute towards addressing this problem, he had to do this himself. The roof was replaced but still by the most affordable option (zinc sheets) which he said causes overheating and thus discomfort. Often unreliable electricity prevents him to use the fan to cool the house, which means he has to spend fuel from generator.

He believes the overheating problem could be addressed by raising the height of the house and change from metal sheet to fibroceement.

The year of construction is unknown as the house had been previously rented by another tenant.

Although he is not satisfied with the house, he appreciates the fact that this is what he can afford at the moment. He would however prefer being offered a house somewhere else, one with better conditions than current one. His idea of dream house entails primarily more space for himself and his family - 2 bedrooms, kitchen, living room.

**CODE: CHIC-
23**

GENDER: M

**AGE GROUP: 25-
34**

PROFILE

He is originally from Luanda and works as a public relations in a company. He lives with his wife and child in a rented house that belongs to his father in law. This is an independent one bedroom extension of the main house next door - where his two sisters-in-law live with their respective families. He settled in that house in 2009.

Although separate, they all share the water cistern which is located in the main house. It is a cement tank, 9 thousand litre cistern dug up in the ground. Filled up by water truck. Approximately 10 thousand kwanzas every time it is filled up. He splits between 3 people in the family (they all take from the tank) 9 thousand each.

This house was designed and built by his father in law before 2006. Before he moved in around 2009 it was rented out to another tenant.

The current house is accessed from a narrow alley of approximately 1 metre wide. It has one window with no glass but closed by metal bars, one door facing a covered external area where the kitchen is located. The roof (cover) in this area is higher than the house and not connected to the walls. Hence it allows for natural light to come through but it is however not weather tight and fails to keep rain water out.

Living here is a temporary situation; it is the house where they live until they become owners themselves. As they do not always pay rent (house belongs to in-laws) and can therefore save money towards the construction of his own house in another bairro. Given the temporary status he does not have many concerns with the materials, but acknowledges that these are not the best and serve the purpose of providing shelter. He also considers the house too small (currently small for his child to move around and play) which cannot be changed because there is no possibility of addition of space. He also thinks that the use of poor quality or inappropriateness of materials associated to the size of the house results in overheating of the interior. Nevertheless, he is satisfied with the fact that having this house allows them to have privacy, that he does not have to share any part of the house.

His dream house would be bigger than the current one, would have a minimum of 3 bedrooms, a large living room, a balcony and a courtyard, a garage and a external covered area to live the space outside and receive guests. In terms of building materials, he would still use concrete blocks because he considers them strong and durable. A dream house would not incorporate traditional materials were used in the previous generations, not because people likes them but because there was no financial possibility to buy sophisticated materials. Today such sophisticated materials are widely available, more affordable and accessible to all. There are no longer only for those who have money. He feels safe in the house and although not spending much time in the house and has slept a few times with the door open, never had problems with breaking ins. As far as the bairro is concerned, He likes the bairro, has good relationship with the neighbours and has friends there.

However, perceives the location of the bairro contributes to higher prices for the rents compared to other bairros. Nevertheless thinks that the demand for housing in the bairro has decreased with the rumours that the houses are to be demolished by the government. He would prefer not to be displaced to Zango because it is too distant from where he is now. Feels however that has no choice over whether and where they end up going to. He knows of people currently in Zango 2 or 3 who were displaced from Chicala. If he could choose he would prefer renting out the house he would be given there and live somewhere else.

CODE: CHIC-24 **GENDER: F** **AGE GROUP: 35-44**

PROFILE

Originally from the province of Benguela and moved to the Province of Cabinda when she was 7. Moved and settled in Luanda in 1989 and since then has spent short periods of time in Portugal with her son. She is now back permanently as there were attempts to occupy the plot and parts of the house were damaged in her absence. Although she used to work full time as a nurse assistant she now works part/time as nurse health auxiliary, but not on a regular basis as she needs to look after her brother.

In addition to this house she owns a flat in a different neighbourhood which she rents out. That is the flat where she brings water from to her house in Chicala as there is no access to piped water there. She fills up containers and transports them in her sister car. However, any water to wash the house, for the toilet, to clean the fish, and to use in other home works she gets in a well in Chicala. It is salted water but does not matter for that purpose.

She lives with her brother and sister in a compound style house in Chicala. The plot where the house was built was bought from an influential lady who claimed to own large portions of land locally. This plot, which was bordered by the street and bay, was then added to with the pilling up of rubble method towards the bay in order to add dry land.

The construction was initiated with one room in 1989 to which 3 more followed over the years. The process usually involved using less robust materials for the rooms in a first stage and then upgrade these to durable materials.

The compound comprises 4 independent rooms (for her, her sister, her brother and one rented out to a couple and their child) that all face a central patio area, partially covered with zinc sheets. There is also a shower area composed of 4 block walls without a roof. One of the rooms was made with hollow fired brick and all the other 3 with concrete blocks for walling materials. The only source of daylight into the rooms is the doors. The interior of the compound is not visible from the outside due to a high concrete block wall. The entrance is closed through a wooden board leaning against the opening.

The walls of the rooms are load bearing and there are no other structural elements visible (apart from the wall to the street which has steel reinforced concrete columns on each side of the opening. The roofs are sometimes poorly placed on the walls and there are heavy objects placed on top to keep them stable. She associates her perception of the structural stability of the house to the use of the walling materials (block and hollow brick), durable and trustworthy standing since the 1980s.

The physical growth as well as the improvement of the living conditions in the compound is an ongoing process in which all occupants participate with suggestions and ideas but is heavily dependent on skilled labour. In the last 5 months before the interview, a shading area was created in the patio through reusing old metal sheets, which created a cooler area where she likes to sit during the day when it is too hot inside the rooms. She further tried to address overheating by raising the ceiling height in her room as she associated the low height to high temperatures. Moreover, currently another room she hopes to rent out is being built.

Although she is still not entirely satisfied with the choice of building materials, she thinks the house serves the purpose of providing shelter. In order to increase satisfaction and comfort she plans to replace the sheets used for the roof in the various rooms (zinc for fibrocement) due to overheating problems and extend the shading area outside. In terms of appearance, she prefers the inside of the house because it is tidier, cleaner, and unlike the outside it is plastered and painted. In order to change the negative image she thinks now is associated with the outside walls, part of the improvement process includes plastering all the walls and paint.

There were building materials scattered through the patio. The plot also reaches the water and a large pile of waste thus poor hygiene conditions - during the interview there was a large rat moving through the waste.

The materials more widely used for constructions are all easily accessible locally in Chicala (blocks and metal sheets), including concrete blocks. From her experience however (and thanks to a friend's advice), building the blocks in situ is slightly cheaper than buying them ready made. Although it was more common in the 1980s, there is however lack of timber for construction. She has the perception that the forests have been cut down which makes it much more expensive than in that period.

She witnessed Chicala changing since the 1980s from a settlement with very few houses to a much denser urban area. The proximity to Luanda's centre gave it the name of city musseque. Perceives Chicala as a safe bairro in comparison to others such as Cazenga or Golfo, says that criminal activities are done by people who are not from there.

She reports another change which she believes has been recently taking place in relation to population displacement from Chicala.

Although she has heard rumours that the government sooner or later will demolish the houses and that residents affected will get houses in return, she does not know of official sources of information

that confirm this. If she were to leave, she would prefer living anywhere as long as the place offered better conditions. A block house, bigger, her dream house, big enough to accommodate the family.

CODE: CHIC-25 GENDER: M AGE GROUP: 55-64

PROFILE

He is originally from the province of Zaire. Moved to Luanda in 1977 but before moving to Chicala he lived abroad in Switzerland (as a refugee) and Portugal for a period of time, where he worked in a hotel and a builder respectively. He finally settled in Chicala in 1995, where he built his house in a plot land bought from his current neighbour for 700 dollars.

He lives with his family (wife and nephew) in part of the ground floor of a 2 storey house. The remaining ground floor and the whole of the first floor is rented to students and families, who tend to rent for a minimum of 6 months. Moreover, behind his house he built extensions which are also rented out to families. There are a total of 30 people living in the space. The rent for the rooms is an average of 100 dollars a month per room.

The electricity is provided by the national grid, but it is unreliable. A generator is used as a backup when the power is down. As there is no access to piped water he stores it in containers and also has a hole in the ground with water for house works.

Just before coming to Chicala, he lived on the opposite side of the bay. He sold his house after feeling pressured to do so and used this money to buy a plot of land in Chicala for 700 dollars in 1995. The plot he initially acquired was gradually enlarged by means of piling up construction rubble and subsequent stabilisation with concrete. The rubble used was a sub-product from a construction company which at the time was in the process of constructing a public building (museum) in the city centre and using Chicala as a dumping ground for construction waste.

In addition to himself, who had some experience from working as a builder abroad, his house was built using skilled labour, local builders who lived locally at the time of construction. It is a 2 storey house that faces a primary road in Chicala. Although the ground level is hidden away from sight (street level) due to a high concrete block wall and a semi-solid metal gate, the second floor is visible. After entering the gate and passing the main house there are various layers of independent dwellings developing towards the back of the house organized in rows parallel to the street and all the way until they touch the water.

The main house, which is the only one perceived from the street, appears to be of better standard than the remaining houses in the compound. It has larger internal areas and incorporates structural elements (columns and beams). The walls are fired hollowed brick, plastered and painted and the floor is tiled. He preferred hollow bricks for the walls despite the fact that they were more expensive than concrete blocks, due to the fact that he perceived them as being more durable than concrete block, which are used for the majority of the remaining building fabric in Chicala. Also thinks it is more appropriate for building with more than 1 floor as it is lighter than concrete blocks.

The ceiling is cemented plastered directly on the slab (pre stressed joist and hollow ceramic block) and fibrocement is used as roofing material. The windows are a mix of steel and wooden glazed windows; these are on all façades and provide natural light into the space. There are metal bars in one of an opening which does not have glass. In terms of layout, his living area is composed by an open area with no apparent specific use (used to store building materials, washing, and eating area). There is also a sitting room with connection to an office space and a bedroom. There is no designated kitchen area, which he was unhappy about. Part of the ground floor area had also been closed up and rented to tenants. The first floor is accessed from stairs on the outside and is composed by a corridor with rooms on either side, all of which are rented out.

Although trusting the structural stability of the house, he demonstrates concerns towards the fact that it has been built on ground artificially created on stabilised rubble. This causes cracks on the walls and damages the steel inside the structural elements.

On the back of the main house there are one floor housing units rented out to tenants. These, unlike the former are load bearing concrete block walls and metal sheet roofing. These exhibit mix of exposed and cement plastered walls. No finishes, no structure, very few openings apart from doors.

The presence of construction materials scattered in the patio areas (as well as inside the main house) suggests further ongoing construction processes.

He is generally satisfied with his house, although he would like to have more rooms and a kitchen inside the house. From an appearance (aesthetics) point of view, despite wishing to have built one resembling the houses he has come across elsewhere whilst working abroad, he appreciates the value of this house as a resource. Moreover, he also likes living in Chicala as he feels safe and enjoys the privileged location in relation to downtown Luanda and easy access to amenities and services (airport, port, banks) or by transport.

The distance is what worries him the most when considering the thought of being displaced or relocated to the outskirts of Luanda (he gives the example of Viana). In the case of being displaced he would prefer renting out the house in the periphery and going back to Luanda's centre even if it meant living in an informal settlement such as Chicala.

Area Two / Zango

CODE: ZNG-1 GENDER: F AGE GROUP: 55-64

PROFILE

Originally from Cape Verde, moved to Angola still as a child to work and earn some money. Before moving to Zango in 2006, she lived in a one bedroom house in Ilha de Luanda. Moving to a 3 bedroom house in Zango was for her an improvement in her quality of life, as that meant living more area for a household of 6 composed by herself, her husband, her dad, 2 of her children and a boy. However, moving to Zango also meant leaving behind a location close to their source of income. She owned a snack bar business to her house and the husband worked in an international construction company based in Luanda's centre. At present her husband is retired and has a disability pension (following a work accident) and she occasionally sells cooked food in front of her house. They have since become landlords in Zango and their livelihoods strategy thus further relies on a rent collected from another house they own next door to a Chinese family. Feels she struggles to pay all the expenses, and especially worries about paying the school for her children.

The move to Zango was a choice rather than a displacement. Appreciates the fact that the government is relocating people from risk areas to provide them with better conditions in settlements such as Zango, and says that people complain without a reason.

In 2006 they bought a house from her niece (who had received a house from the government) for 7000 dollars, and some years later bought the one next door at a higher price (17000 dollars). The prices have increased considerably since then. According to her it is very difficult to find an affordable house in Zango, as these prices can go from 60 thousand dollars. In terms of rents, the same 3 bedroom and one bathroom house ranges between 150 to 200 USD/month.

The appearance of the base house has changed considerably since it was first bought back in 2006, and now it is almost unrecognisable behind all the added architectural and landscape elements added to it. The dissatisfaction towards the exposed concrete block walls and bare cement floors prompted a series of construction works to address this, in which she mostly took the lead. Over the years the living area has been increased by building extensions in the back (an extra room, a kitchen and dining area, and a storage space). In the future they have plans to raise the height of the ceiling. This was a self-built process, made easier due to the wide availability of building materials locally. In addition to making the concrete blocks in situ and erect walls the previously bare plot was populated with fruit trees and other greenery, they have also done all the electric installation, paved the floors and plastered and painted the internal and external walls.

The changes in some of the architecture features of the house were also a direct response to a recurrent problem- the flash floods that follow the heavy rain during the rainy season (and poor rainwater drainage). This was the case with the concrete block perimeter wall and metal gates which now encloses the plot. Wall and gates which were placed as a preventive measure against what they consider the most significant problem they experience as residents in that area of Zango. In addition to the wall, the access was permanently raised by approximately 50 cm. This, although it is meant to keep the water out, also limits the physical access to the inside as it becomes more challenging to get into the plot - and completely leaves out the possibility of cars, motorcycles etc to enter the patio.

It has not however been sufficient to keep the water out as they saw all the contents of the house (furniture, etc) being damaged completely due to heavy rains various times and had to be replaced as a consequence. This affects the dwelling but also has a very direct impact on the neighbourhood in general as when it rains car circulation into and out of Zango becomes stagnant.

There is a feeling of lack of support regarding this particular issue, she does not know where and to whom to complain.

In terms of maintenance, the house is regularly painted (about once a year), which Tia Tota attributes to the annual heavy rains. Although it is likely that this has no influence on the structure safety of the house, fissures were visible on the external walls. The walls are load bearing concrete blocks, used internally and externally. The roof is zinc, supported by metal beam structure. There is a general satisfaction associated with the building materials used, which she believes are an improvement from her previous house. Trusts the concrete block as a durable material that will endure time and heavy rain.

Living in Zango has been a balance between advantages and disadvantages. The neighbourhood is quiet and she has a good relationship with the neighbours who she feels are like family. Also, the provision of services and infrastructure, namely waste collection strategy, piped water (treated water and can be consumed directly from the tap despite the taste of bleach) and electricity is seen as an improvement from a previous informal settlement. (Water around 500 or 600 Kz and

electricity 900 Kz) However, the latter is not reliable and constant and not having a reliable and continuous provision of power means having to have a generator to keep the appliances on. The formality of planned neighbourhood also brings better quality roads, although these ones serving the neighbourhood internally according to Tia Tota need work and maintenance.

On the more negative side, although there are indeed formal public transport routes to and from Zango (which did not exist in her previous residency), as well as private taxis, the distant location from Luanda's services and the constant congested traffic entails leaving Zango at 5:30 am and spending long periods of time in traffic. She worries that this fact affects her access to health care for example.

As a result, although she generally enjoys living in Zango, she plans to move out to spend her elderly years in a land she owns outside Luanda. Wants to build there a large house and rent out the current one.

CODE: ZNG-2 GENDER: M AGE GROUP: 25-34

PROFILE

Household of 3, himself, wife and son. Young couple.

He used to live centrally in Luanda. However, his house was marked by the government to be demolished because it was in an area to which a new road was planned. As compensation he was given in exchange a house in the housing development Zango, which was pitched to him as an improvement because it had electricity and water. He feels he had no influence over the process or outcomes of this process and, despite not agreeing with this, he felt powerless to complain as he had no money nor time to invest in lawyers. There was no option regarding the type of house he would get in return as they all follow the same layout and are built the same way.

He has not moved to Zango yet, instead he is still living temporarily close to his previous house and is trying to save money in order to create financial conditions to make alterations in the new house in Zango before moving there.

He is very critical of the house he was given in exchange of the previous one in Luanda and argues that it was not a fair replacement as he was left off worse than he was before. For example, he feels the layout of the house does not take into consideration the reality of large African families, as it is too small for growing families and being constrained by this plot does not leave room for flexibility or adaptation. His dissatisfaction is also associated with what concerns location and the construction quality. Houses have to be finished in a matter of days, thus does not trust the quality of them. He works in the construction industry and claims to understand construction process and does not trust the new house from a structural point of view, as it lacks structural elements, including foundations, pillars, and beams. Moreover, the absence of finishes and the poor quality of windows and doors (which cannot be locked) make him think he will have further work to do in the house in order to bring it to a better standard and better conditions. He will move once conditions are created and the house meets his satisfaction and requirements. This is something that he has already started and so far has ordered new aluminium window frames to be protected. In addition to replacing the windows, future plans include closing up the plot with a wall and add another room.

The distance is also a problem for him. Being relocated away from Luanda's centre means that he will have to buy another car so he can commute to his work every day. Routine will be getting up at 4:30 am to leave Zango at 5am so that he can reach Luanda at 8:30am. In relation to this he worries about access to a hospital nearby and that his child will not have access to school.

CODE: ZNG-3 GENDER: M AGE GROUP: 55-64

PROFILE

He used to live in Luanda where he worked for a big Portuguese construction company. He considered he had a stable job and a good income. Following a work accident he lost the use of one arm and could no longer work. The family had nevertheless a livelihood provided through a beach restaurant (luncheonette) located where they used to live, an informal settlement in Ilha de Luanda. This area was generally very busy and had many people stopping by for food. However, due to the attractive location by the sea this was one of the early settlements to be cleared by the government and its population relocated to Zango. He was offered two houses in exchange in Zango 1.

He is disabled and retired and lives with his family in one of the houses whilst renting out the other one. Apart from this source of income, his wife often cooks outside the house and sells snacks to passers-by. Travelling to Luanda is costly and time consuming so he spends his days in the area but

claims not to have many friends amongst the neighbours. He worries about the yearly rainy season that brings the force of flash floods into the house damaging contents and disturbing their life.

CODE: ZNG-4 GENDER: M AGE GROUP: 35-44

PROFILE

Household of 9 (family), plus 1 person renting a room in the extension. Works as a builder, although does not have a stable job. They rent a unit in the back of their house for 10000Kz month (100 dollars).

Originally from the province of Malange, moved to Luanda to escape the war as they felt they would only be safe in the capital. They came to join family who were already living in capital and later built their own house in Boavista, from which they were later displaced as part of their bairro was demolished.

His family were amongst the first people relocated by the government from Bairro Boavista to Zango 1. Following the displacement in 2001 they were put into tents in Zango, whilst waiting to be given a house. Although the tent was meant to be a temporary situation, they ended up living in this situation for 2 years. It was only in 2003 that they moved to a permanent house.

The house to which they moved to was the standard 3 bedroom base house, with an external area included in the plot. The walls and floor were bare and exposed. Finishes along with other construction works have been done to the house since 2001 through a self-building process. These include plastering and painting the internal walls, enclosing the plot with wall and gate and building extensions in the back of the house (two individual units composed of a bedroom and a living room to rent out) and two external toilets. The frequency and scale of the works done to the house depended on the money they manage to have for that purpose. The construction works are still today an ongoing process. He has paid for a license to build the external wall required by the local authorities.

Some of the physical changes/adaptation made to the house are also a preventive measure against floods, and he plans to develop this further in the future, in order to stop flood water from coming in and damage the contents of the house, for example raise the floor of the house to be above the flood level.

This has been a yearly phenomenon since they moved to the permanent house and is experienced during the rainy season. He believes that this problem was not considered when planning the location of Zango 1 - although the previous users of that land (farmers) called attention to this fact - and that they live in an inadequate area. As a consequence of this their furniture and housing contents are damaged and replaced every year. Feeling of hopelessness in regards to solving this situation, also there is no financial support from authorities for the construction/alterations of the houses.

Also, as the roads are blocked during the rainy season it becomes very difficult to circulate by car to buy food and go to work.

Other houses are affected and measures taken at the neighbourhood scale to prevent water to come into houses include blocking streets with big piles of sand to keep water from reaching the houses.

Water provided, Electricity existing but only every other day. Safe area.

Do not go to Luanda very often, despite the fact that there are transports to the city. Availability of markets nearby

Dream-house - one with first floor (thinking of the floods).

CODE: ZNG-5 GENDER: M AGE GROUP: 25-34

PROFILE

Household of 6 people, all relatives. He is a chemistry teacher, his wife works in a fuel pump. Residents of Zango since 2009.

They were part of the group of people displaced from Boavista under the justification that this neighbourhood had been marked as a risk area. It was characterised by an informal urban spatial arrangement, of high density and poorly planned. Leaving Boavista and moving to Zango, a formally planned low-density urban area, was seen as an improvement for their lives. In Zango 1 he feels safe due to the constant presence of police (although points out that this is not the case for the whole of Zango). A perception which is further enhanced by the sense of community and the fact that that

neighbours know each other, which also makes it a child and family friendly place compared to his previous area of residence it is quieter.

From the perspective of access to work however, the location has been a challenge especially for his wife who works in Luanda starts the commuting journey from Zango at 5am to get to work on time. Plus, this also entails a daily expense of 600 Kz (6USD)/day in taxis to commute to work in Luanda.

He however feels positive about this aspect as he already notices a change since they moved in terms of availability of services and equipment, which has increased significantly, including state services (Integrated Services for Citizens - Serviço Integrado de Atendimento ao Cidadão). Before there were few services, but that is changing and now have more access to basic services and equipment, which potentially reduces the number of trips to Luanda.

Although there was a general satisfaction associated with certain aspects of the neighbourhood, he criticises the choice of location as this floods every year during the rainy season. For this reason, as far as the house delivered as part of the resettlement programme is concerned, he does not consider it a "house" during rainy season, since it does not offer conditions during that time. Authorities are aware of the problems resulting from the floods but nothing seems to be done. Jaime also believes that the lack of action might be the result of inaccurate feedback passed on to the authorities, from residents who are influenced to report the houses as being good and appropriate, even it doesn't match the reality.

In addition to not being able to resist the seasonal floods, the comfort is also affected during the warmer periods as it overheats. He considers the house is too small and does not accommodate expansion of the family, it is of poor quality and fails to meet requirements and although has done very few modifications so far to prevent further damage, he plans to do so in the future in order to make it more flood resistant and improve the house generally.

Thinking about his family, he envisages a bigger dream house when compared with the ones they have been offered in exchange for their house in Boavista.

CODE: ZNG-6 GENDER: M AGE GROUP: 45-54

PROFILE

He lived in Bairro Boavista until he was relocated to Zango in 2006 following the clearing out of part of Boavista's neighbourhood. He was relocated together with some people who were living in the same bairro, they have are now living nearby. Old social networks maintained and new ones potentially created. Household of 7 people, all relatives.

He was taken to Zango with his family in the 3rd stage of displacement, which means directly from house (Boavista) to finished house (Zango), instead of having to spent time in tents whilst the house was completed. The house was attributed considering the amount of area of previous house, so instead of 1 he was given 3 houses in Zango in exchange. He believes that was nevertheless unfair and thinks he deserved one more. Now he lives in one of them, sold another and rents out the third one (the one next to his). In addition to this income from the rent, he manufactures and sells beds and other furniture in his house.

The house prices in Zango have been suffering fluctuations since he first moved there. He sold his house in 2006 for 12 thousand dollars. Price ranged from 4 thousand in the first stage of Zango to roughly 60 thousand dollars now.

He was not satisfied with the structural quality of the house. There are cracks on the walls which he attributes to a badly planned construction process (Land not prepared beforehand for construction) and the poor structural quality of the house itself, namely the absence of structural elements such as pillars/columns and beams. The load bearing concrete block walls are placed directly onto a 15 cm cement slab with no foundations, and the roof placed directly onto the block walls.

The dissatisfaction towards the houses in the moment of delivery was also associated with the complete absence of finishes. The houses were delivered bare, with no finishes. Everything that needed to be added required a considerable amount of money and authorisations requested. Government perceived as not helping as any element that needed to be added to the house implied more money spent. Overall process made difficult as more documents and money were required.

With regards to other aspects of the new location, He also pointed out the dissatisfaction towards the unreliable provision of water and electricity. The electricity is not on every day and the water provision seems to be deficient in his area, although there is infrastructure in place. As a backup he has a 1000l water tank. With regards to waste collection, although it exists it is not regular; he doesn't know when it is supposed to happen. The authorities seem to know about the problem with the water but fail to act on it, although having said they would.

Although there are small shops nearby and at walking distance, bigger shops with more variety and markets are too far and not so easily accessible. Also, the existing primary schools are too far which

means that children have to walk far to get to school, around 3km and there is no transport to take them to and from school.

Safe and tranquil location, there are a few police stations in the area and police are seen often.

This area is not affected by floods. His view on main problems (in order of importance): 1 - no water; 2 - Irregular supply of electricity; 3 - absence of primary schools; 4 - No markets nearby; 5 - Irregular waste collection.

CODE: ZNG-7 GENDER: M AGE GROUP: 35-44

PROFILE

He was amongst the first group of people being relocated from Boavista into Zango. This move occurred in 2001 and he believes it was because the government was relocating people from a risk area into a safer area. This move was not however straight to a house but to a temporary accommodation (tent), where José and his family lived two years.

He is currently unemployed and lives out of occasional taxi driver jobs. There are 12 people living in the house, all relatives.

The house they were given as part of the relocation programme is located in an area of Zango 1 which is heavily affected by floods every year during the rainy season. He believes that this particular location is inappropriate for housing and argues that farmers who worked this area before had informed the project engineers of this fact, however this was not taken into consideration.

This yearly event affects the performance of the house and damages the contents of the house, which as a result have to be replaced on a yearly basis.

One of the occupants (his father in law) is critically ill and struggles when these episodes occur as he has very limited mobility.

The fact that the rainy season causes all these problems brings stress and discomfort to residents and interferes with their normal routine. They have to wait for all the water level to come down again before they can start cleaning and go back to normal life.

He claims that authorities were there to assess damages, how many houses flooded, etc.

He has been making changes to the house and patio since 2010. These were to try and minimise the impact of the yearly floods but also general improvement construction works such as adding finishes (tiling the floor, plastering and painting internal walls...), altering the internal layout of the house (move the bathroom from inside to the outside, change the kitchen) and increasing the living area through the construction of extensions. In the future he plans to plaster and paint the external walls, improve the garden area, raise the floor level so that it can be higher than the waters during the floods and to raise the height of the house as he believes that would be a solution for the overheating problem. These construction works are absorbing much of his income.

With regards to building materials used, he uses what is most widely used in the area - concrete blocks, cement and metal sheets for the roof. Although José claims the whole construction process has been quite challenging financially, he has also noticed that the increase in availability made the materials cheaper.

CODE: ZNG-8 GENDER: F AGE GROUP: 45-54

PROFILE

She has moved to Zango in 1999. Lives in a household of 10 which includes herself and her children. Her husband no longer lives with her. He used to work as a carpenter but is out of job at the moment. Laura is also unemployed and finds difficult to have access to work where she lives in Zango.

Before moving to Zango she used to live in Bairro Boavista. In 1999, she was relocated in Zango where she first spent 2 years in tents at the entrance of Zango 1, whilst waiting for the completion of the house which was then eventually delivered. She is aware that this resettlement process was driven by the government, and thinks this was due to various episodes of houses collapsing in Boavista following heavy rains. Despite being moved to Zango, the vulnerability they were exposed to in the previous house has not changed in her view, since her house is still being flooded every year in Zango. During this period, where water level reaches the window level, they cannot stay in the house and are forced to look for another place to live. When they come back they often find the contents of the house all damaged, leaving them with nothing after the floods. When it rains she has

to live the house and find shelter somewhere else.

She says this situation makes them suffer as they have nowhere else to go during the floods. However, compared to her previous house she prefers nevertheless to live in Zango.

Not having a stable source of income means that she cannot afford to pay for regular trips to go to markets and buy food. Hence she does her shopping in the nearby Viana and takes a taxi to get there, which she can only do once a month. For the same reason she has not been to Luanda's centre since moving to Zango. However, she needs to go to Luanda to get the children's documents sorted so that they can have access to public school.

The house was delivered with no finishes. Although it is still very much close to the original, she has raised the wall in front of the house as an attempt to keep the flood water to enter the house. Other changes include tiles on the floor inside the house, 2 rows of concrete blocks by the door, internal walls painted and trees planted outside. A pile of sand and blocks observed in the patio area indicate ongoing or future construction works. She would like to improve the house in such a way that water would not enter the house.

Apart from that, the windows are still the original metal framed with no glass as well as the doors (metal).

CODE: ZNG-9 GENDER: M AGE GROUP: 45-54
(x2)

PROFILE

These two participants are part of group of residents who formerly resided in an informal settlement in Luanda called *Lixeira* (meaning landfill). As the name suggests this bairro was built on a large landfill site where waste constituted the livelihood for many of the residents. People would wait for the waste trucks to arrive so they could collect any objects they could sell or reuse.

As a consequence of a privately driven process, since 2002 a programme was put into place in order to relocate population from Lixeira to Zango. This was to be done in conjunction with the government who was responsible for providing the land and infrastructure to the population. This has however been a slow process and at the time of the fieldwork in 2013, only just over 340 families of the 500 who were to be beneficiaries of this programme had been moved into Zango.

Moreover, all of these were still living in the temporary site located a few hundred meters away from the final site. Additionally, although claiming that this move was an improvement from their previous life in the informal settlement, they still live in tin houses whilst wait for the right to move to a permanent house. Although considered an improvement from previous residence, these houses overheat as a consequence of the materials used, have poor living conditions, no running water and limited access to energy. A move due to happen in an uncertain date and time.

"We are here since November 19th 2005. From 2005 to 2008 Chevron gave us metal sheets. We were in tents before, it is much better than the tents now that we have sheets (...) first we are waiting for the authorization. Until we have the notion that it will place an incremental house, then myself as an owner will increase the house"

CODE: ZNG-10 (x6) GENDER: F AGE GROUP: various (25-64)

PROFILE

This is a group composed by 6 women and 1 man living in the area of Zango 2. All of them except one have moved to Zango as a result of a government-led resettlement project that aimed to take people from Boavista, which was identified as a risk area, into Zango. The move took place in 2007. The houses delivered were the standard base houses seen across Zango - the typical 3 bedroom house with an external area allocated in the plot. Concrete blocks are used for internal and external walls with no apparent structure, all of which placed on a concrete base laid on the soil. The roof (metal sheet) was placed directly on the walls and it is often to find rocks or other heavy objects on top of it to hold it in place. Although the provision of infrastructure (electricity and piped water) was included when then the houses were delivered to the residents following relocation, they had no finishes and in some cases the electrical installation was also not complete or absent. This was a source of dissatisfaction amongst the residents who claimed these were not delivered at a standard to be inhabited by people. Any improvements were thus left to the occupants, who depending on their financial means plastered and painted the walls, tiled the floors, added false ceilings, etc. This

was not however possible and at least one of the participants was still living in a bear house, with exposed block walls and exposed cement floor.

In addition to the lack of finishes the houses were also perceived as being too small to accommodate the average number of occupants, which lead to the addition of extensions to increase the living area. Hence, increasing the satisfactions towards the houses can get quite expensive, also because of costs associated to obtaining permissions to make any change to the base house. The process of construction has since been made easier as they claim not to need authorisations any more - no monitoring strategy seems to be in place to check alterations.

Other points of dissatisfaction towards the house include the materials used for the windows and doors that get damaged from exposure to the elements (mainly rain), and the fact that the houses overheat during the hot season, which is attributed to a low ceiling height.

Nevertheless, there is a general positive opinion of the fact they have a courtyard where they can spend time and plant trees and other greenery, which was impossible before due to the high density of the urban fabric.

Despite the above, living in Zango means an overall improvement in living conditions, mostly associated with the change in urban layout from the informal settlement to Zango and provision of infrastructure.

Before they lived in a highly dense area with houses built poorly and very close to each other and structural collapses were common especially during the rainy season, which often resulted in deaths. In Zango people and children are safely protected from the rain and the open space also gives a perception of fresh air and reduced pollution. They are happy with the fact that there is piped water coming to their houses. Even with occasional failures this is not a problem.

Not all Zango is safe, but this one in particular where people who lived in safe areas before maintained similar social arrangements and behaviour.

The urban layout encourages safety, organised streets and space makes life more difficult to burglars etc.

The lack of healthcare nearby (hospital) is one of the most significant problems they believe need still need to be addressed. They reported cases of people dying as a consequence of not having access to healthcare and maternity services. A hospital is being built but it is still too far and they have to take a taxi. The unreliability of energy supply is another problem.

There is a potential in these houses that they did not feel before, although this is mainly depending on having access to financial means. Some houses in Zango have been transformed in Zango and are very beautiful.

Zango is attracting attention from other people who were not the initial beneficiaries of the resettlement programme. Some of the houses are already being sold. One of the members of the group has bought the house, she is not part of the resettlement process. Prices are increasing as a consequence, now ranging between 25 and 30 thousand dollars.

CODE: ZNG- 11 **GENDER: M** **AGE GROUP: Various (35-54)**

PROFILE

These three men used to live in an unfinished multi-storey building in the city centre that had been squatted after it was left empty following the independence in 1975.

They have been moved to Zango around the year 2006 when the building was set to be demolished. They were told they had to leave urgently because the land was going to be used to build something else, they have however gone back recently and still found an empty site.

They are happier with the conditions in which they live in now and say that they would not want to go back and live in a neighbourhood with poor living conditions, like the existing informal settlements inside Luanda (Cazenga or Prenda).

They like that they can have gardens and space to plant greenery. Moreover, they point out as a positive aspect the fact that the urban fabric in Zango is organised and formal as opposed to the maze-like urban form they would find in an informal settlement. It gives them a sense of safety as the wide straight and long streets allow them to have good visibility.

Nevertheless, they still regard the lack of schools for the amount of children as a problem. At the moment, according to them, this results in classes being overcrowded (45 students per classroom) which has a negative impact on the children's learning and also means they have to walk far to go to school and parents cannot always collect them.

They perceive the houses as inadequate, they overheat and are small for the size of the typical Angolan family. They would like to be able to raise the ceiling height to avoid overheating and add extensions. They are also not happy with the unfinished look of the house they were provided with (no finishes) and the poor quality of materials used for door and windows. They have no choice but

to make changes themselves. This process in theory would involve requesting for authorisations and a fee but people have started doing these informally.

However they have limited financial resources and do not have a stable job (work in occasional jobs locally), therefore no income to invest in the house. It is difficult to find a job in Zango and the access to Luanda's centre takes time and involves spending money in taxis. The road is being improved and they hope this will reduce the time to get to Luanda.

The infrastructure does not work well, especially the water, which although is meant to be piped seems to be wasted in the process of delivery - a fully open tap will only have water dropping.

CODE: ZNG- 12 **GENDER: M** **AGE GROUP: 35-44**

PROFILE

He lives in Zango in a house with 7 occupants, all relatives. He bought the plot of land and built the house as part of the assisted self-building programme. The process was challenging and long and at times he had doubts that they would be able to get the plot. He had to bribe an official to finally have access to the plot and respective documentation that would allow him to build a house - bought two plots and built two houses (his and the one next door), giving the one next to his to the official dealing with his process. This meant spending twice the amount of money, one house would be three thousand dollars and he had to spend six.

There was no infrastructure when he started building the house, he had to organise with a few neighbours and get a private company to extend the electricity lines and water to that area. He states that this was meant to have been done by the government but it was not, the same way they did not have any technical assistance for the construction of the house.

He had no experience with construction so he hired builders to build his house. After some time he realised they were stealing materials (cement) and now he is trying to finish the construction himself with some help after having observed what they did. He no longer has a stable job, so this will also bring the costs down. He plans to open a pharmacy in his house (the façade facing the street) so he can have an income. This would also allow his wife to work from home, rather than having to travel every day to Luanda, which means leaving at 6am and coming back very late and would also save on transport. He has plans to add a first floor to the house, so he can have the pharmacy in the ground floor.

He thinks the "core house" that makes Zango is not of good quality, and although he has been following the design he made some changes to avoid for example overheating - false ceiling, larger windows. He also built a high perimeter wall to give the house privacy and safety.

Between buying in Zango or in another place close to Luanda, he prefers the former because he is an owner and he feels no-one can take him out of the house, which could happen if he had decided to move elsewhere. He also feels safe because he now lives in a quiet area and trusts that Zango will grow and will have more services and facilities in the future as more people move there, he can already see changes since he moved. The only thing missing for him is a good public transport network.

He worries about the speculation that result in higher housing prices of houses in Zango but still thinks that Zango is a good alternative for people who would not be able to afford to buy a house in the new cities being built outside Luanda.

CODE: ZNG- 13 **GENDER: F** **AGE GROUP: 55-64**

PROFILE

She used to live in a flat in a multi-storey building in Luanda, in 2009 bought two plots in Zango to build a house across the two plots, under the assisted self-building programme. She chose Zango because she thought had many advantages comparing to the city - it is calmer, not so dense, allows her to have a courtyard and even have animals like chickens or ducks. She is also happy she does not have to carry water up the stairs.

Despite the improvements, the provision of energy and water are still not satisfying. There was no infrastructure when she started building the house, she had to organise with a few neighbours and get a private company to extend the electricity lines and water to that area. She states that this was meant to have been done by the government but it was not, the same way they did not have any technical assistance for the construction of the house. Her nephew is an architect and helps her with

the construction of the house.

She does not visit Luanda very often now, despite the fact that the majority of her family still lives there - it would take her at least one hour and a half if she wanted to go. Instead her family usually comes to visit in the weekend as the house is large enough to accommodate many people.

She feels that despite the improvements Zango still lacks supermarkets, leisure spaces, schools and childcare centres so that the parents can go out and work during the day. In order to address the latter, she plans to open a nursery in her house, as she needs to earn an income now that her husband passed away.

She has noticed that the housing prices in Zango have been increasing, and even rents are high now.

CODE: ZNG- 14 **GENDER: F** **AGE GROUP: 25-34**

PROFILE

She is a university student, mother of 4. She bought land and built the house under the assisted self-building programme. She hired local labour to build the house and helped in the process, especially in the electrical installation as it is her expertise. She started by building the core house following Zango's typical design and then moved on to building extensions because she thought the house was too small for her family.

She has a very good understanding of the legal procedures of construction and has been following these during the construction process. She has asked for authorisations and paid fees for all the elements added to the "core house".

She reports feeling safe in Zango, but she nevertheless built a high perimeter wall around her house, hiding the house and courtyards from view. As a consequence of this intervention, her children do not play outside, as they spend most of the time in the enclosed courtyard.

For her, three main problems in this area are the poor sanitation, unreliable provision of electricity and the insufficient primary schools. She thinks that the latter is fundamental so that mothers can still work and earn an income. She also thinks there should be more police station given the dimension of Zango, and in case a problem happens in the secondary streets it would be difficult for authorities to get there on time.

Although she is happy with the fact that she can have a courtyard and some space to build extensions and thus add to the house, she also understands that extending the house means losing external area.

She believes that Zango will gradually be able to offer more conditions, especially in terms of services and amenities, as more people move in. She also hopes that more jobs will become available in close distance because at the moment it is too expensive to commute to Luanda and the journey takes a long time.

CODE: ZNG- 15 **GENDER: F** **AGE GROUP: 55-64**

PROFILE

Displaced to Zango in 2010 after a fire in Bairro de S. Paulo burnt a large number of houses including her own. Was given an "incremental house" by the government in Zango 4 which consisted of one bedroom, plus a small room used for storage, one kitchen and one bathroom. The residents are meant to add to these rooms themselves but they do not have financial means to do so and currently have the whole family living in this space. The children sleep in the cupboard.

The area where they live (Zango 4) is remote and far from Luanda. The landscape here is characterised by an array of houses, unpaved roads and not much else. The access to transports is also not easy.

As they do not have a stable source of income (she sells homemade pastries in front of the house) it is likely the house will not be extended soon. It is however already showing signs of structural damage as there are large cracks on the walls.

Family showing a general feeling of hopelessness in relation to future. Are unhappy with the current situation especially because of lack of water and services such as access to health and schools.

Even so, they consider they are in a better condition than before when living in the informal settlement in Luanda.

The other incremental houses around still kept their original form, none had been extended yet.