

University of Strathclyde
Department of Architecture

**An Examination of the Quality of Urban Life of Residential
Neighbourhoods in Lilongwe, Malawi**

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Declaration

This work is a result of the author's original research. It contains no unacknowledged text and has not been submitted in any previous context. All quotations have been distinguished by quotation marks and all sources of information, text, and illustrations have been specifically acknowledged.

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Abstract:

This research has designed and tested a theoretical model, framework and toolkit for assessing the quality of urban life (QoUL) within the context of east-southern African cities (ESA). The research emphasises the contribution of context and culture on the scholastic topic of QoUL, underscoring the need to tailor the approach to the conditions of the environment under investigation. This is significant because QoUL can be interpreted differently across cultures. This is due to quality per definition being context-dependent; therefore, an individual's perception of quality will differ depending on the cultural setting. While there are undoubtedly aspects of urban life which are pan-cultural, this research argues that there are also culture-specific features which make urban life unique in each city or setting. Consequently, QoUL studies must balance universal and context specificities when designing measurement tools. Despite this contextual importance, discourse on QoUL shows that the preponderance of existing empirical studies and measurement frameworks have been developed based on Western case studies and standards. Given the differences in urban settings, this thesis argues that a new conceptual model and framework must be developed to examine the specificities within the case-study city.

This research addresses these knowledge gaps by first designing a conceptual model which guides the research by underscoring the core dimensions of a QoUL study. This is followed by deriving and validating a tailored indicator list for investigating QoUL in the context of Lilongwe. This indicator list is then translated into a toolkit where all indicators are assessed using a multi-methodological approach. This approach includes gaining primary data through participatory methods with residents and experts in Malawi, direct observations and profiling of urban settings, and thorough literary knowledge, including government documents. Through this comprehensive approach, the research aims to understand the relationship between the resident's subjective perception of their urban environment, and the objective conditions that they reside in.

Lilongwe is used as a case study as hitherto cities of ESA have been in the periphery of urban investigations. This lack of scholarly interest has resulted in a gap of knowledge of how residents use space and a lack of understanding of how place impacts people's lives within this context. Lilongwe has experienced an increase in urban population over recent years. This increase has dramatically impacted the use of space, which impacts the QoUL of urban communities. This research addresses this knowledge gap through empirical primary data collection in the case study city. This provides one of the first empirical investigations into how space impacts residents

QoUL within Malawi. One of the fundamental aims of this research has been to extend writing on modern African cities while underpinning the significant role that culture and context play in the discourse of QoUL.

Through this investigation, the research contributes to public policies to positively resolve urban issues. The recommendations propose methods to improve the quality of the neighbourhoods across a range of small to large scale interventions. These are offered at both a strategic and design level to best resolve the challenges faced. The recommendations include specific methods to improve QoUL based on the multi-faceted approach to investigating QoUL, and detail where bespoke indicators are shown to impact residents QoUL considerably. These bespoke indicators would have been overlooked if the research was not tailored to the context under investigation; thus, confirm the importance of modifying the research. This research, therefore, aims to contribute to urban knowledge through the provision of a comprehensive QoUL model, framework and toolkit which are validated as useful in the context of ESA.

Publications:

- MacLean, L. & Salama, A. M., 2019. Towards a Context Specific and Multidimensional Quality of Urban Life Model. *Open House International*, 44(1), pp. 25-33.
- Salama, A. M. & MacLean, L., 2017. Integrating Appreciative Inquiry (AI) into Architectural Pedagogy: An Assessment Experiment of Three Retrofitted Buildings in the City of Glasgow. *Frontiers of Architectural Research*, Volume 6, pp. 169-182.
- Salama, A. M., Remali, A. M. & MacLean, L., 2017. Characterisation and Systematic Assessment of Urban Open Spaces in Glasgow City Centre. *Spatium*, Volume 37, pp. 22-33.
- Salama, A. M., Remali, A. M. & MacLean, L., 2017. Deciphering Urban Life: A Multi-Layered Investigation of St. Enoch Square, Glasgow City Centre. *Archnet-IJAR: International Journal of Architectural Research*, 11(2), pp. 137-156.

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Chapter One: Introduction

1.1 Introduction

This thesis investigates the quality of urban life (QoUL) in three neighbourhoods of Malawi's capital city, Lilongwe. It aims to design and test a theoretical QoUL model and framework that will provide a guide for practitioners who are investigating this complex scholastic topic within the context of eastern-southern Africa (ESA) using Lilongwe as a case-study city. Through this, the research aims to contribute to urban policies, and establish a benchmark for measuring changes in QoUL in Lilongwe's neighbourhoods in the future.

From reviewing the discourse on QoUL, it is evident that the majority of existing empirical studies and measurement tools are developed using Western case studies as a basis. This research proposes that the concept of QoUL can be interpreted differently across cultures, as while there are aspects of urban life which are pan-cultural, there are also culture-specific features which make urban life unique in each setting. Given the differences in urban settings, this research believes that a tailored approach should be devised to understand the particular needs of each case-study city. As such, the argument of this research is premised on the notion that a site-specific model is required for measuring QoUL, as a universal model remains inconsistent and unreliable when applied across various contexts, cultures and time.

A central theme of the research is, therefore, the importance of deriving and tailoring bespoke indicators to gather the correct information on the urban condition under investigation. As such, this thesis seeks to contribute to the empirical approach to studying African urbanism that is advocated by many modern scholars including (Jenkins, 2013), Myers (2011), Murray and Myers (2006) and Robinson (2006). Key findings in this research are derived from several strands in a multi-layered methodological approach. This includes gaining primary data through participatory methods with residents and experts in Malawi, direct observations and profiling of urban settings in the case-study neighbourhoods, and thorough literary knowledge. This research therefore aims to use a range of social-science methods to understand the relationship between residents perceived QoUL and the urban condition that they reside in. Overall the thesis aims to present an empirically based and culturally sensitive investigation into the QoUL of residents in Lilongwe which can be used to resolve urban issues at a neighbourhood level and thus improve the QoUL of Lilongwe's residents.

1.2. Overview of Quality of Urban Life

This thesis places emphasis on the quality of urban life (QoUL) in Malawi's capital city, Lilongwe. Quality of life (QoL) concerns all people and all places. As such, the topic has attracted the attention of scientists, researchers, policymakers and environmental designers since antiquity, with increasing scholarly interest since the 1960s (Ilic, et al., 2010; McCrea, et al., 2011). As the majority of people live in cities, it is increasingly important to examine the relationship between the qualities and characteristics of the urban setting and the perceived satisfaction of the inhabitants. This form of investigation is known as a quality of urban life study. As a sphere of inquiry, QoUL is concerned with the relationship between an individual's QoL and their urban environment. This connection is complicated and spans many domains of life, including the physical, social, economic and well-being aspects. This complicated relationship encourages researchers to develop models and frameworks that incorporate a broad spectrum of indicators simultaneously (Marans, 2012). Studies into perceived QoUL can be undertaken on a range of geographical scales from the personal household, neighbourhood, up to a city or region (Low, et al., 2018; McCrea, et al., 2011; Pacione, 2003). Depending on the scale being investigated, researchers must tailor their exploration. This thesis is examining three neighbourhoods in Malawi's capital city and is thus a neighbourhood investigation.

There are a range of measurement tools that can be implemented for a QoUL inquiry. These include objective data collection through archival records, census data and trend analysis, as well as subjective data collection using participatory techniques including residential satisfaction surveys and interviews (Yin, 2017; McCrea, et al., 2011; Møller & Schlemmer, 1983). This thesis combines both strands of research, thus adopting a mixed-method approach which is discussed further in Section 7. The outcome of a QoUL study should be a detailed analysis of the case-study site which provides the objective condition of the area, as well as the subjective perception of that area's residents. When combined, this data can provide powerful information that can be used to influence policymakers and planners and aid in their assessment of their urban environments and thus contribute to the resolution of urban issues (Pacione, 2003; Marans, 2012; Marans & Stimson, 2011; Lofti & Solaimani, 2009). As an area of research, QoUL studies are embraced by governments and contemporary urban discourse. This QoUL study therefore merges the data from the numerous fieldwork inquiries to form a list of recommendations for government in Lilongwe. The discussion aims to aid in allocating resources to improve residential QoUL in the selected city. The following section now discusses the setting under investigation to contextualise the research.

1.3. Contextualisation

This thesis examines key aspects of QoUL in the context of Lilongwe, the capital city of Malawi. The following section contextualises the research beginning with the macro-region of eastern-south Africa, the meso-region of Malawi, and the micro-region of Lilongwe. Chapter Five of this thesis provides an in-depth literary dialogue of the context; however, this section provides a scholarly introduction to the region to place the subsequent chapters in context.

1.3.1 Eastern-Southern Africa (ESA)

Geographically, for the key case study, this research focuses on one African city, which is Lilongwe in Malawi located in the crux between Eastern and Southern Africa. Depending on the source, it can be considered geographically Southern Africa, Figure 1.1, or Eastern Africa, as shown in Figure 1.2. This thesis, therefore, considers the macro-region of eastern-southern Africa (ESA).

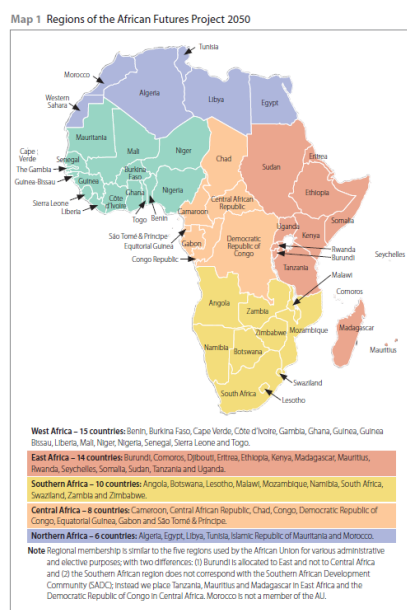


Figure 1.1 Regions of Africa Futures Project 2050 (Cilliers et al., 2011)

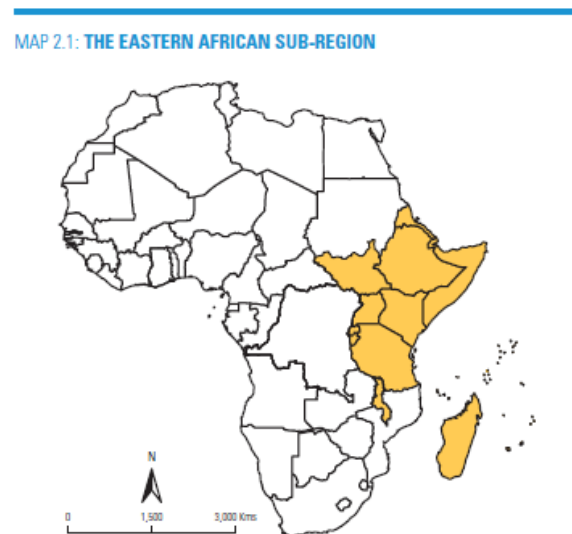


Figure 1.2 The Eastern African sub-region (UN-Habitat 2014)

A great deal of the literature on Africa can be too generalised, it is a continent of over 50 countries, with thousands of cities and millions of people (Pieterse & Parnell, 2014). The continent houses different climate zones, a tapestry of cultures and a complex web of religions, social interaction and languages (Pieterse & Parnell, 2014; Cilliers, et al., 2011), thus cannot be generalised as 'African cities'. Research must engage with this rich diversity to make any positive impact on the conditions of the cities. This research, therefore, does not discuss African cities in general but where possible

focuses on the macro-region of eastern-southern Africa, and more specifically Malawi and Lilongwe.

It is important to stress that each city is unique; however, there may be similar issues that affect many cities, especially those in close vicinity to one another such as ESA (Jenkins, 2013). While investigating one city cannot fully represent all cities in a diverse region, there are useful comparisons that can be drawn from cities in similar circumstances, and those influenced by similar historical and contemporary events (Jenkins, 2013). This thesis, therefore, allows a macro-region comparison as it is necessary to understand each city within both the national and local context. The empirical research creates a contextual basis for relating its findings to other cities in the region.

It is important to state the approach that this research adopts when investigating urban life in the region of ESA. There is a recent trend which emphasises the need to bring the urban experiences of ESA cities into the broader theoretical realm (Parnell & Robinson, 2012). Hitherto ESA cities have been in the background of urban studies. As such, there is still a lack of critical engagement in the way in which contemporary ESA cities work. In the past, theories that are successful in the global North are mobilised to the global South without critical thought on whether the associated indicators are essential, are they understood concerning other drivers of change, or if they apply at all (Parnell & Robinson, 2012). As such, this research echoes the beliefs of many modern scholars who state that the urban theory must engage with the distinctive knowledgeable interpretations drawn from the diverse and not always understood physical, social, economic and welfare realities of cities in the South, not the North (Parnell & Robinson, 2012; Jenkins, 2013; Anderson, et al., 2015; Myers & Murray, 2006).

This thesis, therefore, derives appropriate indicators for assessing QoUL in the case-study city Lilongwe, which are discussed through literature and tested in the empirical fieldwork. The objective here is to create a scholarly space for alternative and perhaps more useful concepts and frameworks to develop. Thus, the thesis aims to contribute to the knowledge of contemporary urban life and urban qualities in ESA cities. The subsequent section discusses urban planning within the macro-region of ESA

Urban Planning in ESA

To understand urban form and urban planning in ESA, it is necessary to examine the historical factors that brought about modern-day urban spaces (Cobbinah & Barkwah, 2017). Before colonisation, settlements were planned with traditional land-tenure and land systems, kinship and religious order of the communities in mind (Okpala, 2009). The physical structures, while not formally planned, respected traditional arrangements and way of life of residents (Okpala, 2009). Official urban planning then emerged in the 19th century in Britain and Europe. These planning regulations were imported and imposed on African countries without consideration of the existing conditions or cultures in the countries (Cobbinah & Barkwah, 2017). This, therefore, resulted in the definition of 'proper' and 'adequate' urban infrastructure being determined by the global North, and then immediately transferred worldwide (Jenkins, 2013).

Colonial planning in ESA cities was rooted in European planning law, for example, the Nyasaland (present-day Malawi) 1948 Town Planning Act was based on the British Town and Country Planning Act of 1947 (Cobbinah & Barkwah, 2017; Gumede, 2018). This was despite the fact that urbanisation in ESA Africa is radically different from that experienced in the Global North, with regards to pace, scale, and political and economic structures (Anderson, et al., 2015). Models and concepts that work well in the Global North are not appropriate for contexts in which the processes are less important, or do not apply at all (Parnell & Robinson, 2012). Generally, urban planning that is based on northern norms and methods without engagement in local circumstances tend to result in an insignificant impact for residents of the city.

During the 1950s and 1960s, many African countries gained political independence, for Malawi, this happened in 1964. This period was characterised by rapid urbanisation and greater rural-urban migration (Cobbinah & Barkwah, 2017). Residents of urban areas were expecting their livelihoods and living standards to improve after independence (Kalipeni, 1997) however the increased population put a strain on the urban services and urban infrastructure such as water, electricity, sanitation, roads, and transport (Bryceson, 2006), therefore living standards did not improve dramatically.

To deal with this burgeoning urbanisation, many post-colonial cities adopted colonial urban planning legislation (Cobbinah & Barkwah, 2017; Okpala, 2009). This was seen by cities such as Lilongwe adopting the garden city method with a master plan. There were also attempts by new African governments to revise many of the standards that were embodied in colonial legislation (Cobbinah & Barkwah, 2017). This resulted in

some of the informal settlements being legitimised, removal of racially segregated neighbourhoods, and lower standards for land developments (Cobbinah & Barkwah, 2017). Some ESA countries have adopted the integrated planning approach as a means of replacing the conventional master plans. This focuses on short-term action plans to address the challenges faced by rapid urbanisation (Cobbinah & Barkwah, 2017).

With this planning history in mind, it is important that actual modern urban space and form are taken as the foundation for engagement when designing models and frameworks. They should engage with the situation in the city today, not the ideals of another time or place, especially those with different cultural, political and economic circumstances (Jenkins, 2013; Anderson, et al., 2015). This echoes a call to see cities for what they are, not what external perspectives believe they should be (Jenkins, 2013). Planning should thus be culturally embedded perceptions of socially constructed forms of interactions (Anderson, et al., 2015). The following section offers a closer look at the meso-region of Malawi.

1.3.2 Malawi

This image has been removed from the digital version of the thesis for copyright reasons.

Malawi is a long landlocked country in ESA. It is bordered by Tanzania to the north and east, Mozambique to the east and south-west and Zambia to the West. It is over 118,000km², and approximately one-third of the country's land is taken up by Lake Malawi. The current population of Malawi is estimated at over 19,000,000 and this is expected to double by 2038 (World-Bank, 2019). The distribution of age in Malawi has around 15% of the population aged under five, 36% aged between 5 and 17, and around 49% of the population aged over 18. Malawi therefore has a young population with approximately 51% of the population under the age of 18 (2018 census).

Figure 1.3 Map of Malawi

Malawi has three regions, the north, central and southern. The capital city, Lilongwe is located in the central region. The north has one city, Mzuzu; the southern region has two cities, Blantyre, which is the commercial capital of the country, and Zomba, the colonial capital. The area now known as Malawi was settled by migrating Bantu groups around the 10th century and in 1891 it was colonised by the

British. In 1953 Malawi, at that time known as Nyasaland, became a protectorate within the semi-independent Federation of Rhodesia and Nyasaland. The federation was dissolved in 1963, and in 1964 Nyasaland became an independent country under a new name, Malawi. After independence, Malawi became a one-party state under the president, Hastings Banda who remained president until 1994 when Malawi held a referendum to multi-party politics which is the current political situation today. Malawi is generally a politically peaceful country.

According to the World Bank, Malawi is among the world's least-developed countries, despite making significant reforms to sustain economic growth (World-Bank, 2019). Malawi has an agricultural industry and a largely rural population which makes the population vulnerable to adverse external influences such as climate shocks. The following section focuses on Lilongwe, the city under investigation and follows three chronological timeframes, the first dating back to Lilongwe as an administrative centre, then when Lilongwe became the country's capital, and third, as a modern city.

1.3.3 Lilongwe

The central region of Malawi has a long history of human settlement. The origins of Lilongwe as a modern town date back to around 1904 when Lilongwe was made the administrative centre for Lilongwe district (Kalipeni, 1999; Munthali, 2017). In 1905 the population of this settlement was no more than 130 people (Kalipeni, 1999). By 1920, the settlement had expanded, boasting a number of important buildings including a post office, police station and prison (Kalipeni, 1999). In 1930, Lilongwe's status raised to Sanitary area due to the presence of a Sanitary board, which is tantamount to a town council (Kalipeni, 1999). By 1950, Lilongwe was a prosperous administrative outpost in the central region. The population of Lilongwe in 1966 was around 19,000, thus similar in size to Zomba, and so joint second to Blantyre in the urban hierarchy (Munthali, 2017). Only one year later Lilongwe had recorded a dramatic increase to a population of 500,000, (Kalipeni, 1999), however, it is significant to note that the border of Lilongwe had changed and this played a large part in this increase.

As Lilongwe grew, the physical layout of the town echoed the Colonial context which was characterised by racial segregation and imperialism (Kalipeni, 1999). Through tightly regulated conditions, indigenous residents were often only allowed to live in certain areas of the city which were commonly inadequate (Kalipeni, 1999). In 1924, Colonial Lilongwe was divided into sectors which saw natives residing on the eastern bank of the Lilongwe river, Asian population residing to the south east, and Europeans living in the western bank of the river. The western bank is on higher ground, thus

many believed it to have a lesser risk of diseases (Kalipeni, 1999). As such, while the city is thought to be founded on the western bank of the river, native residents were moved to the eastern bank in 1924 (Kalipeni, 1999). By 1947 Lilongwe was considered a township. From the outset, Lilongwe was a segregated city with European core on the west of the river and African and Asian cores on the eastern edge of the river. Many of the problems that Lilongwe faces today can be traced to the segregation philosophy on which it was built during the colonial era.

Capital relocation

Lilongwe was a planned capital relocation project. This was after Malawian independence in 1964, therefore is a relatively young city. It is not uncommon for countries to relocate their capital after gaining independence, as seen in a number of countries including Brazil, Nigeria, Pakistan, India and Tanzania (Potts, 1985). Many believe that former capitals have regional as opposed to national character and are often identified with particular sections of the population, thus are often galling to independent governments (Potts, 1985).

The decision to move the capital from Zomba to Lilongwe was based on three main elements; first, to deliver a more central and neutral location, second, the desire for greater regional equality, and finally to achieve political aims (Potts, 1985; Abubakar & Doan, 2010; Englund, 2002). Theoretically, providing a central location allows for efficient admin and it helps enhance the regional spread of wealth and development by forming growth poles (Potts, 1985). Lilongwe is centrally located in the country as seen in Figure 1.3, while Zomba and Blantyre are both to the southern periphery of the country and Mzuzu is located in the northern edge.

During the nationalist struggles, President Banda publicised the concept of relocating the countries capital (Englund, 2002). Many believe that the momentum for relocating the capital came from President Banda, as he is from that region. Conversely, others believe it is not as arbitrary as personal gratification (Englund, 2002). Nevertheless, in 1968 the South African government agreed to finance the project via a loan. This was after the British government rejected the project advising that Malawi focus on developing their agricultural industry instead. The South African influence extended to the town planning of Lilongwe. The master plan used the 'garden city' concept which brings sharp zoning of land typology and vast areas of green space to separate residential areas (Englund, 2002; Munthali, 2017). The form of Lilongwe was said to be determined by the spatial relationship of 5 elements; a new city core, a recreational zone, the industrial zone, new residential zones, and the processional way (Gerke & Viljoen, 1968). Lilongwe Master Plan (1968) states that the overall pattern of the city is radial, with two focal points, one on each side of the river (Gerke & Viljoen, 1968).

The city is therefore multi-centred to avoid the congestion of one city centre. The aim of the city design was to cluster mixed land use around each centre to reduce travel distances.

One of the main physical constraints is the topography of the city, which is thought to have influenced the land use dramatically. The large flat areas were reserved for industrial and commercial use, while the new residential areas were located on steeper slopes to take advantage of the landscape. As such, it was decided to separate the government zone and shopping and civic zones by locating the government buildings in the northern section and shopping and civic zones just under a kilometre south on a section of level land (Gerke & Viljoen, 1968). These two areas are then separated by a park which is both a central open space and connection link which intends to unify the two main components of the new city centre (Gerke & Viljoen, 1968). The parkland areas are important features of the Lilongwe city design, and they remain in the present-day city.

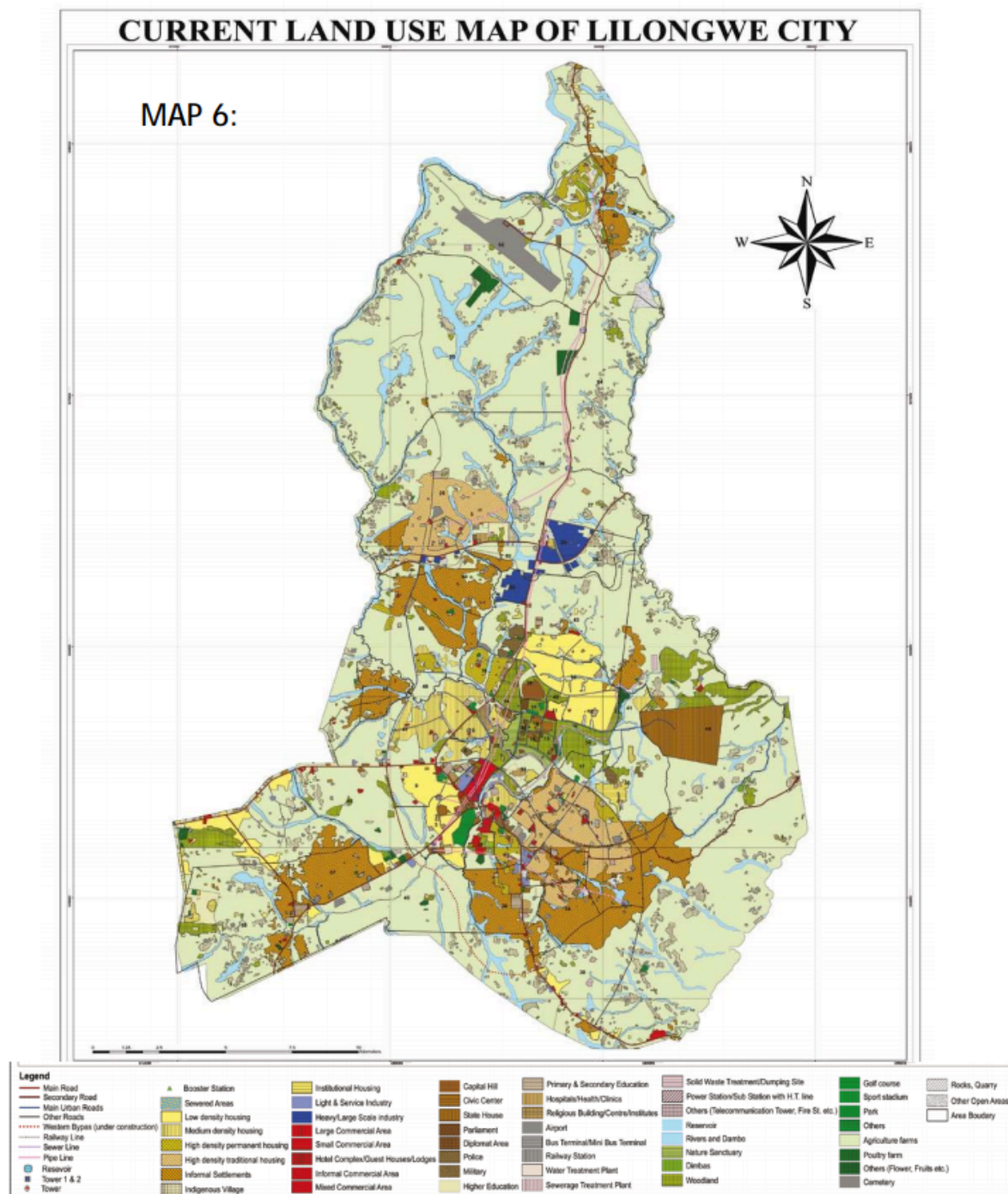


Figure 1.4 Map of Lilongwe Source- Biodiversity Report | City of Lilongwe (2013)

Modern Lilongwe

Today Lilongwe city covers an area of 393km² with a population of approximately 989,000 (2018 census). Although Lilongwe was carefully planned by South-African designers, the city still faces a number of problems in the fields of finance, planning, population growth, service and housing provision and employment.

The 1986 Lilongwe Outline Zoning Scheme divided modern Lilongwe into 58 areas for management and development purposes. There are 13 designated land uses which are intended to guide and regulate development within the city boundary and are shown in Table 1.1. This illustrates that there are various classifications of residential neighbourhoods which are each allocated areas of the city. Unplanned and Traditional housing Area (THA) settlements are estimated to take up around 58% of the area allocated to housing. These neighbourhood classifications are discussed in Chapter Five. Reviewing Figure 1.4 shows that the majority of the informal residential neighbourhoods are located at the periphery of the city, one of which is used as a case-study neighbourhood by this thesis. Figure 1.4 further displays the large green areas in Lilongwe including the Botanical Gardens and the Lilongwe Wildlife Reserve which are located centrally and are an important part of Lilongwe's identity.

Land Use Category		Size (ha)		%	
Housing	Low density housing	1,338.42	9,316.64	3.4	23.7
	Medium density housing	846.48		2.2	
	High density housing	346.26		0.9	
	THA	1,757.27		4.5	
	Unplanned settlement area	3,700.47		9.4	
	Others	1,327.74		3.4	
Industry		457.16		1.2	
Commercial		339.42		0.9	
Government		934.53		2.4	
Institutional		876.53		2.2	
Agriculture		21,646.19		54.9	
Others		5,774.74		14.7	
Total		39,345.21		100.0	

Table 1.1 Present land use of Lilongwe City (2009) (JICA Study Team)

Lilongwe is thus a relatively young capital city, which has seen rapid population increase in recent years. As such, it is now Malawi's most populous city, and is gradually becoming the country's economic capital. Having provided an introduction to the field and the context in which the research is investigating, the following sections now discusses the research underpinnings. This covers the knowledge gap and research problem, the questions and objectives that the research addresses, as well as the research methodology and design. This is followed by the significance and contribution of the project as well as the limitations and scope. Finally, the chapter concludes by providing the structure to the thesis.

1.4. Research Knowledge Gap

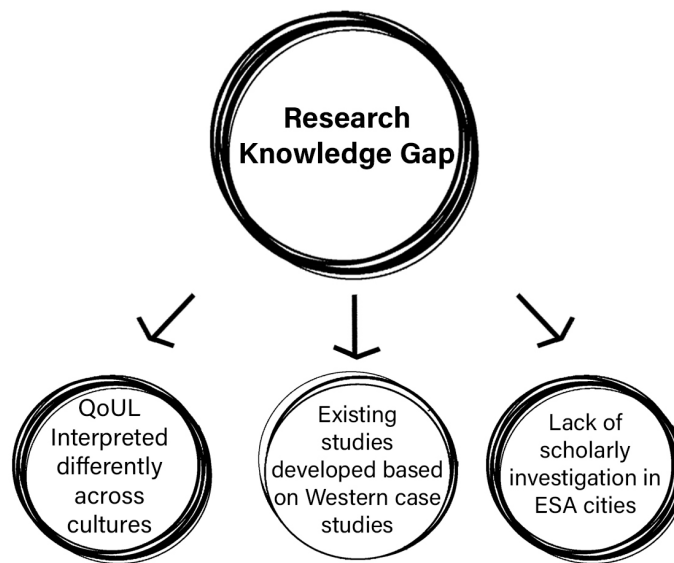


Figure 1.5 Research knowledge gap (Source-The Author)

There are three primary gaps which this research aims to address. First is that the concept of QoL is interpreted differently across cultures and there is little evidence to suggest that the existing methods can be applied cross-culturally (Pan, Chahal and Ward 2016). This is due to quality, per definition, being context dependent. As such, an individual's perception of quality will differ depending on the cultural setting, and in time (Kamp et al., 2003). This research argues that although there are aspects of urban life that are pan-cultural, there are also culture-specific features that make urban life unique in each city or setting. Consequently, QoUL studies should balance universal values and context specificities when designing their measurement tools. This, therefore, means that assuming indicators that are critical in one environment will be equally important in another, may simply be wrong (Verdugo et al., 2005). The research addresses this knowledge gap by deriving and validating a tailored indicator list for investigating QoUL in the context of Lilongwe.

The second gap in knowledge which is connected to the first is that the discourse on QoUL show that the preponderance of existing empirical studies and measurement frameworks are developed based on Western case studies or standards. Given the substantial differences in urban settings, this thesis argues that a new conceptual model and framework must be developed to examine context specificities within the case-study city. This knowledge gap is tackled through the design of a framework and toolkit tailored for the particular needs of the case study city. The third, but equally significant knowledge gap is that there is a lack of scholarly interest in the urbanism of ESA African cities. This lack of scholarly interest means that there is a gap in

knowledge of how residents use urban spaces and a lack of understanding of how place impacts people's lives. This research, therefore, addresses this issue by using Malawi's capital city, Lilongwe, for the investigation.

These three gaps are represented in Figure 1.5. This thesis addresses these three gaps by designing and testing a context specific, tailored QoUL model and toolkit in Lilongwe. This gathers both objective and subjective data which are analysed to extend writing on ESA cities, with a particular focus on urban issues in Lilongwe. This investigation therefore, aims to produce knowledge on the QoUL of Lilongwe's residents that is validated using sound social science methods. In so doing, the thesis highlights the critical role that context and culture play in urban life, while contributing to the scholarly understanding of African urban areas.

1.5. Research Problem

The problem that this study aims to address emerged from the previous discussion. This considers that Malawi is a low-income country which is urbanising at a rate of 4.2% annually (World-Bank, 2020). This has seen the urban population double from 1998 to 2018 (Census, 2018). As such, the urban areas are transforming rapidly over time. Many urban planning strategies within the region of ESA are lagging behind the rate of change that is occurring in the area (Cobbinah & Barkwah, 2017). This research, therefore, believes that the region requires an urban planning approach that accommodates the increasing population, the spatial morphology, housing situations, as well as the perceptions of the city's residents. Using participatory methods to engage with residents to understand which aspects of their urban environment are satisfactory is essential as it can help to prioritise the indicators to best improve residential QoUL.

A further problem is that the existing measurement models and frameworks for assessing residential QoUL do not successfully address the urban conditions of ESA environments. This is due to ESA cities remaining in the background of urban studies, thus there is still a lack of critical engagement in the way contemporary African cities work. In the past, theories that are successful in the global North are mobilised to the global South without critical thought on if the associated indicators are important or if they actually apply at all (Parnell & Robinson, 2012). This research, therefore, seeks to tailor the QoUL investigation to the context of Lilongwe to assist policymakers and planners in the selected city on how to allocate scarce resources to resolve urban issues.

1.6. Research Questions and Objectives

This thesis is premised on four overarching questions. These four questions lead to the study objectives. The following points exemplify the questions:

1. What is the appropriate analytical framework, and measurement tool for evaluating QoUL in this context of Malawi, and is this different from measurement strategies used in other parts of the World?
2. What indicators are required for assessing QoUL of residents in the context of Malawi, and are these distinct from indicators used in other parts of the World?
3. Does the quality of the built form have a significant impact on residential QoL, and how do people use the urban spaces in their neighbourhoods within the context of Lilongwe?
4. Which aspects of the urban environment are positively or negatively contributing towards residential QoL in Lilongwe, and do these vary across various residential neighbourhoods?

In light of these questions, the research proposes the following objectives:

1. To develop a methodological framework and toolkit based on contemporary theories and relevant conceptualisation and contextualisation, that can be used to guide practitioners in Lilongwe towards resolving urban issues
2. To establish a validated corroborated indicator list for measuring QoUL in Lilongwe
3. To examine the role of the urban environment in improving the QoL of residents, and to produce knowledge on how the urban environment is used and impacts residents' lives in Lilongwe
4. To offer a set of guidelines that are aimed at increasing residents perceived QoUL on a neighbourhood scale in Lilongwe

1.7. Research Design and Methodology

This thesis is using the paradigm epistemology as it emphasises that knowledge is best derived from a subjective interpretation of an objective reality. This, therefore, believes that knowledge is historically and contextually situated and that the researcher must engage with the reality that they are studying. Within the epistemological stance, the thesis then uses the belief system 'constructivism' as this stance emphasises that knowledge is subjectively determined by the observer. The constructivism approach confirms that context is vital for knowledge, therefore, contextual factors must be considered in any systematic pursuit of understanding.

Furthermore, this belief system is appropriate for this investigation because constructivism relies on participants' views of a situation, which is central to a QoUL study. The paradigm and theoretical perspective are directly connected to the research framework, which is presented and discussed in detail in Chapter Three: 'Research Design and Methodology'. It is indispensable that the research methodology is designed in a way that links the theory and the method. This is because methodology is the strategy behind the choice and use of methods, which connects the methods with the desired research outcomes.

At an operational level, the research is employing the ethnographic research methodology. Ethnographic studies use methods that are sensitive to the setting under investigation, attempting to study the social world with minimal disturbance from the researcher. This usually involves fieldwork seeking primary data to gain the residents' perspective of the setting and is commonly associated with observational strategies (Groat & Wang, 2013). Ethnographic research therefore, aims to provide a holistic exploration of a setting which is context-rich in detail.

The research, therefore, uses a mixed methodology; combining qualitative and quantitative research methods to provide a full picture of the environment that is being investigated. At the heart of any mixed-method study, there should be a basic design; this thesis is utilising the exploratory sequential design, which is a three-phase mixed-method design. This form of design is generally employed when the researcher aims to develop a measuring instrument or toolkit but requires a deeper understanding of the phenomenon in question before in-depth measurement can commence. This involves first exploring the problem through an initial research phase, then the information gained from this exploration is used to aid in the design of a new measurement toolkit, which is used in the third phase. This is visually displayed in figure 1.6.

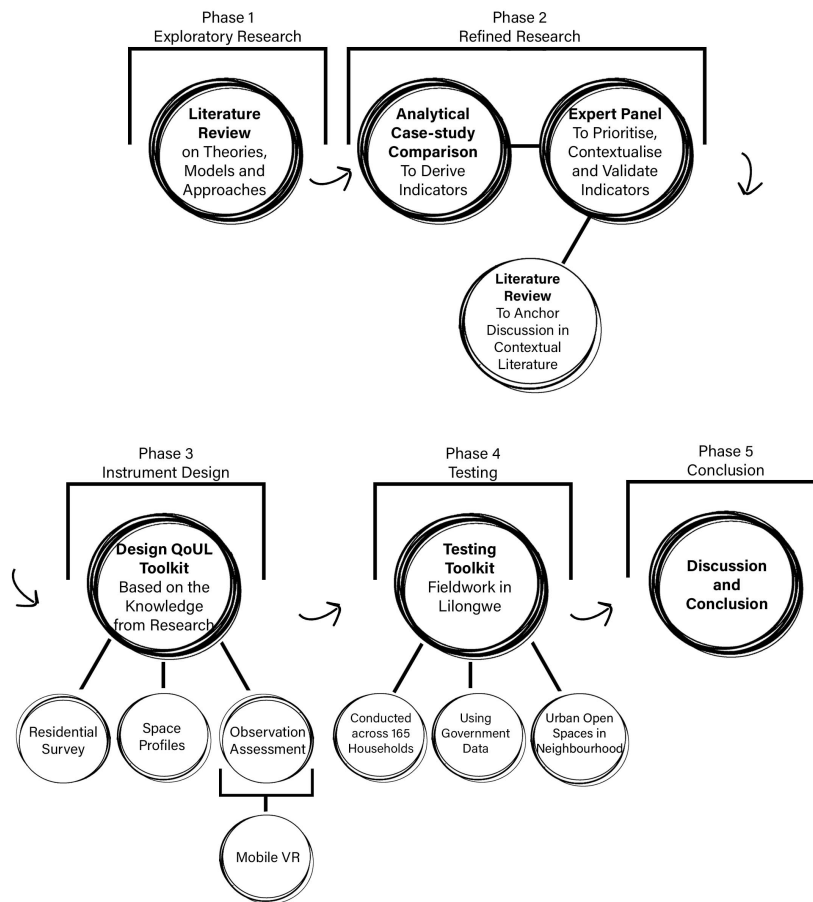


Figure 1.6 Research Diagram (Source; The author)

Figure 1.6 illustrates that the research methods are broken into four stages. This begins with an investigative literature review of the theories, models and approaches to comprehend the topic. This is followed by refined research which combines a case-study comparison with an expert panel assessment to derive indicators that frame the investigation. The knowledge gained in these exploratory stages is then used to design the research toolkit. This sees the design of a residential survey, objective space profiling, and structured observational instruments for use in the fieldwork. The research then tests these methods through fieldwork, using three neighbourhoods in Lilongwe as a case-study site. The results of the fieldwork are then evaluated using a variety of analysis techniques. These provide a discussion and conclusion for the thesis and include any alterations that should be made to the toolkit before presenting the findings to policymakers and planners in Lilongwe.

1.8. Research Question, Objective, Method Diagram

The questions, objectives and methods of this thesis are visually summarised in Figure 1.7:

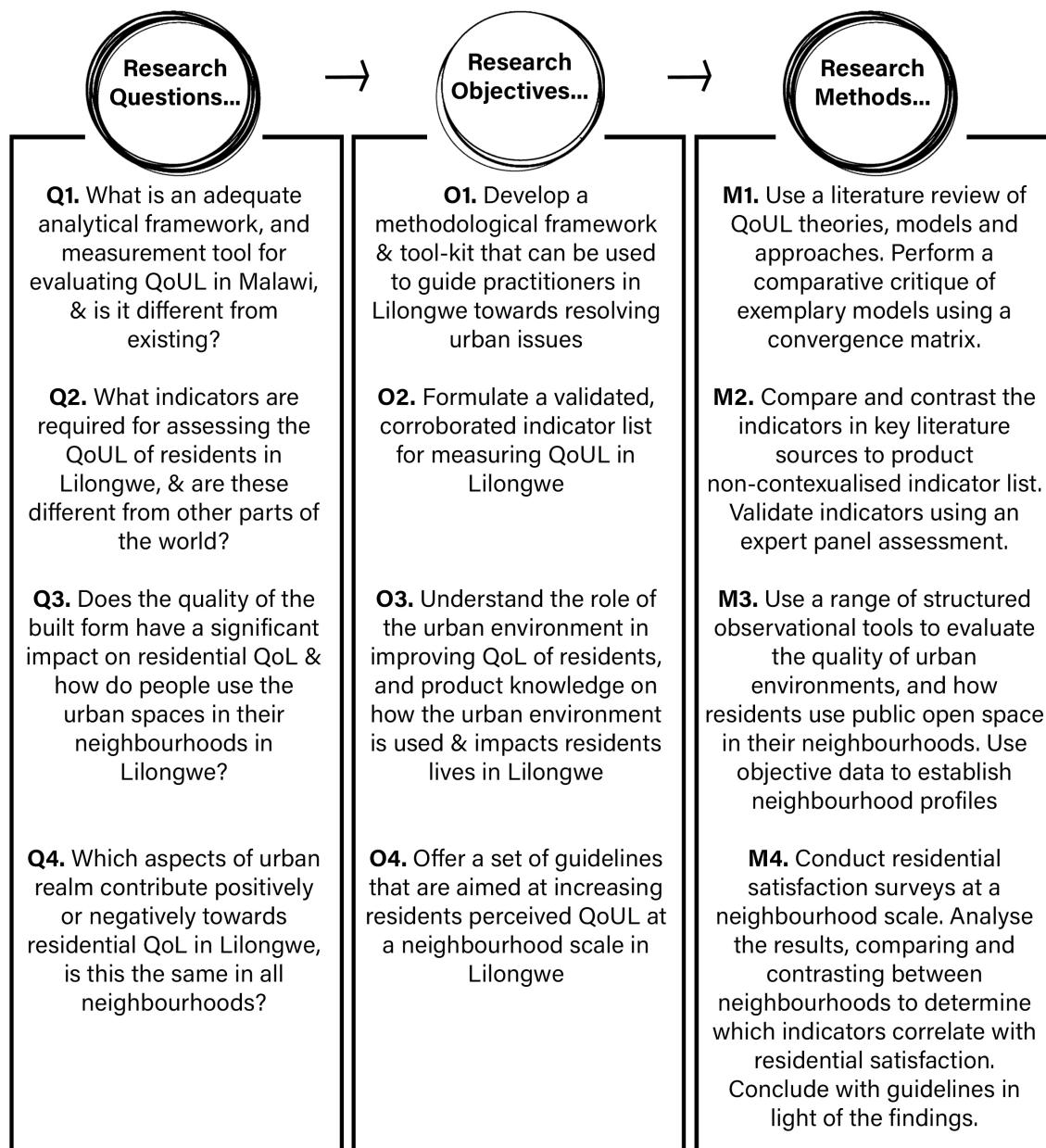


Figure 1.7 Questions, Objectives and Methods. Source: The Author

1.9. Research Significance and Contribution to Knowledge

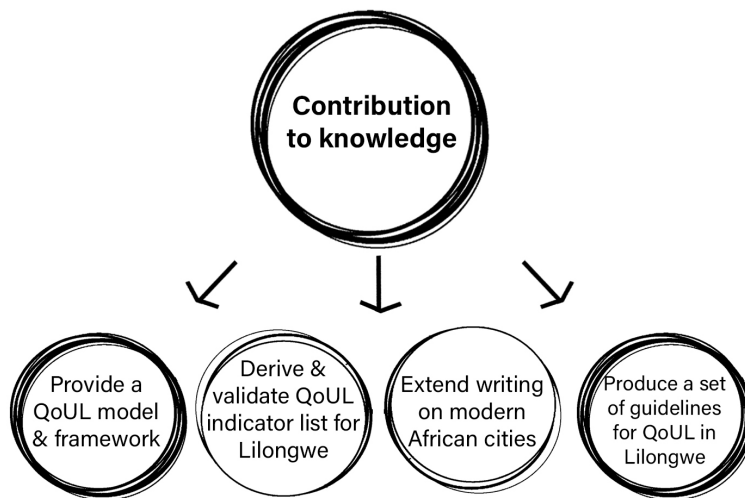


Figure 1.8 Contribution to Knowledge. Source: The Author

This research explores three neighbourhood urban environments in Lilongwe to investigate how the urban environment affects residential QoUL; this produces a number of significant contributions to knowledge. The first contribution is the QoUL model with an operationalising framework that can be used to guide a range of practitioners in conducting a QoUL study. The model and framework aim to be meaningful for policymakers, planners as well as for academics and students. The model is designed in Chapter Two: 'Theoretical Foundations, Models and Approaches'. It provides seven interconnected dimensions of QoUL, which are vital for conducting QoUL research in any context. This is operationalised into a framework in Chapter Three 'Research Design and Methodology', which provides a practical guide on how to use the conceptual model in a research project. This is significant for the field of QoUL because there remains a lack of agreed reliable method or model for measuring QoUL despite an increasing academic and civil interest in the topic.

The second contribution of the thesis is to produce a validated, corroborated indicator list that is tailored to the urban environment of Lilongwe. The indicators are thoroughly investigated and validated through numerous social science methods including comparison of existing empirical case studies to extract their indicators, an expert panel assessment, and further literature review to contextualise the indicators. This forms an indicator list that stems from QoUL literature to provide a balanced and wide-reaching view of the condition of the urban environment under investigation. The indicators are phrased as questions in the residential attitude survey, thus they are used to investigate QoUL in the case-study city.

A third significant contribution to knowledge that drives this thesis is to extend writing on modern ESA cities. As mentioned in Section 4: ‘Research knowledge gap’, the absence of scholarly interest in ESA cities has formed a lack of understanding of how urban spaces are used. This coupled with the fact that there remains limited adequate analytical concepts and frameworks to be used in the area, (Jenkins, 2013) signifies a need to provide more in-depth investigation into urban life in this context. The fieldwork of this thesis therefore, aims to highlight the essential role that urban spaces play in residents’ lived-in lives. Understanding how the built form impacts people’s lives has powerful implications for improving the QoL of residents and thus provides a significant contribution to knowledge.

This leads to the final contribution to knowledge, which is to analyse the fieldwork investigation and produce a set of guidelines for improving residents perceived QoUL in Lilongwe. This aims to provide information on the built environment, the social infrastructure, economic conditions and welfare situation in Lilongwe. An overarching by-product of the thesis is that the work responds to the lack of in-depth investigation in eastern-southern African cities. This investigation therefore, aims to provide a dialogue for decision-makers to respond to the needs of their urban residents. The intention of this information is to aid policymakers and planners in allocating the resources within their cities to allow them to advance positively and successfully to resolve urban issues. Together, the contribution to knowledge is represented in Figure 1.8

1.10. Thesis Structure

To tackle the aims and objectives specified, this thesis is based upon nine chapters; each chapter seeks to reach a conclusion that supports the broad objectives of the thesis. The research follows five steps, which are divided over nine chapters, outlined in Figure 1.9.



Figure 1.9 Thesis Structure. Source: The Author

The introductory chapter announces the general topic and context that is being investigated, outlines the problem and presents the research gap. In so doing, the introduction explains the aims, objectives and methods used in the research, and discusses the significance and contribution to knowledge.

Following this introduction, Chapter Two: 'Theoretical Foundations, Models and Approaches' embeds the research into the existing academic context by discussing the concepts and theories that relate to the discourse of QoUL. The chapter presents the current knowledge, theory and practice behind QoUL studies, and examines the views of other scholars and their measurement models. This chapter concludes with a seven-dimension conceptual QoUL model that guides the remaining thesis.

Chapter Three: 'Research Design and Methodology' is intentionally early in the thesis structure because it is essential that the research is designed in a way that connects the methods with the desired outcomes. The chapter discusses the research methodology from the strategic level to the operational level. The research uses mixed methods, which follow an exploratory sequential design. The methodology involves several steps before reaching the instrument design. Chapter Three concludes with a research framework which operationalises the model from Chapter Two.

Chapter Four: 'Reconstructing QoUL Indicators' concentrates on the first phase in the exploratory sequential design, which aims to derive and validate the QoUL indicators. Deriving appropriate indicators is fundamental, as they form the basis of what is being investigated and thus drive the project. Constructing the appropriate indicator list uses two strands, first, a case study comparison of exemplar QoUL studies are compared and contrasted using the model from chapter two as a guide. This is a repetitive and rigorous task that involves categorisation and identification of the indicators used in the various studies. Once this non-contextualised list is made, the second strand is to use an expert panel assessment to add, remove or rectify any indicators to tailor the study to the factors which are essential in Malawi. The result of combining the case study comparison with the expert panel is a comprehensive, corroborated and reliable indicator list that is used in the thesis fieldwork.

Chapter Five: 'Contextualising the QoUL Indicators to Lilongwe, Malawi' takes the indicators from the previous chapter and investigates their meaning and character within the context of ESA literature. This is a vital step in providing a scholarly understanding of the indicators before conducting the fieldwork. This chapter concludes with four detailed indicator models which represent the four domains of urban life: physical, social, economic and well-being.

Chapter Six: 'Characterisation and Systematic Assessment of Three Neighbourhoods in Lilongwe' provides the objective profiles of the selected neighbourhoods within Lilongwe. These are created using a mixture of GIS maps, walk-through observations

and government documents. The chapter provides in-depth observational analysis of selected urban open areas to enrich the neighbourhood profiles by analysing a range of places that residents spend their time. The results of this chapter are objective profiles for the three neighbourhoods, which can then be compared with the subjective data that is gathered in Chapter Seven.

Chapter Seven: 'Residents Subjective Assessment of QoUL in Lilongwe's Neighbourhoods' is focused on the residents perceived satisfaction with their QoL and their urban environment. This chapter uses a residential attitude survey to gather information on how residents perceive their QoL. This aims to clarify the relationship among complex real-world variables to understand how the indicators affect residential satisfaction, and thus their perceived QoUL. This chapter concludes with an in-depth understanding of how residents perceive the various indicators of their neighbourhood.

Chapter Eight: 'Discussion of Key Findings' brings the findings from all the chapters together to provide a discussion for the thesis. This begins by returning to the conceptual model that is designed in Chapter Two to validate its purpose in a QoUL study. This forms a comprehensive recap for the dimensions of QoUL through the empirical fieldwork. This is followed by a debate of the key findings from the research, reviewing the results across the objective and subjective methods used in the research. The purpose of this discussion is to point to specific indicators which impact residential QoUL and use the various strands to suggest resolutions of urban issues. This draws together the information from all strands of the research to provide a rich understanding of urban issues in the case study neighbourhoods. By using multiple methods, this chapter triangulates the findings to provide information not only on what aspects of the urban realm are good or poor, but further, to provide reasoning for why these indicators are successful or not. This allows the recommendations of the thesis to be detailed and thus direct resources to specific issues in the neighbourhoods.

The final chapter presents the research conclusions and is conducted across three main strands; firstly by discussing how the research meets the objectives as set out in this introductory chapter. This is followed by a discussion of the set of recommendations on methods to improve the QoUL of residents based on the analysis of the primary and secondary data sources. The recommendations are offered both at a design-oriented level and at a policy-oriented level. They take their basis from the discussion in Chapter Eight, thus are detailed, specific and aim to positively contribute to the QoUL of residents in Lilongwe's neighbourhoods. Finally, the thesis is concluded and reflected upon.

Chapter Two: Quality of urban life: Theoretical Foundations, Models and Approaches:

2.1 Introduction:

This chapter aims to embed the research into the existing academic context by discussing the concepts and theories that relate to the discourse of QoUL. This is based on an expanded review of relevant literature in the fields of urbanism, human geography and environmental psychology to understand the relationship between the urban environment and its residents. The literature discussion begins by understanding the field, the terminology and the intended beneficiaries of the data. This discloses that despite the fact that scientists, researchers and policymakers have become increasingly interested in measuring QoL, there is still not a universally accepted definition for the topic. This lack of agreement is due to QoUL being a complex multi-dimensional concept, which is influenced and manipulated by social-political trends and policies, and in diverse contexts. As such, many scholars believe that it is not possible to define the concept exactly. This lack of agreement has resulted in the absence in an approved, reliable method for measuring QoUL.

The chapter aims to address this knowledge gap by establishing the core dimensions of the discourse of QoUL through a critique of the prevailing QoUL models to extract their key characteristics. This forms an assessment criteria that the models are compared against to comprehend how each of the dimensions is represented within the existing discourse. The core dimensions, as extracted by the literature, are formed into a comprehensive conceptual model, which is used to guide the following research. This aims to ensure the research is investigating all aspects of QoUL as directed by the conceptual model. The chapter is divided into two parts, the first reviews six existing QoUL models to determine their primary characteristics. This is followed by an in-depth theoretical discussion about each of the defined aspects of QoUL to conclude with a revised conceptual model for assessing QoUL. This chapter is non-contextualised, which is addressed in Chapter Five, where each of the urban qualities are discussed and contextualised to Malawi.

2.1.1 Brief Historical Account of QoUL:

QoUL has been a central human concern since antiquity. Some scholars cite the concept back to the eudemonistic work of Aristotle who endorsed living a 'good and virtuous' life to be happy and prosperous (Marsella et al., 1997 McCrea et al., 2011). Others cite the concept back to Thorndike's 1939 work on life in cities, stating this was when the idea gained prominence in research (Raphael et al., 1996). Naturally, many

scholars relate this discipline to Maslow's 1954 hierarchy of human needs (Campbell et al., 1976; Pasino, 2016). Maslow's hierarchy stems from the idea that individuals must meet fundamental needs such as safety before they can focus on second-level needs, such as creativity to eventually achieve self-fulfilment.

The majority of scholars propose that the concept of QoUL developed as an academic discipline in its own right after the launch of the scientific journal 'Social Indicators Research' in 1974 (Ilic et al., 2010; McCrea et al., 2011). This was part of the Social Indicators Movement, which developed over the 1960s and 1970s in Scandinavia and the US due to a belief that economic indicators alone could not reflect the QoL of nations (Ilic et al., 2010). QoUL has thus changed from financial goals to psychological goals, moving from a concern with being well-off to an interest with well-being (Campbell et al., 1976). The Social Indicators Movement is a fast-growing discipline which is fully embraced by governments and academics internationally that seek to measure the QoL within communities, cities, regions and nation-states (Ilic, et al., 2010). The Social Indicators Movement is embraced by noteworthy institutions which is thought to play a significant role in popularising and legitimising the movement (Møller, 2018). This is seen in reports such as the UN report which recommends member countries measure the happiness of their people (Helliwell et al., 2012) (Helliwell et al., 2013) and the French Government report that examines the wealth and social progress without focusing purely on GDP (Stiglitz et al., 2009).

Nevertheless, hitherto the 1970s, the majority of reports on QoL published were non-spatial, regardless of declared interest in area-based social indicators (Pacione, 2003). In 1996, Cicerchia noted that an urban trend emerged in an attempt to give context to QoL. This urban element provides a significant physical and social dimension that grounds a QoL study, thus it increases the applicability of a QoUL project to policymakers and planners. It is this relationship between people and their everyday urban environment that is known as a quality of urban life (QoUL) study.

2.1.2 Benefits and Beneficiaries of QoUL Studies:

Investigating this relationship between people and their urban environment is becoming increasingly relevant as more people than ever live in urban places locations (Das, 2008; Lofti & Solaimani, 2009). Due to the number of people experiencing urban issues every day, it is reasonable to suggest that the quality of their urban environment affects their QoL, be that positively or negatively. As such, recent trends are witnessing a surge of interest in improving the liveability of communities, with commitment from governments to provide tools to build liveable cities (Miller et al., 2013). Consequently,

virtually every realm of public policymaking is influenced by notions of QoL (Ilic et al., 2010) with urban and regional planning efforts now actively addressing QoL (Mulligan & Carruthers, 2011). The literature presents a wide range of valuable outputs of a QoUL study. These include, but are not limited to, the following:

- **Inform effective policy formulation and city design.** Provide a set of metrics which allow policymakers and planners to assess the effectiveness of their efforts. (Pacione, 2003; Marans, 2012; Marans & Stimson, 2011; Pan et al., 2016; Das, 2008)
- **Produce a benchmark of QoUL against which subsequent measures can be compared over time.** This helps to monitor the effects of policies on the ground. (Pacione, 2003; Miller et al., 2013; Marans & Rodgers, 1975; Marans & Stimson, 2011; Das, 2008; Diener & Suh, 1997)
- **Identify the best allocation of resources.** By identifying the issues that merit attention and action (Lofti & Solaimani, 2009; Pacione, 2003; Diener & Suh, 1997)
- **Understand how satisfaction is distributed geographically** across society and at various scales (Pacione, 2003)
- **Encourage public participation** in policymaking process (Pacione, 2003; Marans, 2012)
- **Improve residential satisfaction** and liveability and conceptualise what constitutes a good society. Determine the degree to which various indicators are associated with satisfaction (Marans & Stimson, 2011; Mostafa, 2012; Miller et al., 2013; Marans, 2003; Marans, 2012; Pan et al., 2016)
- **Motivate residential location decisions** and choices (Marans & Stimson, 2011; Diener & Suh, 1997)
- **Contribute to academia** (Marans & Kweon, 2011; Westaway & Gumede, 2001)

This, therefore, proposes that measuring, analysing and assessing QoUL can positively affect the satisfaction and happiness of residents and has broader implications for academic research and urban policy (Marans & Stimson, 2011). A QoUL study consequently assists policymakers in determining the most effective and efficient way to enhance satisfaction in their urban environment (Marans, 2003) and thus provides a benchmark that can be monitored and assessed over time. This can be mapped across various neighbourhoods to determine how satisfaction is distributed geographically. This information is useful not only to planners for allocating resources, but also to residents to inform their location choices.

2.2 Quality of Urban Life Models:

The relationship between a person's QoL and their urban environment is complicated. The satisfaction felt by an individual living in different settings is influenced by their personal characteristics, unique values, expectations, perceptions and evaluations, as well as their demographic and socio-economic characteristics (Marans, 2012). This, therefore, makes QoUL challenging to measure, as it is a complex multi-faceted phenomenon soaked with personal meaning. A model framework should thus be utilised when evaluating QoUL to standardise the approach to the study (MacLean & Salama, 2019).

By using a model, the study can accommodate a large number of factors at once (Marans & Stimson, 2011; Marans, 2012). These can be compared at different geographic scales and allows the indicators to be analysed in a strategic and considered way. This is significant as levels of satisfaction within one domain of life are known to influence satisfaction in other domains (Marans, 2012). Models assist researchers to think geographically about the complex set of indicators that are found in the urban environment and thus guide the research process (Marans, 2012). They also help to produce outcomes that influence public policies in cities. Despite the significant role that a model approach can play in investigating QoUL, there is not a single agreed model or comprehensive set of measures that is universally accepted for the measurement and analysis of QoL (Kamp et al., 2003; McCrea et al., 2011). Throughout the literature, there is a varied mix of models that are used to conceptualise the topics of QoL, QoUL and synonym themes (Illic et al., 2003).

There are three main types of model: the conceptual model that specifies dimensions of QoUL; the conceptual framework that describes, explains or predicts the directional relationship between elements; and the theoretical framework which includes a structure of QoUL elements and their relationship within a theory that explains the connection (Illic et al., 2010). This illustrates that there are numerous ways to conceptualise the discourse, and consequently, there is little agreement on which model should be used (Kamp et al., 2003; McCrea et al., 2011). The next section analytically reviews a sample of influential models to identify the dimensions of QoUL that are studied across various disciplines including geography, urbanism and environmental psychology. The comparative critique aims to ascertain the core dimensions of QoUL to aid in constructing a model that is used by this research project. The models are presented chronologically.

2.2.1 Residential Domain Satisfactions and QoL Model.

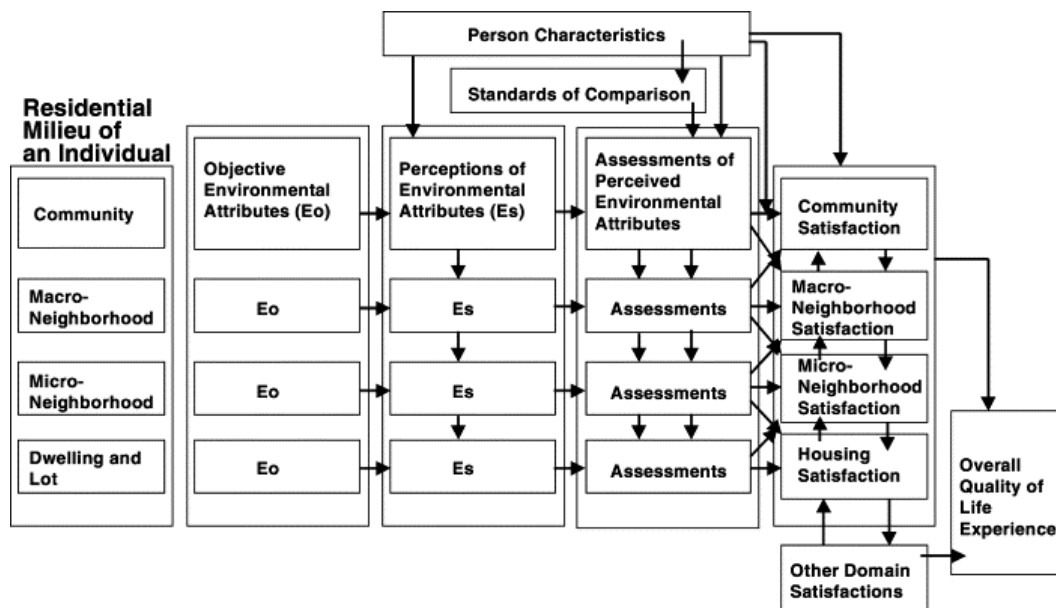


Figure 2.1 Marans and Rodgers 1975 Model

The Marans and Rodgers (1975) model is one of the most comprehensive QoUL models (McCrea et al., 2011). It is a meta-theory model, which encompasses a broad theoretical framework and as such, it is useful for conceptualising a variety of aspects of satisfaction and urban living (McCrea et al., 2011). The basic premise of this model is to suggest how the objective attributes of the environment are linked to the subjective experiences of residents (Marans & Rodgers, 1975).

The model relies on two assumptions. Firstly, that multiple measures are compulsory to capture the overall quality of a setting at any scale, be that dwelling, neighbourhood, city or region (Marans, 2012). Secondly, quality, as a phenomenon is subjective, therefore reflects the perception of the occupant in the setting (Marans, 2003). As such, the model establishes that the objective condition of the setting does not portray the subjective reality of the space, instead it reflects what the space means to the occupant (Marans, 2012; McCrea et al., 2011). The model thus combines two methods for measuring QoUL, the objective and the subjective, to create a comprehensive overall picture of QoUL in a setting. To create a comprehensive overall picture of QoUL in a setting, the model combines two methods for measuring QoUL, the objective and the subjective. Horizontally, at the top of the model are boxes labelled 'Personal Characteristics' and 'Standards of Comparison'. These feed into all fragments of the model, except the objective column. This further reiterates the importance of place and person when evaluating an urban setting.

The model uses numerous arrows to illustrate that the various scales are interdependent, thus, QoUL is experienced and affected by all scales. This is known as a spill-over effect where satisfaction in one domain may affect satisfaction with another (Marans, 2012). Additionally, the model implicitly addresses the concept of different living domains, represented by 'Environmental attributes' identifying indicators such as crime rates and housing costs (McCrea et al., 2005). This points to the concept of living domains, however, does not explicitly name and discuss the living domains in detail. The Marans and Rodgers model comprehensively illustrates the critical relationship between objective and subjective discourse in contributing to overall life satisfaction and it explicitly shows the various geographic scales of QoUL.

2.2.2 Model showing relationship between domain satisfactions and life satisfaction.

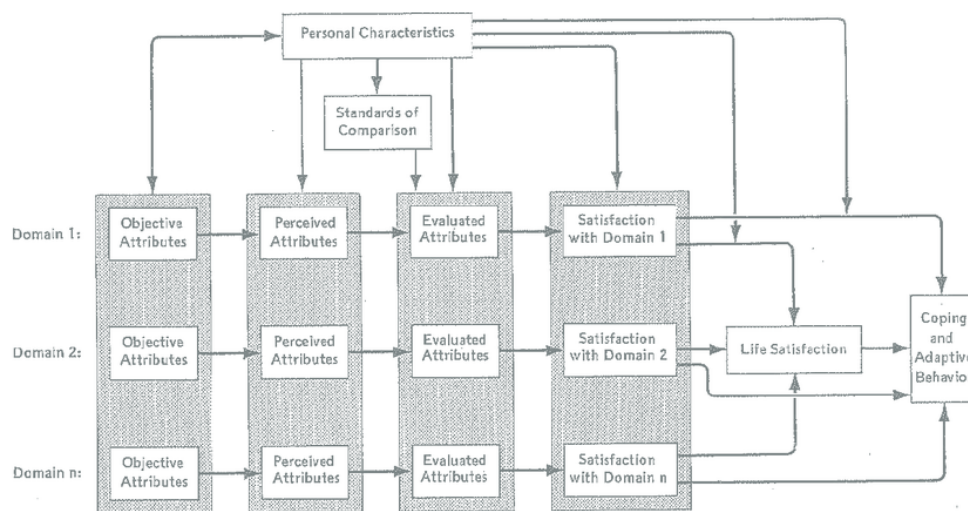


Figure 2.2 Campbell, Converse and Rodgers (1976) Model

The Campbell et al., (1976) model is one of the prevailing models for QoUL research (Kamp et al., 2003). It is recognised for its hierarchal structure, and the distinction between objective and subjective characteristics of urban life (Kamp et al., 2003). The model aims to illustrate the interrelationship between domain satisfaction, general life satisfaction, and human behaviour (Campbell et al., 1976).

This model rests on the theory that people live in an objectively defined environment, yet they perceive a subjectively defined environment, and it is to this psychological 'life space' that they respond (Campbell et al., 1976). Personal characteristics, therefore, play a vital role in the model, seen feeding into every step, including the objective attributes. In their book, Campbell et al. (1976) state that they believe personal characteristics should feed into the objective strand as residents have different personalities and backgrounds and, therefore, select themselves into various features

of the objective environment, such as job type and housing. Consequently, they believe that personal characteristics feed the objective environment, and vice versa seen by the two ended arrow in Figure 2.2. This differentiates their work from the Marans and Rodgers (1975) model, as theirs keeps the personal characteristics distinct from objective QoUL. Marans (2012) states that objective aspects of society do contribute to a resident's judgement of their lives; however, his work and model recognise objective QoUL as separate from personal experiences. This distinction between the two principal hierarchal models is thought-provoking, begging the question, 'do personal characteristics construct the objective environment'? Or do our personal characteristics form only the subjective life space? This research takes the stance that the urban environment is an objective phenomenon viewed subjectively by the observer.

A further characteristic of the Campbell et al., (1976) model is the notion that life satisfaction can be viewed as the sum of satisfactions with different environmental domains (Kamp et al., 2003). This is shown by placing the different life domains vertically in the left column. These are described in their book as the physical, social, organizational, economic or fiscal domains (Campbell et al., 1976). Paths can, therefore, be mapped from environmental, social and economic characteristics of urban life to satisfaction with different life domains (Marans, 2012). It can be viewed that these paths are between variables at the same geographic level of analysis which is again divergent from the Marans and Rodgers (1975) model which discusses the relationship that different geographical scales pose on the urban environment. This is a comprehensive QoUL model that explicitly addresses concepts such as life domains, objective and subjective experiences, and personal understanding of the urban environment.

2.2.3 Quality of Life Domain and Indicator Model:

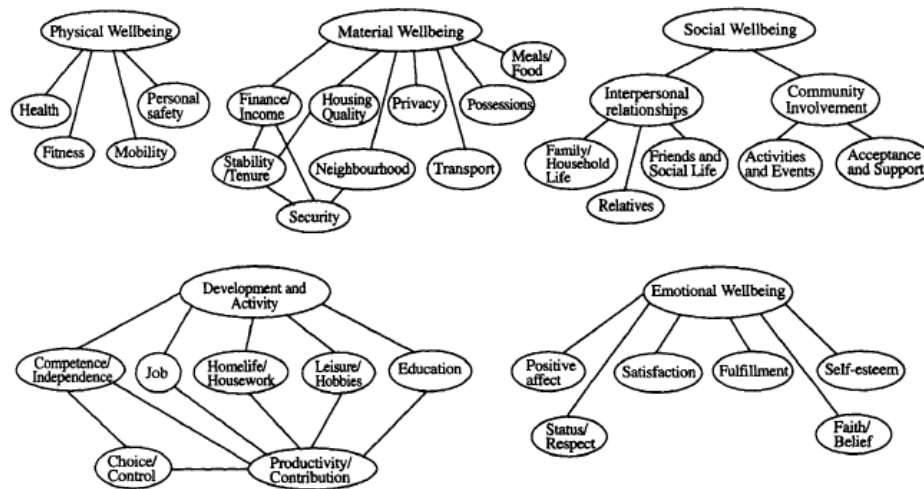


Figure 2.3 Felce and Perry (1995) Quality of Life Domain Model

The Felce and Perry 1995 model presents the different living domains and indicators that are important for measuring QoL. The model integrates objective and subjective indicators under the domains, as well as life values (Felce & Perry, 1995). While there is disagreement on the correct definition of QoL, there does appear to be significant overlap amid researchers on the relevant domains of QoL (Felce & Perry, 1995). The model was designed by reviewing fifteen key literature sources that describe or define the quality of life. The authors' emphasize that the number and nature of the domains specified in the model are not empirically derived, instead they are pragmatically determined by the authors as a means of classifying the literature (Felce & Perry, 1995). A benefit of this model is that it defines the different domains operationally based on their measurable indicators (Schalock et al., 2010).

An issue within the QoL and QoUL literature is the use of synonym terms as there is a tendency for terms to be used interchangeably (Ilic et al., 2010; Kamp et al., 2003; McCrea et al., 2011). This poses issues when designing a model such as this as it can be problematic deciding on the terminology to use. This is overcome in the model by including indicators to define the domains. For example, while 'Physical Well-Being' is selected as the domain, its meaning is clearly understood by the reader due to the attached indicators such as 'health' 'mobility' 'fitness' and 'personal safety'. The model thus categorises the multi-dimensional concept of QoL into five groups: physical well-being; material well-being; social well-being; development and activity; and emotional well-being. By identifying these domains, the model allows the field to transfer from a general construct as laid out above, to a specific construct with measurable properties and attributes (Lyons, 2010). It is a beneficial QoL model as it plainly shows the various aspects of QoL.

2.2.4 Conceptual Model of Factors That Contribute to QoL:

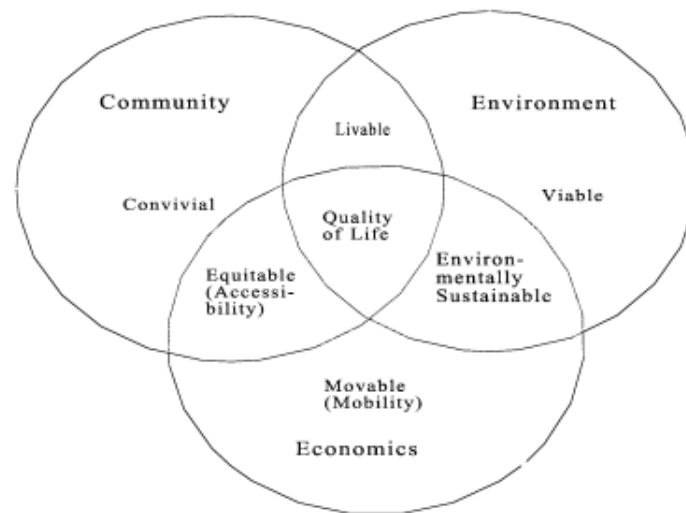


Figure 2.4 Shafer, Lee and Turner (2000) Model

The Shafer et al., 2000 model is a conceptual model which is based on the 'human ecosystem perspective' (Shafer et al., 2000). This perspective recommends methods that enhance QoL for communities derived from a general ecological model where organisms are regarded as interacting with one another (Shafer et al., 2000). A conclusion provided by the human ecosystems perspective is that factors of urban life are dynamic and reciprocal, therefore if one acts on another, it influences the other in return (Schalock et al., 2010). As such, domains and indicators should not be treated as isolated issues. The model was designed to recognise the relationship between component parts of a place and how they form QoL (Shafer et al., 2000). The model presents that QoL is formed through the continual interaction between a community, their environment and their economic qualities.

It is widely accepted throughout the literature that three different environments coexist: the physical environment, social environment, and the economic environment (Camagni et al., 1998; Kamp et al., 2003). These environments are complementary, working together to produce a liveable situation, often referred to as the 'three major pillars of quality' (Kamp et al., 2003). A recurring issue also discussed in the Felce and Perry model, is the issue of synonym terms. This is seen again here with 'Community' used as opposed to 'Social Environment' or 'Social well-being'. The strength of this model is that the interaction between life domains is explicitly defined, giving a clear picture of how the concepts relate to one another (Kamp et al., 2003). The model shows that to create an optimal setting, there should be a balance between these factors. As such, when designing a QoL study, one should consider an equal number of indicators addressing each domain to give a balanced picture of the QoL in that domain.

2.2.5 Quality of Life Application Model:

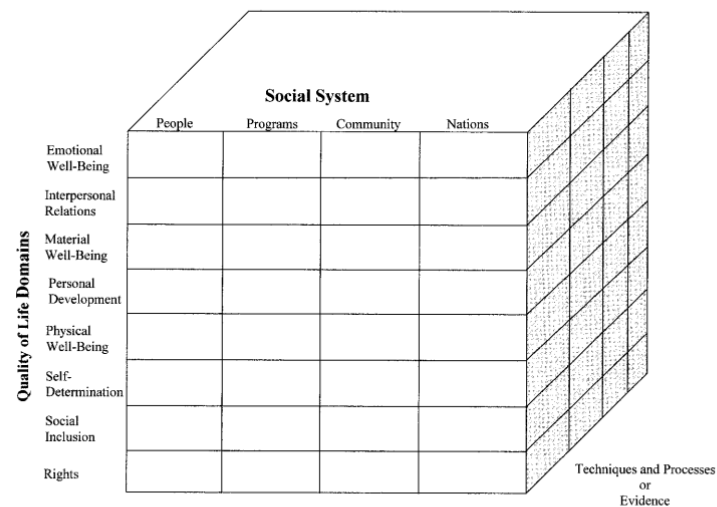


Figure 2.5 Shalock, Brown, Brown, Cummins, Felce, Matikka, Keith, and Permenter (2002) Model:

The Shalock et al. (2002) model is an outcome of a research project that saw an international panel of QoL experts work together to publish several agreed principles regarding the measurement of QoL (Verdugo et al., 2005). The principles put forward by the panel were subsequently evaluated by a further panel of 40 international professionals (Verdugo et al., 2005). The discussion and focus group editing resulted in four principles being put forward; Measurement in QoUL:

- 1- Involves the degree to which people have life experiences that they value;
- 2- Reflects domains that contribute to a full and interconnected life;
- 3- Considers the context of physical, social, and cultural environments that are important to people;
- 4- Includes measured experiences both common to all humans and those unique to individuals (Verdugo et al., 2005)

The scholars state that they recognise that the concepts and model that they presented has the potential to vary from country to country, and even from area to area within countries (Schalock et al., 2002). They go on to express that the concept of cross-cultural QoL is in its infancy and therefore hope that further discourses that follow on from their model facilitates an intercultural understanding of QoL (Schalock et al., 2002). Following this model to express the importance of cross-cultural QoUL is a primary aim of this research.

The model presented by this panel of experts aims to integrate QoL concepts, principles, and actions with the multiple societal systems within which people live (Schalock et al., 2002). The model is split into three sections with the eight QoL

domains on the left axis, and these are divided across four societal scales. The third section 'techniques and processes or evidence' include what needs to happen to ensure that the core QoL principles are applied across the principal QoL domains and at each scale (Schalock et al., 2002). Evidence measures include a personal appraisal, functional assessments, and social indicators, to name a few. The model is used to guide service provision and decision making. An important intended outcome is also to provide a common language for QoL policies (Schalock et al., 2002). This is an impressive QoUL model designed by an expert panel which successfully addresses concepts such as, life domains, geographic scales, context and objective and subjective experiences.

2.2.6 A five-dimensional structure for quality of life research.

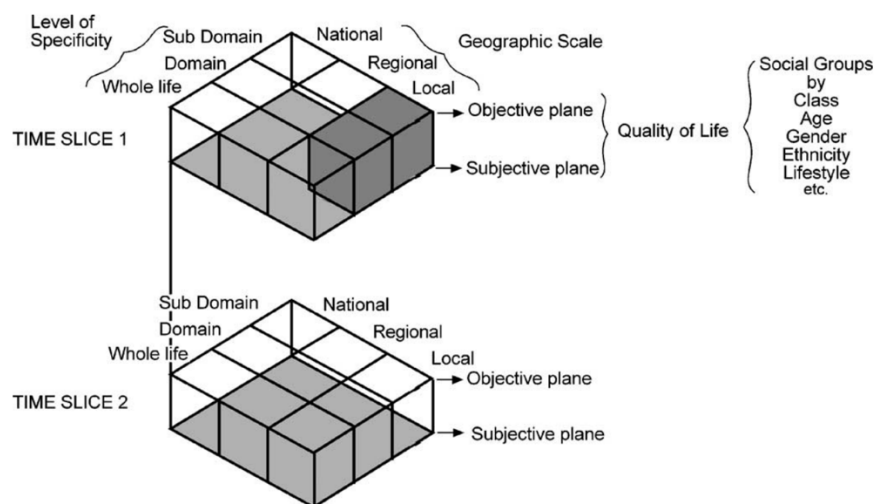


Fig. 1. A five-dimensional structure for quality of life research.

Figure 2.6 Pacione (2003) Quality of Life Research Model

The Pacione model tackles urban environmental quality, and human well-being from a social-geographical perspective, concluding with this five-dimensional structure for QoL research (Sandru, 2012). The model integrates many dimensions of QoL research including: domain specificity, geographic scale, social group dimensions, time, objective QoL, and subjective QoL (McCrea et al., 2011). In each timeframe, Pacione presents that QoUL is an amalgamation of these five concepts.

This model brings to the foreground the sense that QoL research centres on the QoL experienced by different social groups in the city. This is due to urban populations being disaggregated by class, age, gender, ethnicity, and lifestyle (Pacione, 2003). This notion of sub-cultures is vitally important. Taking this idea on a larger geographic scale implies that different cities would be affected by various issues. Therefore,

disaggregation by sub-culture is one scale, however, disaggregation by cultures and milieus is also essential. Consequently, this accentuates the need for a context-specific QoUL model. Pacione successfully examines the critical theoretical and methodological issues that QoL research is confronted with, presenting an extensive wide-reaching model to draw from. While this is an extensive model for evaluating QoUL, the concept of domains is implicitly addressed but could be further clarified. Pacione mentions 'sub-domain, domain and whole-life' but the model doesn't illustrate that these relate to the physical, social and economic realms of the urban environment as defined by Shafer et al. (2000).

2.2.7 A comparative critique of the six models:

Table 2.1 presents a comparison of the six influential models. These are discussed in chronological order. This examines the context in which they were designed and tested, their expected outcomes, and how QoUL dimensions are addressed. The seven core dimensions are examined based on whether the model addresses them explicitly, implicitly or if they do not address the issue. At times, scholars mention the core dimensions in their articles but are not included expressly in the model, therefore are categorised as implicitly addressed.

The table clarifies that many of the current existing influential models are designed and tested within the context of the West. It also shows that one of the primary purposes of the models is to positively inform policies and planners, as well as to increase public participation. Reviewing the models in Table 2.1 it is evident that the concept of living domains is always implicitly or explicitly discussed. This confirms living domains as an accepted dimension by scholars. This notion is especially exemplified in the Felce and Perry (1995) as well as the Schalock et al. (2002) models. Geographic scales are also well represented across Table 2.1, seen as being explicitly addressed by three, and discussed implicitly by a further model. The concept is particularly well examined in the Marans and Rodgers (1975) model that illustrates the relationship between scales, as well as their spill-over effects. Table 2.1 additionally emphasises that the need to consider both objective and subjective QoUL is supported by the majority of the models reviewed in the literature, as it is only absent from the Shafer et al. (2000) model. This theory is strongly related to the concept that personal experience affects an individual's perception of the urban environment, thus the dimension of personal experience is also widely acknowledged by scholars as a meaningful part of a QoUL study.

QoUL Convergence Matrix

	Marans and Rodgers (1975)	Campbell, Converse and Rodgers (1976)	Felce and Perry (1995)	Shafer, Lee and Turner (2000)	Shalock, Brown, Brown, Cumins, Felce, Matikka, Keith and Permenter (2002)	Pacione (2003)
Key focus	Meta-theory model that joins a broad theoretical framework. Conceptualises a variety of findings on satisfaction with urban living.	Model illustrates the relationship between domain satisfaction, general life satisfaction, and human behaviour	Presents the different living domains and indicators that are important for measuring QoL.	Conceptual model based on humans' ecosystems perspective	Outcome of international research panel working together to publish agreed QoUL principles	Five-dimensional structure of QoUL research from a social geographical perspective
Context where it is designed and tested	Michigan, USA	USA	USA	Texas, USA	Inter-national panel	Scotland
Expected and intended outcomes	Inform planning and policy decisions	Inform planning and policy decisions	Inform planning and policy decisions	For policy use	To guide service provision & decision making	For policies & increasing public participation
Core dimensions						
Living domains	Addressed implicitly	Addressed explicitly	Addressed explicitly	Addressed explicitly	Addressed explicitly	Addressed implicitly
Geographic scales	Addressed explicitly	Not addressed	Not addressed	Addressed implicitly	Addressed explicitly	Addressed explicitly
Context and culture	Not addressed	Not addressed	Not addressed	Not addressed	Addressed implicitly	Addressed implicitly
Objective & Subjective	Addressed explicitly	Addressed explicitly	Addressed explicitly	Not addressed	Addressed explicitly	Addressed explicitly
Personal Experience	Addressed explicitly	Addressed explicitly	Addressed implicitly	Not addressed	Addressed implicitly	Addressed implicitly
Time	Not addressed	Not addressed	Not addressed	Not addressed	Not addressed	Addressed explicitly
Applicable Indicators	Not addressed	Not addressed	Addressed explicitly	Not addressed	Addressed implicitly	Addressed implicitly

Table 2.1 QoUL Convergence Matrix (Source: The Author)

While these notions are well supported by QoUL literature, the table highlights the fact that other concepts are contemplated by the works that could be elaborated further in future models. These are the concept that QoUL is temporal, that QoUL is context and culturally specific, and that relevant indicators are required that reflect the context under investigation. Pacione (2003) model is the only one which explicitly addresses the concept of time in relation to QoUL. Time is a significant aspect of a QoUL study as it can be imperative to research if the situation in the city is improving or declining, therefore, it should be a core element in a future QoUL model. Context and culture are hinted upon by two of the models, with Schalock et al (2002) stating in the text that QoL varies from place to place. This is significant as a model that is appropriate in one setting may not be applicable in another. Coupling this notion with the fact that the majority of QoUL models are designed and tested within the context of the West triggers the need for a new context-specific model. Finally, related to context and culture is the need for indicators that are tailored to the location under investigation. This is imperative for a good quality QoUL study, therefore should gain more weight in future models and frameworks.

Although the existing QoUL models provide an excellent base, this research believes that each prevailing model is lacking at least one dimension of QoUL. By omitting even one dimension, the research is likely to miss important aspects of urban life. The synthesis of the abovementioned six QoL and QoUL models, using Table 2.1 leads to the identification of seven interconnected dimensions of QoUL.

- Spans numerous life domains (physical, social, economic and health)
- Spans numerous living domains, often referred to as geographic scales
- Varies depending on the context and culture under investigation
- Varies over time
- Requires both an objective, and a subjective assessment of a setting
- Subjective QoUL research is directly influenced by an individual's personal experiences and levels of comparison
- Requires appropriate indicators

The next section of this chapter discusses each of the seven related concepts of QoUL in depth. This is followed by amalgamating these concepts to design a QoUL conceptual model that is used to guide the fieldwork of this study.

2.3 The Core Dimensions of Quality of Urban Life:

2.3.1 The Domain Dimension:

From reviewing the models and discourse on QoUL, it is clear that there is considerable overlap among researchers on the relevant domains for assessing the topic (Felce & Perry, 1995; Kamp et al., 2003). That being said, a principal issue remains that synonyms are used interchangeably. This, therefore, results in QoL studies reviewing and analysing the same domains under different headings or using different terms. Three domains that stand out as the materials of society are the physical environment, economic environment and social environment, which are commonly used to conceptualise QoL (Kamp et al., 2003; Esmaeilpoorarabi, 2016; Camagni et al., 1998; Miller et al., 2013; Kashef, 2016; Pacione, 2003).

Traditionally, QoL and QoUL studies focused solely on economic indicators. Although the wealth of a city is often thought to provide a critical first approximation of the material quality of that city, it is also true that economic measures reflect a narrow focus of life in the city (Diener & Suh, 1997; Diener, 1995). This is due to there being indicators of a high QoL that might be thought to inversely correlate with income, for example leisure time (Diener & Suh, 1997). This narrow focus does not consider aspects that are important to a good life such as love, personal development, or feeling your life has meaning (Diener & Suh, 1997). As such, modern QoUL studies recognise that reliance upon merely economic indicators is deficient, thus a multi-dimensional framework should be applied.

The city must, therefore, be considered in its entirety, as a temporal object that has physical, social economic and health realms. These various aspects of urban life are incessantly interacting and responding to one another to produce the spaces where people live and work. Many scholars focus on the interaction between the physical and social dimensions of urban life. This is because the people and their social activities within the city are as essential as the physical elements of the city (Lynch, 1960). Together, the stationary and moving parts of the city form the spaces where people spend their time, thus, the concept of space is soaked with social context as well as spatial components. This relationship is best regarded as a two-way process, where people create and modify spaces, while mutually being influenced by them (Carmona et al., 2003). Knowledge of the relationship between the stationary and moving elements of the city is essential in a QoUL study. People and their social activities are fundamental for forming good quality urban environments which positively affect residential QoUL. This is discussed in greater length in subsequent sections, which discuss objective, subjective and personal QoUL.

While the physical, social and economic indicators are essential elements of the city, one cannot contemplate QoUL without also considering health. This is because QoUL is deeply rooted in the thinking of health, and the provision of a healthy environment (Kamp et al., 2003; Westaway & Gumede, 2001; Das, 2008). The environment in which people live and work affects both their physical and emotional well-being which are essential components of their QoUL. This can be seen, for example, through the availability of green spaces in neighbourhoods which positively affect physical and emotional well-being as well as QoUL (Taylor et al., 2011). Provision of healthy urban environments are determinate of people's health. Chapter Five: Section 4.2 'Physical Well-Being' discusses the importance of urban design in improving residents' health in detail.

The four aspects of urban life are thus interconnected and reciprocal. Each entity contains information that is absent from other measures, therefore a QoUL framework must be multidimensional to not miss aspects found in different domains (Diener & Suh, 1997). Accordingly, the research is divided across these four environments: physical, social, economic and well-being. To further validate the four environments of urban life, the domains used by ten existing scholars are compared to extract those which are most commonly used. These are categorised under the physical environment, social environment, economic environment and well-being environment. The selected studies range from 1971, when QoL studies were in their infancy, to current studies. They are mapped in chronological order in Table 2.2.

Table 2.3 clarifies that the majority of studies are using these four main domain categories, however using a range of terms. Many QoL researchers believe that the actual number of domains is less significant than the acknowledgement that any proposed framework must include multiple elements (Schalock et al., 2002). The methodological design of the QoUL framework used in the fieldwork is, therefore, structured around these four environments of the city.

Quality of Urban Life Domain Comparison Matrix:

	Physical Environment	Social Environment	Economic Environment	Well-Being Environment
Hirsch et al., 1971	Natural environment; Spatial environment	Socio-Cultural environment	Economic environment	Public services environment
Marans & Rodgers, 1975	Housing; Life in the US; Macro neighbourhood	Community; Non-work activities; Marriage; Family life; Friends	Savings; Education; Usefulness of Education	Health
Campbell et al., 1995	Housing; Life in the US, City or Country; Neighbourhood	Non-work; Marriage; Family life; Friendship	Savings; Usefulness of Education; Amount of Education; Standard of living; Housework; Job	Health
Felce & Perry, 1995		Social well-being; Development and activity	Material well-being	Health; Emotional well-being; Safety
Cummins, 1996		Community; Intimacy	Productivity; Material well-being	Health; Emotional well-being; Safety
Shafer et al., 2002	Environment	Community	Economics	
Schalock et al., 2002		Social inclusion; Personal development; Self-determination; Inter-personal relations; Rights	Material well-being	Physical well-being; Emotional well-being
Bonham, et al., 2004	Transportation availability	Social inclusion; Self-determination; Personal development; Rights; Inter-personal relations	Material well-being	Emotional well-being; Physical well-being
Esmailpoorarabi 2016	Environment	Community	Economy	Welfare
Romice et al., 2016		Inter-personal relationships; Emotional & personal development	Material well-being	Physical well-being

Table 2.2 Quality of urban life domains (Source: The Author)

2.3.2 The Scalar Dimension:

Just as QoUL can be categorized into separate domains of the city, the built environment can also be characterized by different levels of geographic scale. This is because people live their lives throughout a series of places, each of which have particular environmental characteristics (Marans & Stimson, 2011). The most commonly studied scales of QoUL are at either a household, a neighbourhood, or a city or regional scale (Low et al., 2018; Kamp et al., 2003; McCrea et al., 2005; McCrea et al., 2011; Pacione, 2003). If the research is aiming to influence public policy or wishes to be seen from a planning perspective, the appropriate geographic dimension is essential as it provides the scale of anticipated intervention (Cicerchia, 1996). This is crucial for ensuring consistency and continuity across projects (Cicerchia, 1996). The research should be localized in a meaningful way to provide the appropriate indicators to assess and manage the impact of the project.

Each of the territorial settings have different features that are paramount and imperative to research at that scale (Esmaeilpoorarabi et al., 2016). The house and neighbourhood scales are thought to contain more human urban experiences, such as dwelling size and interaction with neighbours (McCrea et al., 2011). While the city and regional scales balance such problems as occupation opportunities and infrastructure (Esmaeilpoorarabi et al., 2016). Instinctively, QoL is more natural to relate to the human scale than the city scale, as the wider city often feels more obscure (Romice et al., 2016). That being said, much like the various domains of urban life, scales of the environment also impact and affect one another. The satisfaction that a person feels at one geographic scale of life influences their QoUL in another, as the scales are all interlinked and reciprocal (McCrea et al., 2011; Jeffres & Dobos, 1995; Sirgy & Cornwell, 2002). This relationship is known as the spillover effect, as discussed in Section 2.1: 'Residential domains satisfaction and QoL model'. It is therefore, to be concluded that the geographic settings in which people live and work influence their lives, and thus impact their overall QoUL (Marans, 2012). As such, a QoUL framework must use a holistic view for evaluating the quality of the urban environment, which is not only multi-domain but also reflects that the urban environment is multi-scalar. This project investigates QoUL at a neighborhood scale.

2.3.3 The Temporal Dimension:

The urban environment is never static; the buildings, streets and people are continuously and inexorably changing, being shaped and reshaped by economic, social and cultural change (Carmona & Tiesdell, 2007). The city is therefore a temporal art, which is perceived over long timespans (Lynch, 1960). This is significant in a QoUL study as the qualities of the city are not stagnant, instead they continually develop and evolve with time. As such, a QoUL must consider the temporal dimension of the urban environment, as the condition in the city is likely to change over time, be that positively or negatively. The Pacione (2003) model successfully conceptualized this issue, presenting two time slices in his diagram.

The city changes over large time periods, but it is also understood that the liveliness or vibrancy of urban spaces in the city fluctuates daily. Areas may be more animated during lunch hour, or the weekends compared to mornings (Salama et al., 2017a). As such, when evaluating QoUL a study should consider repeating the investigation to view a range of time frames at different temporal scales. While a QoUL study can initially be conducted, a further benefit of the study is to repeat the same methodology at a later date. This provides information on the qualities of the urban environment that residents see as improving or declining (Marans & Stimson, 2011; Pacione, 2003; Marans, 2012; Schwartz, 2012; Miller et al., 2013). This provides initial benchmarks and insights on the city (Miller et al., 2013).

This information can then be studied by policymakers and planners to evaluate the effectiveness of their efforts and their use of resources to determine if they are successfully improving the QoUL of the city's residents (Marans, 2012; Diener & Suh, 1997). Subsequent studies can be compared against the initial research, thus showing how the qualities of the urban environment and residential QoUL trends change with time (Pacione, 2003). As such, the importance of observing temporal change, and people's responses to them cannot be over emphasized in a QoUL study (Marans & Rodgers, 1975).

2.3.4 The Personal Dimension:

Quality of a geographic setting is a subjective phenomenon (Marans, 2003; Marans, 2012). This means that each person visiting the setting will have different views about the spatial quality. This is due to each resident having associations with their urban environment, therefore their image of the city is soaked with memories and meaning (Lynch, 1960). As such, a QoUL study must consider both the objective city on the ground, but also the subjective city in the mind of the resident (Pacione, 2003). Good quality urban environments must, therefore, consider how residents perceive the settings. A difficulty with this is that the given reality may differ significantly between observers (Lynch, 1960). Consequently, the physical urban environment should be considered as a mental construct which is created and valued differently by each individual (Carmona et al., 2003).

As such, the reality for each individual is a social construct that is determined by social and cultural norms (Franz, 1994). This is thought to be a complex issue because there is a wide-ranging number of factors that form our standards of comparison (Campbell et al., 1976). These are influenced by elements such as aspiration levels, expectation, equity and reference group levels, personal needs, personal values, and many more (Campbell et al., 1976; Marans & Rodgers, 1975). They are also related to demographic groups such as age, income, education and health status (Pacione, 2003).

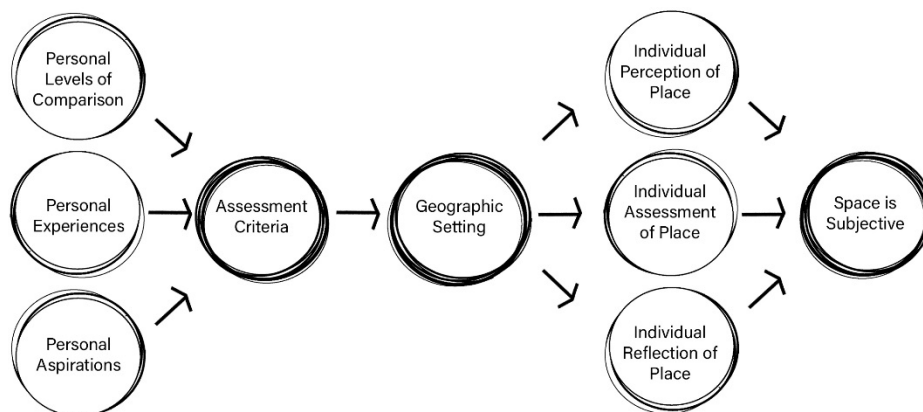


Figure 2.7 Personal Experience in QoUL (Source: The Author)

Figure 2.7 provides a pictorial representation of the concept that space is subjective to the individual. This illustrates that before entering a setting, residents have their own assessment criteria. The assessment criteria are formed by personal levels of comparison, personal experiences, and individual aspirations. This resultantly produces individual perception, assessment, and reflection of the place, thus space is subjective to the observer. An interesting factor that influences personal levels of

comparison is the aspiration level of an individual (Pacione, 2003; Campbell, et al., 1976). Aspiration levels and expectations of individuals are useful for analysing QoUL as they can provide reasoning for why those with objectively unfortunate situations report high levels of satisfaction (Pacione, 2003).

Each person has an individualistic interpretation of the city. This is further affected by past personal experiences. For example, if a resident falls victim to a crime, they are likely to have a long-lasting negative perception of the safety in their neighbourhood, irrespective of the objective reported crime rates (Pacione, 2003). Residents, therefore, have an individual frame of reference that is shaped by their past experiences (Ilic et al., 2010; Marans, 2012). The personal frame of reference forms a set of standards which residents subconsciously use to make judgements of the conditions of their urban environment. This is individualistic as it is directly related to personal past experiences. In essence, quality of life is uniquely identified for each person (Raphael et al., 1996). This consequently suggests that a QoUL study should use both an objective and subjective assessment of the urban environment, which is discussed in the following section.

2.3.5 The Objective and Subjective Dimensions:

Traditionally, discourse on QoUL uses either objective or subjective indicators (Pacione, 2003; McCrea et al., 2006; McCrea et al., 2011). This has resulted in two main paradigms for QoUL research (McCrea et al., 2011). An exciting development is, therefore, linking the two dialogues of research by combining the two research methodologies. Following on from the previous section that if quality is personal, then a QoUL study must use subjective participatory methods. This type of research is primarily concerned with individual's experience of their lives. This typically relates to psychological responses, including personal happiness and satisfaction with aspects of life (Malkina-Pykh & Pykh, 2008). This, therefore, provides insight into the well-being of a person, and delivers understanding on what people consider as important (Kamp et al., 2003). The subjective information is usually gathered using primary data collection techniques, such as residential surveys (Low et al., 2018; Yin, 2017; McCrea et al., 2011). Using subjective indicators is the subsequent method; before this, QoUL studies relied on objective indicators.

The objective QoUL research is related to indicators such as income, life expectancy and housing standards (Møller & Schlemmer, 1983). The objective information is typically gathered from secondary data, such as government reports and census (Low et al., 2018). These indicators form a starting point for environmental policy and are

used to validate subjective measures (Kamp et al., 2003). Using both an objective and subjective methodology provides more reliable and valid results for the quality of a particular living environment (Das, 2008; Diener & Suh, 1997). Thus, combining the two strands of QoUL research is the most appropriate method for measuring city life for urban planning (Lofti & Solaimani, 2009; Schalock et al., 2002). This is in essence, because urban life is relative, its meaning depends on the assessor, time and place (Pacione, 2003). Combining the two methods reflects the blend of the two definitions of quality, the one which is objectively agreed upon, and one which is individually valued by the resident in their unique environment (Schalock et al., 2002).

There are potential difficulties in linking the two research types. Typically the comparison is between objective indicators that belong to the urban environment, and subjective indicators that belong to the individual, therefore linking them requires a sound methodology (McCrea et al., 2006). This is due to the quality being formed by the behaviour-related function of the interaction of the environmental characteristics with personal characteristics (Pacione, 2003). The two strands of research should be compared in a careful and meaningful way. Table 2.3 provides a summarised literature review on the strengths and weaknesses of the three types of methods that are used in QoUL studies.

Strengths and Weaknesses of Methodological Approaches:

	Strengths	Weaknesses
Objective Methods	<ul style="list-style-type: none"> -Objective indicators are necessary for aspects of the environment that are hard to evaluate, they form the point of departure for environmental policy and enable the validation of subjective measures (Kamp et al., 2003). 	<ul style="list-style-type: none"> -The objective condition alone is not sufficient because quality is a subjective phenomenon (Das, 2008). -The socio-economic variables extracted from the census data do not always reflect the environmental reality (Sandru, 2012). -Objective indicators may suffer from both under reporting (e.g. crime rates) or over reporting (e.g. income) (Das, 2008). -Taken by themselves, such indicators are colourless- only when human meanings are attached to them do they become important (Marans & Rodgers, 1975).
Subjective Methods	<ul style="list-style-type: none"> -It may well be that QoUL is ultimately more subjective (McCrea, et al., 2011). -Survey data can provide information on individual and community level perceptions, behaviours, subjective evaluations and levels of satisfaction with various aspects of urban living (Marans & Stimson, 2011). -The basic premise of subjective well-being research is that in order to understand the well-being of an individual, it is important to directly measure the individuals cognitive capacities (Das, 2008). -The major advantage of subjective well-being measures is that they capture experiences that are important to the individual (Diener & Suh, 1997). 	<ul style="list-style-type: none"> -Subjective indicators cannot represent the environmental conditions in which people live (Das, 2008). -Subjective information can be costly to gain through survey research (Stimson & Marans, 2011) -Within the set of attributes that were included, considerable variation undoubtedly exists among respondents as to the importance of each (Marans & Rodgers, 1975).
Mixed Methods	<ul style="list-style-type: none"> -Using both objective and subjective indicators is the most appropriate way for measuring and using its results for urban planning (Lofti & Solaimani, 2009). -Using both could arrive at more reliable and valid inferences about the level of quality of living in that environment (Das, 2008). -If objective and subjective indicators converge, the researcher can make a more definitive conclusion about QoL (Diener & Suh, 1997). -Urban liveability is a relative rather than absolute term, whose precise meaning depends on the place, time and purpose of the assessment , and on the value system of the assessor (Pacione, 2003). 	<ul style="list-style-type: none"> -A number of theories linking objective and subjective QoL suggests that the relationship between the two may be weakened by psychological factors (McCrea et al., 2006).

Table 2.3 Strengths and Weaknesses of Methodological Approaches.

2.3.6 The Cultural Dimension:

All existing communities have their individual culture, which responds to a set of norms and mechanisms that are shared by members of the community (Abdelhalim, 1996). Cultural practices define the most ordinary behaviours of daily situations, from how people greet one another, to how we eat lunch and dinner (Kitayama & Markus, 2000). While these everyday acts appear natural, a closer analysis of the situations reveals that everyday situations are constructed by socially shared beliefs and behavioural patterns (Kitayama & Markus, 2000). As such, culture has been and continues to be, a primary mechanism for the nourishment of a healthy environment, which is essential for community life (Abdelhalim, 1996). Culture, therefore, helps communities to establish a shared identity with their behavioural patterns and beliefs (Kashef, 2016). Culture has thus been essential for the creation and maintenance of communities globally.

There are some aspects of culture and daily urban life that are consistent across cultures. However, there are also unique characteristics that are individual to each specific culture (Tov & Diener, 2007). The web of cultural meanings often become invisible to those who are accustomed to them (Kitayama & Markus, 2000). This means that while some aspects of urban life are *etic*, there are also distinctive patterns that are *emic*, making contexts unique in their experience of QoUL (Tov & Diener, 2007). Consequently, a QoUL study must consider the context and culture under investigation. This is due to the concept of QoL and QoUL being interpreted differently across cultures, and there is little evidence to support the concept effectively translates across cultures (Pan et al., 2016). As such, assuming that indicators of QoUL are critical on one culture, therefore equally crucial in another, may simply be wrong (Verdugo et al., 2005). This is due to quality, per definition, being context-dependent thus an individual's perception of quality varies depending on the social and cultural setting, as well as time (Kamp et al., 2003).

The psychological differences between populations are fascinating. Some scholars who believe that the differences between countries are too large to be plausible (Kahneman & Riis, 2005). European cultural contexts are thought to construct importance on the model of a person as an active, independent agent that influences other people (Kitayama & Markus, 2000). Americans are thought to value self-aggrandisement qualities (Camfield & Skevington, 2008). In contrast, the Chinese culture promotes philosophies such as Confucianism, Buddhism and Taoism which promote the importance of humility, endurance and forbearance (Shek, 2010). Cultural values also change over time, while traditional values such as African humanism do continue to play a significant part in many domains of life, Møller, (2018) states that

values in post-independent sub-Saharan Africa are shifting towards secular and emancipation ones, especially among the educated youth in urban areas. This is significant as what is relevant and meaningful in one culture may not be in another, and studies should avoid imposing values that are not shared by the context under investigation.

A gap in the current QoUL literature is that the majority of measurement methods are developed based on Western samples (Pan et al., 2016; Shek, 2010; Low et al., 2018; Möller & Schlemmer, 1983). Considering that there are substantial cultural differences between these samples and other parts of the world, an overarching theme of this thesis is that an existing QoUL instrument may not be suitable for measuring QoUL in different contexts. Using models and frameworks that draw principles from communities and cultures unfamiliar can overlook factors which are imperative to daily life. Essentially, as discussed in section 3.4, QoUL depends on the individual assessing it; this is strongly reliant on time, place and culture (Kamp et al., 2003; Miller, et al., 2013).

2.3.7 The Tailored Dimension:

The literature of indicator typology could fill a book in itself (Cicerchia, 1996). This is because selecting indicators is not and cannot be an exact science. Indicators form the basis from which the quality of an urban environment and urban life can be assessed (Verdugo et al., 2005) and they refer to aspects of life that are valued by residents. An indicator list should aim to include factors that can be measured, observed and assessed by planners or academics (Marans & Rodgers, 1975). The literature presents a wide range of criteria that indicators should fulfil. These include, but are not limited to, the following:

- **Measurable:** be easy to measure (Hersperger et al., 2017; Miller et al., 2013) Be the basis for assessing quality outcomes, therefore show variations and potential for improvements (Verdugo et al., 2005). Be related to public policy goals (Cicerchia, 1996)
- **Cultural:** be representative of a specific geographic region, and be sensitive to cultural/linguistical differences (Hersperger et al., 2017; Verdugo et al., 2005)
- **Temporal:** be able to measure state of change over time (Schwartz, 2012)
- **Minimal and Complete:** Indicator lists should avoid repeating to avoid multiple counting; however, lists should cover all relevant aspects of phenomenon being assessed (Miller et al., 2013)
- Be able to capture complex concepts (Hersperger et al., 2017)

There are different ways to weight indicators; some studies use unit weighting, others use subjective importance ratings (McCrea et al., 2011). That being said, most research concludes that both unit weighting and subjective importance rating produce similar results therefore they rarely use subjective evaluations by importance rating (McCrea, et al., 2011). Another method that is seen in the literature is to allow respondents to select and eliminate aspects that they believe to have less relevance in their lives (Møller & Schlemmer, 1983). Citizen-driven assessments can be very accurate, however they can also create hyper livability constructs that do not reflect actual conditions (Kashef, 2016), therefore should be considered with care. This essentially wraps back around to the discussion in Section 3.5, that QoUL is a subjective phenomenon, therefore, aspects of QoL may not hold the same importance for everybody. For example, when deciding where to live, an indicator such as quality of schools in the area may make a community completely unsatisfactory for parents with school-age children. However, residents whose children have grown up, or who do not have children, may believe that educational facilities are of little or no concern to them (Marans & Rodgers, 1975).

Essentially, the indicators that are used in a project should be based on sound theory or concepts (Verdugo et al., 2005). They should be designed to be concise, comprehensive and balanced judgements of the conditions of society (Raphael et al., 1996). As such, Chapter Four focuses on selecting indicators using an analytical comparison of existing studies from different contexts. The proposed indicator list is reviewed by an expert panel from the context under investigation to prioritise or remove indicators. Once the indicator list is validated by the experts, this is further examined with urban literature related to the context under investigation to conclude with a finalised list for use in the fieldwork.

2.4 Conclusion:

This chapter aimed to embed the research into the existing academic context through a thorough literature discussion of QoUL theories, principles and models. This revealed a number of significant issues, including the beneficiaries of QoUL data and the expected outcomes from a QoUL project. The synthesis of QoUL models provided an essential comparative critique which revealed that a QoUL project relies on seven core dimensions namely: the domains, scales, time, personal experience, objective and subjective methodology, culture and tailored indicators. These dimensions formed the remaining discussion of the chapter, delving into their significance, importance and representation in QoUL projects. This provided an in-depth literary discussion of the concepts from a range of social-science backgrounds to anchor the discussion within the academic perspective.

This critique and debate of dimensions exposed three principal issues with existing QoUL studies. One is that there is a lack of consideration of the temporal dimension of QoUL. This is required in a QoUL study because the urban environment is never static, thus the buildings, streets and people are inexorably changing with time. By repeating a study over time, the research provides an indication of if the urban environment is improving or decreasing. This information is useful to policymakers and planners to evaluate the effectiveness of their efforts, and thus determine if the urban realm is improving the QoUL of residents. The second issue identified is that there is no agreed method for selecting indicators, nor is there an approved indicator list. Indicators form the basis of a study as they determine exactly what is evaluated. The indicators which are used in a project should be based on sound theories and concepts to ensure they provide the conditions of the society under investigation. As such, Chapter Four of this research is dedicated to selecting and validating the project indicators. The proposed indicator list is further contextualised in Chapter Five before commencing the fieldwork.

The final, and most significant issue for this research identified that there is a lack of focus on context and culture in the majority of existing models and frameworks. Coupling this concept with the fact that the majority of models are designed and tested within the context of the West triggers the need for a new context-specific model to guide this research. This is due to the research being located in southern east Africa, thus it is anticipated that the existing models and indicators do not reflect the urban condition under investigation. A primary argument within this research is premised on the notion that a site-specific model is required for measuring QoUL, as a universal model remains inconsistent and unreliable when applied across various contexts,

cultures and time. As such, this chapter proposes a new conceptual model, displayed in Figure 2.8, which ensures that context and culture are at the core of the research. The model presented in Figure 2.8 is proposed to address these three identified knowledge gaps and as well as the seven core dimensions as extracted from the synthesis and critique of existing models.

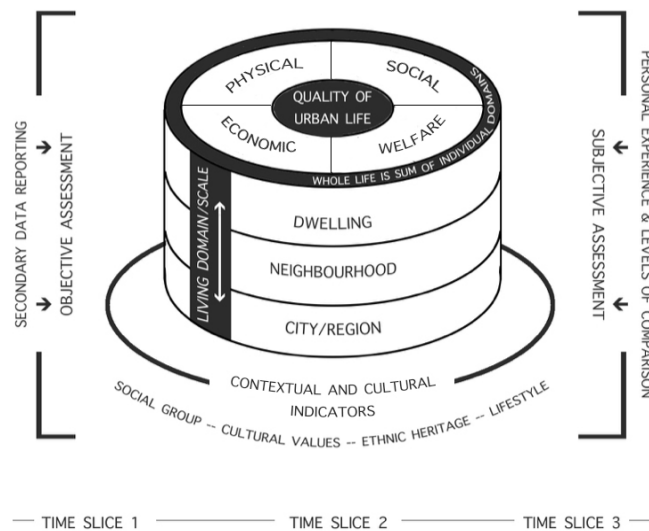


Figure 2.8 Conceptual Quality of Urban Life Model (Source: The Author)

Figure 2.8 presents a pictorial representation of the seven core dimensions of QoUL as identified by this literature discussion. These are domains, geographic scale, time, personal experience, objective and subjective, culture and context, and indicators. The model aims to be wide-reaching, however, it is cautious not to be overly prescriptive. The model provides a set of criteria that can be used to guide a QoUL study and should be used with flexibility upon a deeper understanding and appreciation of an urban environment, its culture and its context.

Principally, the model maintains that QoUL is formed by the four primary domains of life; physical, social, economic and well-being. The overall QoUL experience, or 'whole life' is then depicted as the sum of these individual domains. The domains are then extruded down across the geographical scales of life. This is due to people living their life in a range of environmental settings, each of which have different characteristics. It is important to note that although the various scales have independent features, the satisfaction felt within each domain does seem to be interlinked as illustrated by the white arrow on the scale label. The cylindrical image of QoUL is then placed directly in the context and culture under investigation. This is surrounded by several aspects such as social group, cultural values, heritage and lifestyle. Following outwards from this, the objective and subjective assessments of QoUL are placed at opposite sides of the diagram to clearly portray them as separate strands of research. The objective

strand is fed by secondary data reporting, such as census data and crime statistics. The subjective data is fed by primary data, such as participatory survey methods. The primary data reflects the perceptions of residents of the urban environment, echoing their personal experience within the urban environment. The full model is then placed on a timeline, elucidating that studies and investigations should be repeated over time.

The values that the model captures illuminate the vital role played by context and culture in urban life and highlight the seven core dimensions of QoUL to provide a comprehensive model that is used in the thesis fieldwork. This aims to address the knowledge gaps identified by the comparison of existing models to form a comprehensive conceptual model and guide the research. The model is intended for use by policymakers and planners who are operating in different contexts, as well as for scholars investigating QoUL. The concepts, theories and model that this chapter has exposed are considered through the research methodology and strategy, which is presented in the subsequent chapter. Chapter Three concludes by operationalising the conceptual model into a research framework, which is used to guide the research fieldwork through chapter Six and Seven. Finally, the conceptual model is re-evaluated in Chapter Eight in light of the findings from the research fieldwork to debate its practicality and effectiveness after empirical testing.

Chapter Three: Research Design and Methodology:

3.1 Introduction:

Having established the conceptual model which guides the research, this chapter identifies and designs the methodology for the project. This outlines the route adopted by the research to systematically achieve the research objectives outlined in Chapter One. This is discussed at two levels, first is the strategic level of research which relates to methodologies and systems of inquiry, followed by a discussion at the operational level of the methods, tactics and tools that are implemented in the fieldwork. This is mapped in Figure 3.1. Due to QoUL being a complex phenomenon, it is fundamental that the methodology uses rigorous research methods that gain knowledge from different perspectives and uses a range of research tools. The methodology is, therefore, devised using exploratory sequential design. This form of research design is optimal when the project aims to develop a measurement instrument but requires a deep understanding of the phenomenon in question before the measurement can commence. As such, the methodology is divided across four primary phases: explorative research, refined research, instrument design and testing.

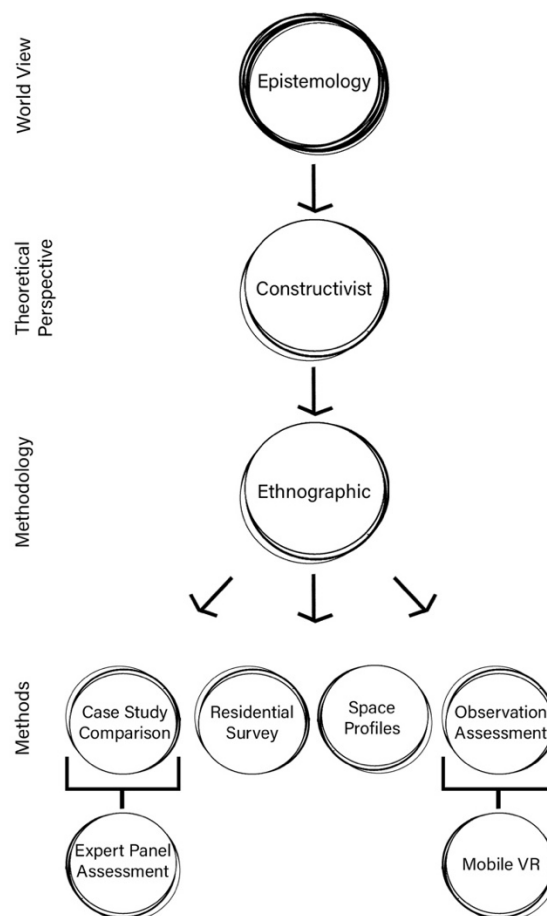


Figure 3.1 Research Diagram. Strategic and Operational levels

The explorative research is the focus of Chapter Two, which delves into the theoretical underpinnings, models and approaches to the discourse of QoUL. This exploratory knowledge is essential to embed the research into the existing academic context. From this, the significant role that context and culture play in a QoUL project is highlighted. This emphasises the need to tailor an investigation to the specific context. As such, a vital step in the project is to derive and tailor an indicator list to the setting under investigation, which is the focus of the refined research phase. This is conducted across three strands: first a case study comparison is used to derive a generic indicator list. This list is then delivered to an expert panel of Malawian government, academics and community groups, to gain their insight into the indicator's importance within Malawi. This process prioritises the indicators and removes any which the experts deem irrelevant. Finally, the indicators are reviewed further using contextual literature to understand their meaning within Lilongwe, Malawi.

The third phase of inquiry is the instrument design which is the focus of this chapter. This concentrates on designing a toolkit appropriate for investigating QoUL in the context of Lilongwe. It is indispensable that the research methodology is designed in a way that links the theory and the method, thus this chapter is a fundamental phase of the research. The methodology is the strategy behind the choice and use of methods which connects the methods to the desired outcomes. As such, the methodology informs the research objectives. Consequently, the methodology sets the intent, motivation and expectation for the research. Each of the tactics and tools are discussed in depth throughout this chapter. The toolkit is subsequently tested as the final phase of the exploratory sequential design, which forms the focus of Chapters Six and Seven.

3.2 Strategic Level:

3.2.1 World View/Paradigm: Epistemology.

The research paradigm (also termed worldview or system of inquiry) is a set of beliefs that inform how a study is undertaken (Creswell, 2015a). The choice of paradigm forms a set of shared philosophies among researchers of a specific area (Kivunja & Kuyini, 2017) and allows researchers to understand and explain how we know what we know (Crotty, 1998). This thesis is using the paradigm epistemology as it emphasises that knowledge is best derived from a subjective interpretation of an objective reality. This paradigm is concerned with providing a philosophical grounding for deciding what type of knowledge is possible and ensuring that the knowledge obtained is adequate and legitimate (Crotty, 1998). In this world view, knowledge is historically and contextually situated where the researchers are active participants

who engage and intervene in the realities that they discover and analyse (Salama, 2019). As such, epistemology is concerned with the question of how to achieve true knowledge and emphasises the influence of the subject on the process of achieving knowledge (Niehaves, 2007). This is particularly relevant with a QoUL study, as it focuses on the resident as the subject that provides insight into their urban environment. This connects to the discussion in Chapter Two: 3.4 'The Personal Dimension' that emphasises the significant role that the individuals experience plays in their perception of their QoUL.

3.2.2 Theoretical Perspective: Constructivism

Within the epistemological stance, there are different theoretical perspectives and distinct belief systems about how to view the world. The constructivism (also termed interpretivism and anti-positivist) emphasises that knowledge is subjectively determined by the observer (Niehaves, 2007). Punch (2005) defines constructivism as a belief "that realities are local, specific and constructed, and are socially and experientially based, depending on the people holding them". This perspective understands the subjective world of human experience by 'getting into the head of the subjects being studied' (Kivunja & Kuyini, 2017). As such, central to the beliefs of constructivism is the concepts that reality is personal to the observer, it is culturally defined and often mostly subjective. As a theoretical perspective, constructivism allows and encourages designers to draw on knowledge from previous experiences to allow intuitive forms of reasoning (Franz, 1994).

The constructivism perspective relates directly to the research framework presented in Chapter Two, Figure 2.8, which defines the seven interconnected dimensions of how to conduct a QoUL study. These are: that QoUL spans numerous domains and geographic scales, that it is time-dependent, culturally specific, personal to the observer, that it is both objective and subjective. The research framework shares several philosophies with the theoretical perspective, primarily the concepts that reality is local and culturally specific, that depends on the person viewing the reality, and that an urban environment is not purely objective.

Constructivism confirms that context is vital for knowledge and knowing, therefore, contextual factors must be considered in any systematic pursuit of understanding (Kivunja & Kuyini, 2017). This is discussed in length in Chapter Two, Section 3.6: The Cultural Dimension, which highlights the significant role that context and culture play in a QoUL study. The constructivism perspective also highlights the need to understand the individual in a study and how that individual views the world around

them (Kivunja & Kuyini, 2017). This is due to the belief that the resident constructs their knowledge socially as a result of their personal experiences of life within a setting that is being investigated (Punch, 2005). As such, the constructivist perspective relies on the participants' views of the situation which is being studied (Creswell, 2003). This perspective of research allows the interpreter to understand what the subject is thinking within a context, and emphasises the need to understand the individual in a study (Kivunja & Kuyini, 2017). This theory is discussed in depth in Chapter Two, Section 3.4: The Personal Dimension, which reiterates the critical role that personal experience plays in a QoUL study, thus the need for participatory methods in a QoUL project.

A third significant connection between the constructivism perspective and the research model is the concept of objective and subjective QoUL. This thesis believes that physical environments have both an objective reality and a subjective reality. There are fundamental differences between the objective data and subjective data in a QoUL study, therefore, ignoring one aspect leaves gaps in the research. The objective indicators are used to explain the setting in which people live and work, where the subjective indicators express how people perceive and evaluate the conditions that exist around them (Lee & Marans, 1980). As such, the research does not view spaces as purely objective as believed by the positivist perspective. The paradigm and theoretical perspective are, therefore, directly connected to the research model presented in Chapter Two, Figure 2.8. This is due to the paradigm providing a lens through which the researcher views the investigation and thus forms the strategy behind the thesis. The following section focuses on how the paradigm and theoretical perspective relate to the operational level in designing the toolkit that is tested in the fieldwork.

3.3 Operational Level:

3.3.1 Methodology. Ethnographic.

Within the different research paradigms, there are separate methodologies that are used. The methodology is a particular research design that guides the inquiry to choose the methods and tools for the research (Crotty, 1998). This thesis employs the ethnographic research methodology. Groat & Wang (2013) state that “ethnographic research emphasises an in-depth engagement with site-specific settings, most especially through active and thorough observation”. This methodology has roots in anthropology, however, is adopted by sociology, human geography and cultural studies.

Ethnographic research uses methods that are sensitive to the setting under investigation, attempting to study the social world with minimal disturbance from the researcher (Punch, 2005). This methodology typically involves fieldwork seeking primary data sources to ascertain the resident's point of view within a setting (Groat & Wang, 2013). Overall, ethnographic research provides a holistic exploration of an environment which is context-rich in detail. It should rely on primary data sources, typically use either one or a small number of case studies, and should emphasize the interpretation of human behaviours (Groat & Wang, 2013). The ethnographic research is typically repetitive as it focuses on things that happen repeatedly (Punch, 2005); this again links back to the discussion in Chapter Two, Section 3.3, as QoUL studies are temporal. Ethnographic methodology is thus appropriate for a QoUL research as it gains residents perspectives, provides a holistic view of their setting, encourages the collection of primary data sources and repeats over time.

3.4 Research Method Designs:

3.4.1 Exploratory Sequential Design.

As previously stated, a QoUL study believes that there is both an objective reality, as well as a subjective interpretation of that reality. As such, the research gains multiple perspectives on the conditions of the urban environments so as to provide a complete picture of the settings. This, therefore, combines the two epistemologies of quantitative and qualitative research, thus using a mixed-methods design. At the heart of any mixed methods study, there should be a basic design for which this research uses exploratory sequential design. The exploratory sequential design first explores a problem using qualitative data collection and analysis, then develops an instrument or tool, and follow with a quantitative research phase (Creswell, 2015).

Exploratory sequential design is employed when the researcher aims to develop a measuring instrument, but requires a deeper understanding of the phenomenon in question before in-depth measurement can commence (Punch, 2005). This research design involves first exploring a problem through qualitative data collection techniques and analysis (Creswell, 2015; Creswell, 2014). The analysis from this stage is used to aid in the design of a new measurement instrument or toolkit that can be used in the final phase. The final phase is where the measurement techniques are tested in fieldwork or an experiment (Creswell, 2015; Creswell, 2014).

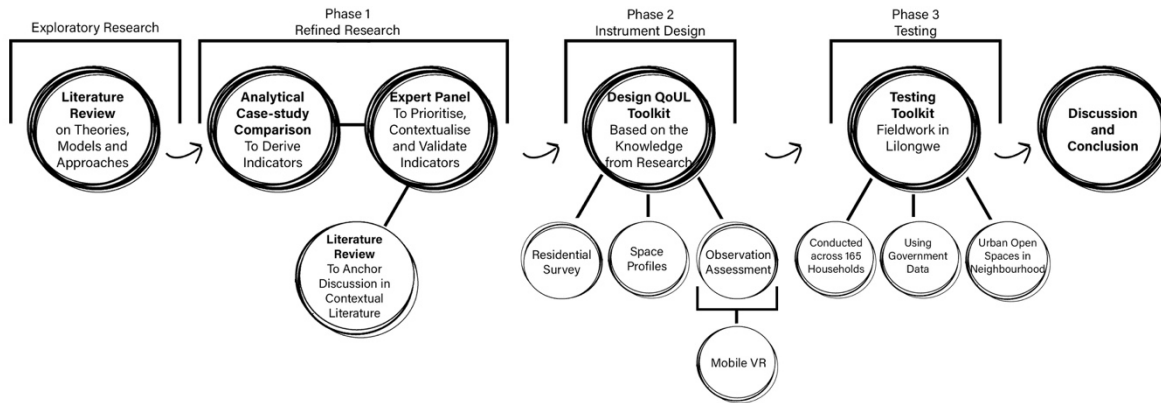


Figure 3.2 Exploratory sequential design diagram. Source- The Author

Figure 3.2 illustrates that the research conducts an investigative literature review before the exploratory sequential design, which is termed Phase 1- Exploratory Research. The literature review is used to inform the research design and guide the thesis with knowledge on the topic and is the focus of Chapter Two. This exploratory research is an essential step in the research process as it embeds the research into the existing academic context to ground the research. The second phase in the exploratory sequential design is to derive the project indicators. This is conducted across three strands illustrated in Figure 3.2, namely an analytical case study comparison, expert panel assessment, and contextual literature review. This sees a systematic comparison of twelve existing case studies from around the globe to extract common QoUL indicators. The derived indicators are reviewed by a panel of contextual experts to confirm their importance in QoUL within the context under investigation. This is conducted to determine the indicators that are prioritised and used in the QoUL toolkit. This is finalised by discussing each selected indicator with urban literature from that context to confirm the meaning of that indicator in the context under investigation. This is essential as it is understood that indicators have different definitions or meanings in various settings.

The third phase in the exploratory sequential design is to design the toolkit for use in the case-study city Lilongwe, which is the focus of this chapter. This stage involves designing and adapting methods that can be used to evaluate the QoUL within the selected context, ensuring they are tailored and adapted to understand the urban setting. The methods used in the toolkit include a residential attitude survey, objective neighbourhood profiles, and two observational techniques that are enriched by mobile VR, photography and sketching. The final phase of the research involves testing the toolkit in the subject location. The tools are tested across three neighbourhoods in

Lilongwe, with engagement from 165 households. The residential attitude surveys are conducted face-to-face using trained local fieldwork assistants who asked the residents each question. This allows the fieldwork assistant to conduct the surveys as an interview whilst collecting numerical and written results for the analysis. This reduces the likelihood of misinterpretation or incorrect results as the resident discuss their answers with the fieldwork assistant.

Alongside the residential attitude survey, is the observational assessment. This is conducted systematically across the three neighbourhoods. This allows the research to evaluate the physical and social qualities of the open spaces within the neighbourhoods. Public spaces within neighbourhoods are selected as they accommodate the surroundings that enhance people's daily life, and impact their perception, feelings and engagement in their neighbourhood (Salama et al., 2017a). By conducting both observational assessments and residential attitude surveys, the toolkit allows the research to provide rigorous results that can be used by policymakers and planners when reviewing the conditions of their urban neighbourhoods. The results of the fieldwork are analysed to provide a discussion and conclusion for the thesis. This includes any alterations that should be made to the toolkit for future use before presenting the results to policymakers, planners and members of the government in the case study city. Together, this forms a multi-layered methodological approach for investigating QoUL in the context of Lilongwe, Malawi, which is presented in Figure 3.3 and Table 3.1. The focus of the subsequent sections is now to detail and discuss the design of each of the methods from Figure 3.3 using the same sequence that they appear in the thesis.

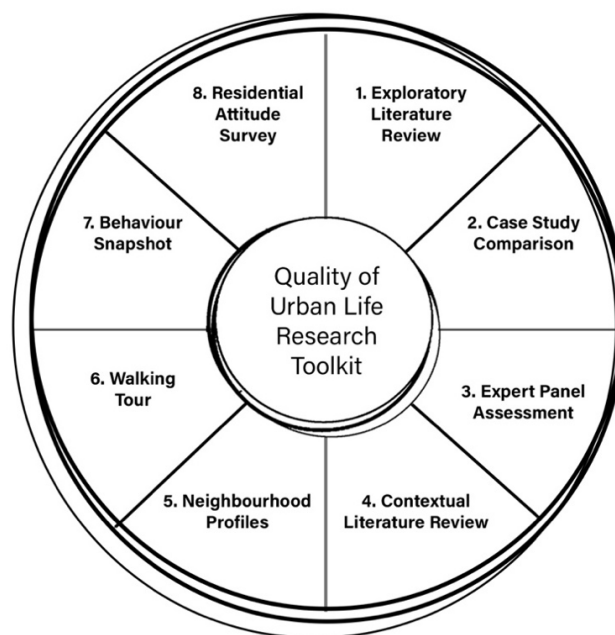


Figure 3.3 Multi-layered methodological approach diagram

Multi-layered methodological approach:

Investigation Approach	Purpose and Outcome	Analytical Method
Explorative literature review	Propose new conceptual model which ensures context and culture are at the core of the research. Addresses the knowledge gaps presented in the critique of existing models.	Comparative critique of existing quality of urban life models. Synthesis of qualitative evidence and theme analysis of discourse.
Case Study Comparison	Derive an uncontextualised indicator list used throughout existing QoUL studies.	Categorisation and identification of the indicators used in prevailing QoUL research.
Expert Panel Assessment	To prioritise, add or remove indicators to provide a validated QoUL indicator list for use in the research fieldwork.	Quantitative analysis of survey ranking results. Qualitative theme analysis of comments captured.
Contextual Literature Review	Provide a deeper understanding of the meaning of each indicator within the context they are investigated.	Qualitative analytical investigation of each of the derived indicators using contextual literature.
Neighbourhood Profiles	Provide detailed objective image of the three prioritised heterogenic neighbourhoods.	Objective data reporting and structured observations using walk-through analysis.
Walking Tour	Detailed analysis of the physical and social attributes of urban open spaces in each neighbourhood.	Quantitative analysis of questions relating to the physical and social attributes of urban open spaces.
Behavioural Snapshot	Provides a snapshot of how spaces are used. Discloses insight into the physical spatial qualities of areas examined and social behaviours of users	Mapping users movements to show how residents interact with space. Includes quantitative demographic and behavioural analysis.
Residential Attitude Survey	Provides the subjective perspective of the residents who live and work in the neighbourhoods.	Gathers information on scaled attributes that relate to QoUL domains. Quantitative analysis of objective and subjective questions.

Table 3.1 Multi-layered methodological approach table. Source-The Author

3.4.2 Indicator Selection through Case Study Comparison.

Selecting indicators is not and cannot be an exact science. The indicators used in a project form the basis of a QoUL assessment thus should be tailored to the context under investigation. As such, the selected indicators should be based on sound theories and concepts. Chapter Two presents two indicator models which are derived using different methods. The Felce and Perry (1995) model is developed through reviewing fifteen literature sources, whereas the Shalock et al. (2002) model is designed through an international panel of experts. Each of these models uses sound theory to select their indicators, thus providing exemplar indicator lists. This methodology follows and combines the methods presented by Felce and Perry (1995) and Shalock et al. (2002). First twelve literature sources are analytically compared to derive a non-contextualised indicator list, which is then contextualised and validated through a panel of Malawian experts. The case study method is used for theory building and is based on the need to understand a real-life phenomenon (Riege, 2003). Therefore, this method is selected as an appropriate technique for deriving the research indicators.

The case study comparison draws on twelve literature sources from various contexts to derive the indicators used throughout existing QoUL studies. This is a repetitive and rigorous task as it involves categorisation and identification of the indicators used in the various studies. To ensure the case study comparison is valid, the research must use multiple sources of evidence, and numerous researchers (Riege, 2003). The case study comparison records the data using a parallelism method to ensure structured findings across the multiple data sources (Riege, 2003). The results of the case study comparison are compiled in a table, to provide a generic indicator list. This is subsequently reviewed by the expert panel, to add or remove indicators as required. The results of the combination of the literature review and expert panel is a comprehensive, corroborated and reliable indicator list.

3.4.3 Expert Panel.

Once the initial indicators are selected, it is essential to explore their relevance in the context. As such, it is appropriate to further examine the findings with meaningful insights of knowledgeable people in the area (Galliers & Huang, 2012). This involves inviting an expert panel to feed into the research. The expert panel are asked to provide feedback regarding the relevance and importance of the proposed indicators

in the life of typical urban residents through a structured survey. This research method is frequently recommended as a way to maximise the likelihood of a content valid, well-constructed data collection tool (Davis, 1992). An expert panel, by definition, is a group of individuals that is convened to provide specialised expertise related to a specific topic or area of interest (Brady et al., 2017). Expert panels deliver a forum where specialists and professionals in a field are invited to share their thoughts and experiences (Lewthwaite & Nind, 2016; Galliers & Huang, 2012). This process aims to provide valid agreement using the results of the experts, as opposed to leaving the decision to a single professional (Martín et al., 2014).

The acceptable size of an expert panel varies depending on the form of research. Bourrie et al. (2014) state that the sample size should be larger if the group are heterogeneous populations rather than homogeneous populations, suggesting the latter use a sample ranging from five to ten panellists (Bourrie et al., 2014). In their study, Grant & Davis (1997), recommend using a panel with between two and twenty members, referencing Lynn, 1986, who suggests a minimum of 3 content experts be used in a study (Grant & Davis, 1997). In their research, Rubio et al. (2003) recommend using at least three experts from each group, be that professional or lay experts. This, therefore, yields a sample size between six and twenty experts. Polit & Beck (2006) advise that a study use a minimum of three experts, but indicate that more than ten is probably unnecessary. Almasreh et al. (2019) suggest using between five and ten experts for content validation. The final decision on the size of an expert panel is ultimately be decided by the desired expertise and range of representation of the panel (Grant & Davis, 1997). For this study, three categories of experts are included namely: academics, government officials, and non-government organisations; this allows the input of knowledge from different perspectives. A total of 11 experts joined the review panel which is an acceptable sample size.

Survey Instrument:

An online survey is used to gain insight and feedback from the expert panel. A questionnaire allows the questions to be directly associated with the domains and indicators derived in previous chapters (Beecham et al., 2005). The questionnaire is designed to be clear, concise and easy to administer. This is because surveys that are long and difficult to read often result in a lower response rate (Rubio et al., 2003). The online questionnaire allows each expert to consider the indicators independently, it also makes it easily accessible to experts in different geographic locations, which was fundamental to this study (Jorm, 2015). Due to this research using exploratory sequential design, it is fundamental to gain the expert responses before conducting

the fieldwork. This, therefore, means contacting the experts from abroad via the online questionnaire.

Each member of the expert panel is provided with two copies of the questionnaire, allowing them to use their preferred method of either online survey or word document format. Eight of the experts elected to use the online questionnaire, which was designed and administered on Qualtrics. Three panel members returned their questionnaire on Microsoft word. The experts are provided with an accompanying documentation booklet, and a participant information cover letter via email (See appendix 1 and 2). The accompanying documentation booklet provides a visual and coherent outline of the QoUL study. It is 12 pages, comprising a description of the study, the potential use of data and a description of the project. The booklet also describes the 24 indicators of QoUL, providing detailed definitions for each; indicator definitions are promoted throughout the literature as they provide a basis for the experts scoring and reduce misunderstanding (Almanasreh et al., 2019; Jorm, 2015; Grant & Davis, 1997). The participant information cover-letter is provided to all panel members. This discusses why they are chosen for the study, the value of measuring the quality of urban life, and what the information is used for (Almanasreh et al., 2019; Grant & Davis, 1997). The letter further discusses all ethical viewpoints of the study. This informs them that their identity is optional, and the voluntary nature of their participation is emphasised (Beecham et al., 2005; Hyrkäsa, et al., 2003).

The questionnaire is designed in six sections. The first section asks for their name, occupation, and if they prefer to remain anonymous. Sections two-five follow the same format, each discussing the domains of QoUL, an example of which is seen in Figure 3.4. In these sections, the indicators are down the left section of the table, each with a succinct definition. This concise definition is additional to the detailed explanations provided in the booklet. The expert is asked to rate the importance of the indicator in the daily life of Lilongwe's residents from 1-4. After each group of questions, the experts are asked if there are any indicators they believed should be added to the investigation. This allows experts to suggest revisions for items that are not included that they feel are essential as promoted in the literature (Almanasreh et al., 2019; Beecham et al., 2005; Hyrkäsa et al., 2003; Grant & Davis, 1997). The questionnaire was designed systematically by discussing the six indicators across each of the four domains in a similar structured format (Grant & Davis, 1997). The final section seeks to discover where the experts obtain information about each of the indicators. This provides the indicators down the left column in the same order as the previous sections, with the option for them to cross as many boxes as relevant. This includes both primary and secondary data sources, and again the opportunity for the experts

to add their revisions if needed. The questionnaire uses a 4-point ordinal scale, which is the traditional scale for this form of research (Polit & Beck, 2006). Researchers advocate this scale as it is thought to remove neutral and ambivalent midpoint numbers (Lynn, 1986). This is due to the neutral scores being considered to neither support nor criticise an indicator (Beecham et al., 2005) thus do not bring any valuable information to the study.



Q3. How important are each of the following physical indicators in the daily life of Lilongwe's residents?
Please put a cross where appropriate

Physical quality of urban life indicators	1- Not at all Important	2-Less Important	3-Somewhat Important	4-Most Important
1.1 Building and House Quality This includes the materials used, dwelling size, and overall quality of home				
1.2 Physical Urban Infrastructure This includes the quality, safety and legibility of neighborhood streets and roads				
1.3 Density This includes if the neighborhood is overcrowded, the concentration of buildings and privacy felt in residents home/outside space				
1.4 Urban Form & Typology This includes if the neighborhood is high density, medium density, low density or a quasi-residential area.				
1.5 Urban Transport & Accessibility includes availability, quality and type of transport, as well as neighborhood proximity to work & city				
1.6 Ecological Quality This includes the green and open space in the neighborhood, for recreation and events, as well as the families farming and cultivation.				

Q3b. Having reviewed the 6 physical quality of urban life indicators, do you feel that there are any missing that should be added to this investigation?

Figure 3.4 Example of expert panel questionnaire

The expert panel provides a useful method for validating and contextualising QoUL indicators. It is especially important to engage with Malawian colleagues, to ensure the indicators are as relevant as possible. This method results in a valid agreed indicator list to use in the instrument design that a group agrees upon, as opposed to a single individual. The indicators derived and contextualised are then reviewed using a literature review to meet Stage 4 in the multi-methodological approach for investigating QoUL in Lilongwe. This gains insight into the indicators meaning within the context of Malawi, thus ensuring the toolkit is investigating the correct indicators and their correct contextual meaning. The focus of the following section is to detail the

QoUL toolkit which includes the tools that are used in the research fieldwork to form Phase 3 of the exploratory sequential design.

3.4.4 QoUL Toolkit:

Having derived the appropriate indicators and placed the research into the academic context, the third phase of the exploratory sequential design is to design a toolkit that can be used to examine the QoUL in Lilongwe. This toolkit has three main strands: first is to create neighbourhood profiles using mapping and government data, second is to understand the neighbourhoods through direct observations, and third is to gain residents perspectives of their neighbourhoods using survey methods. Combining observations with survey methods provides a deeper understanding of the environment as each method may highlight aspects that the other misses. For example, during interviews or questionnaires, people often do not report activities that they believe are trivial. However, this seemingly minor datum could be essential to an environmental research question (Zeisel, 2016). Sanoff (1991) states that previous studies reached erroneous conclusions while evaluating survey methods exclusively in assessing human behaviour. Observations provide rich contextual data about a setting, which help policymakers and planners to understand how residents use and interact in spaces. The direct observations are split into two different worksheets to take a structured view of the urban settings. This approach is further enhanced by the use of Mobile VR as an appropriate method for observational data collection that can be returned to time and again by the researcher. The focus of the subsequent section is to discuss each of the methods in detail.

Neighbourhood Scale Study

As this research is conducted at a neighbourhood level, it is important to observe all of the main elements of a neighbourhood and these are graphically displayed in Figure 3.5. The observations are split into two primary categories; the houses and streets are observed using a walk-through technique which contributes to neighbourhood profiles. The shops, facilities and places to gather are observed using the walking tour and behavioural snapshot tools which is the focus of sections 4.8 and 4.9.



Figure 3.5 Elements of the neighbourhood- Source- The Author

This investigation is utilised at a neighbourhood scale as local peculiarities are often not the focus of QoUL studies in Africa, thus this research aims to address this knowledge gap. Neighbourhoods are important aspects of cities in Malawi. Liveable

communities are essential for the QoUL of residents. By understanding the aspects of the neighbourhood and how they impact residential QoUL, researchers can benchmark conditions, measure progress and improve accountability in planning efforts to enhance QoUL and community satisfaction (Miller et al., 2013).

3.4.5 Establishing Neighbourhood Profiles:

The neighbourhood profiles seek to detail the existing conditions of the neighbourhoods. These provide an objective analysis of the lived-in situations of the three neighbourhoods in Lilongwe. They are formed through a mixture of objective data reporting and structured observations. The neighbourhoods are deliberately selected to provide a varied representation of the population of Lilongwe. As such, the chosen neighbourhoods are heterogenic from one another.

The neighbourhoods are selected to provide a diverse representation of the population of Lilongwe. The choice was formulated across two primary strands; first a colleague who works at a Malawian community group was consulted to recommend neighbourhoods which he believes make interesting and practical case studies. He returned with a list of five possible neighbourhoods which, based on his personal experience and that of his colleagues, provide thought-provoking and practical case studies. Following this, the various neighbourhoods are investigated objectively based on aspects such as their classification, location, density, and degree of change. These two strands are combined to provide three prioritised neighbourhoods which are heterogenic from one another. The selected neighbourhoods are Area 18, Area 36 and Area 49 which are discussed individually in Chapter Six. The following section provides a rationale for their selection. Many neighbourhoods in Lilongwe are named numerically. The numbers of the neighbourhoods are dispersed throughout the city chronologically as opposed to geographically, meaning Area 1 is the eldest in the city. Lilongwe is composed of Areas 1-58.

The first objective categorisation that was included to ensure that the neighbourhoods are diverse was their zoning classification. Chapter Five Section 1.4 discusses the fact that neighbourhoods in Malawi have different zoning classifications. These represent various physical elements in the neighbourhood therefore by selecting neighbourhoods of different classification, they have different physical characteristics from one another. Area 18 is classified as a 'permanent high and open space' neighbourhood (UN-Habitat, 2011). This implies that the buildings are permanent structures, and that the neighbourhood has a reasonable amount of open space. Area 36 is classified as a quasi-density neighbourhood, being described as 'permanent high/traditional high density/agriculture/institutional neighbourhood' (UN-Habitat,

2011). This implies that the neighbourhood is a large mixture of building typologies and has a range of land use including non-domestic. The final neighbourhood is Area 49 which is classified as a 'traditional high density' neighbourhood (UN-Habitat, 2011). The second method of ensuring a diverse representation of population was to include one case study from each of the three city zones. The water supply split the city into three zones; Northern zone, Central zone and the Southern zone as shown in figure 3.6.

Proximity and location are included as part of the selection process as it is recognised that proximity can affect QoUL, as it can affect how long residents spend traveling, their access to facilities and access to work. As such it is interesting to comprehend if location and proximity to the city centre affect the lived-in experience of these neighbourhoods' residents. Figure 3.6 displays that Area 36 is a peripheral neighbourhood at the southern edge of the city, while Area 18 is in a central neighbourhood. Area 49 is at the border of the northern and central zones.

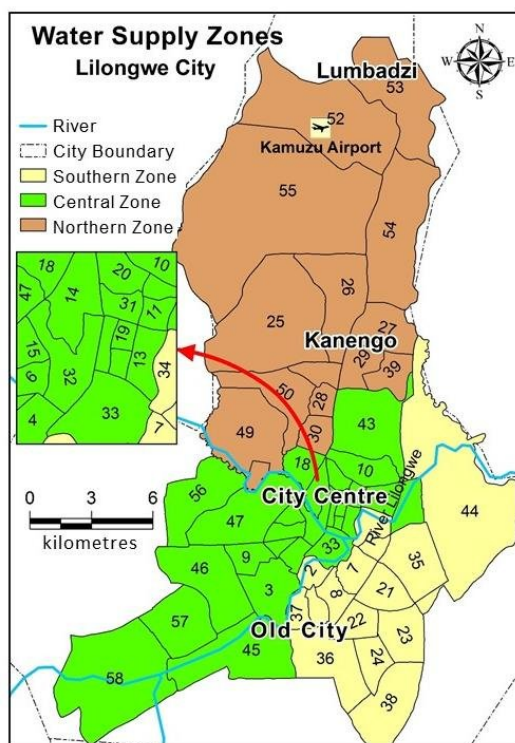


Figure 3.6 Lilongwe City Zones (Urban development master plan (2010))

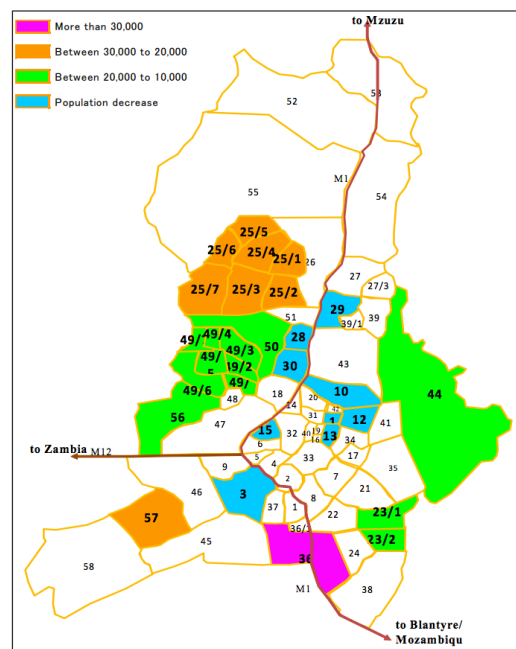


Figure 3.7 Population increase/decrease (Urban development master plan (2010))

It is interesting to comprehend the recent change in the various neighbourhoods. This is investigated with regards to population change, as well as the neighbourhoods change in built-up area. Figure 3.7 illustrates the neighbourhoods which have seen large population increases or decreases in recent years. Area 36 saw an influx of more

than 30,000 people over the ten-year time period. This is the largest shown on the map, and it is curious to understand if this affects the QoUL of residents. It is likely that a large increase in population puts strain on existing services such as schools, medical facilities and transport. Area 49 also saw a relatively large influx of residents with between 10,000 and 20,000 new residents moving to Area 49 in the 10-year time span. Area 18 did not see a large population increase or decrease, this implies that Area 18 remains at a steady population and size.

Reviewing Figure 3.8, it can be seen that although Area 49 experienced a population increase, it also observed an expansion in the neighbourhood's built-up area which was considerably larger than any other neighbourhood on Figure 3.8. This is significant as it appears that there the neighbourhood expanded both physically and socially in tandem. This implies that the new population have space and services, thus the population increase may not negatively affect the residential QoUL. Figure 3.9 shows some of the recent construction work taking place in Area 49. It can be seen that the new buildings are being fabricated from concrete blocks and are permanent good quality buildings. It is significant to note that the new buildings are semi-detached dwellings; this is interesting as hitherto the majority of buildings in Lilongwe were detached bungalows.

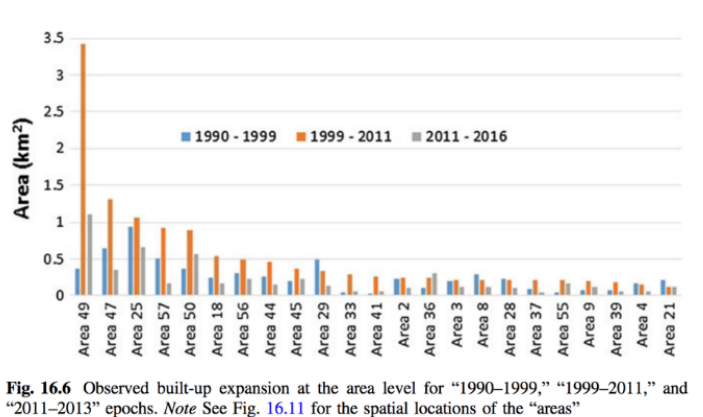


Fig. 16.6 Observed built-up expansion at the area level for “1990–1999,” “1999–2011,” and “2011–2013” epochs. *Note* See Fig. 16.11 for the spatial locations of the “areas”

Figure 3.8 Observed built-up expansion of neighbourhoods (Urban development master plan (2010)



Figure 3.9 Construction work in area 49. Source: The Author

The three selected neighbourhoods thus have varying zoning classifications, are in separate city zones, have a mixture of densities and have experienced change at varying rates. Due to their assorted typologies, the three neighbourhoods are expected to represent a diverse range of Lilongwe's population. Each of the selected neighbourhoods has a particular interesting point which is considered in the analysis: Area 18 is a city centre neighbourhood; Area 36 saw the largest population increase over a 10-year time span and Area 49 had the largest change in built-up expansion over a decade's time span. Chapter Six provides a further description of each of the neighbourhoods, complemented by fieldwork sketches, photographs and GIS maps.

3.4.6 Neighbourhood Profiles

The full neighbourhood profiles are presented in Chapter Six and are expanded on in Appendix 5. The three profiles are presented in the same format; they begin with a map that plots the main amenities of the neighbourhoods, as well as roads, access points and natural features such as rivers. Maps are made by the researcher using ArcGIS, open street maps, and Adobe Photoshop. There is then a discussion of the neighbourhood's classification, land area and population as taken from government documents and UN definitions. For each neighbourhood, a Figure-ground map is generated. This illustrates the building size, density and street layout.

This discussion is followed by the 'walk-through analysis' where the researcher assessed the urban quality of the neighbourhood whilst experiencing it. This method is visually displayed in Chapter Six and includes photographs and sketches from the fieldwork. The neighbourhoods are each toured a number of times at different periods of the day and week. The technique is semi-structured as they each follow the same pattern to allow comparison between neighbourhoods. Headings are broken into: domestic buildings, street landscaping; streetscape; street life; commercial spaces and recreational areas. By combining the government data with the walk-through analysis, the space profiles provide a detailed objective image of the neighbourhood, which gives a first glance at the QoUL of the neighbourhoods. Significant areas of the neighbourhood are then investigated in more depth using direct observations. A short summary of the three neighbourhoods is presented in Table 3.2.

Summary of Neighbourhood Typologies:

Area 18		Area 36		Area 49	
Zoning Classification	Permanent high and open space	Zoning Classification	Quasi density	Zoning Classification	Traditional high density
Area	214.466 HA	Area	926.438 HA	Area	964.496 HA
Population	8,718	Population	92,733	Population	52,915
Over age 18	72%	Over age 18	54.6%	Over age 18	60%
Density	4065 people/km ²	Density	10010 people/km ²	Density	5486 people/km ²
Male/Female	55.5%/44.5%	Male/Female	50%/50%	Male/Female	51.1%/48.9%
Proximity to centre	3.5km	Proximity to centre	9.6km	Proximity to centre	7.2km
Schools	13	Schools	7	Schools	11
Healthfacility	1	Healthfacility	1	Healthfacility	2
PoliceStation	1	PoliceStation	0	PoliceStation	0

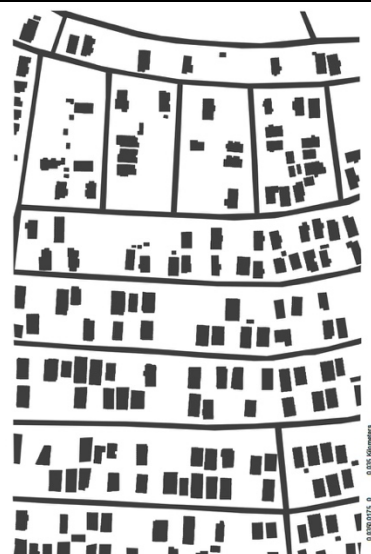


Table 3.2 Summary of Neighbourhood Typologies

3.4.7 Observational Tools:

Observational methods are integral in ethnographic research. Within the context of architecture and urban planning, observations can be used to describe what people do in a designed environment (Sanoff, 1991). Observing users in physical settings produces information about people, their activities, their relationships, their behaviours, their use, and mis-use of space as well as any constraints that the environment imposes (Zeisel, 2016). Observers get a sense of chain reactions, understanding the effects of effects. Observations allows the researcher to 'get into' the setting, therefore understand the nuances that the users feel (Zeisel, 2016). No other method gives a researcher such an understanding of how people bring places to life (Zeisel, 2016). Consequently, observations help designers and architects understand why some places are used, while others are not (Gehl & Svarre, 2013). As such, this is a useful tool for assessing aspects of the urban environment, to determine how selected spaces foster user attachment and user satisfaction, and how they impact a resident's QoUL.

With the interaction between life and space being so complex, it is important that an observational assessment follows a systematic structure (Gehl & Svarre, 2013). Gaining useful information from an observational study requires planning and consideration especially within the complex confusion of public life. Casual observations can be useful when they supplement structured and systematic studies, however, on its own casual observations may result in incomplete findings which reveal only the most obvious factors (Sanoff, 1991). A further benefit of using structured procedures and theory in one's observational assessment is that it increases the likelihood that various observers' descriptions are compatible and comparable (Zeisel, 2016). This consequently makes the work more useful as the results can be paralleled between observers.

Structured assessments consider four basic components: 'who is doing what, where, for how long?' (Salama et al., 2017b; Salama, 2015; Sanoff, 1991; Gehl & Svarre, 2013). Focusing attention on these four elements provides documentation and understanding of patterns of activities, as well as knowledge about who goes where in a particular space (Gehl & Svarre, 2013). The focus of the following section is to discuss the design of the observational tools that are used in the fieldwork, as well as the choice to conduct observations in urban open spaces.

Urban Open Spaces

Direct observations are conducted in two urban open spaces in each of the three neighbourhoods. These are selected to cover a variety of activities and services within the selected areas, with varying target demographics. Urban open spaces are chosen as they accommodate the settings that enhance people's lives, and therefore impact their perception, feeling and engagement in urban life (Salama et al., 2017a). Attractive public spaces are essential to a feeling of well-being and comfort (Tabbalds, 1992; Salama & Azzali, 2014) and therefore, directly affect residential QoUL. Arguably, the most critical aspect of urban open spaces is that they satisfy basic human needs, whilst offering interactive opportunities for the city's inhabitants (Salama & Azzali, 2014; Carmona, 2010).

Urban literature presents that settings for public life are not necessarily conventional public places (Banerjee, 2007 [2001]). In his book "The great good place", Oldenburg coined the phrase 'third spaces'. He states that great civilizations share distinctive informal gathering spaces. These spaces become a part of the urban landscape and the resident's daily life, and so, they dominate the image of the city. These spaces all form a fundamental mediation between the individual and broader society (Oldenburg, 1999). As such, the definition of urban spaces must be contextualised and defined by the context under investigation (Mehta, 2014). The design of spaces, as well as personal demographics and culture, determines how we use or do not use, public space (Gehl & Svarre, 2013). Therefore, the identification and selection of open spaces require thought and understanding.

Urban environments should invite and encourage public life directly and symbolically, through their public spaces (Jacobs & Appleyard, 2003 [1987]). Good quality and meaningful public spaces improve the experience of public life. Therefore, urban planners understand the need and importance of them (Mehta, 2007). They form the areas where people regularly meet friends and watch daily life pass; consequently, they play a critical role in residents' lives (Mehta, 2014). As such, public spaces are required for the social and psychological health of modern communities (Mehta, 2014). Thus, good quality public spaces are integral in enhancing QoUL in neighbourhoods, resulting in them being selected for deeper observation in this thesis. For each neighbourhood at least one recreational space, and one commercial space is selected. The choice of setting is influenced by a key informant who selected the areas that are popular within the community. By selecting similar space typologies, the characteristics can be directly compared in the analysis of the observational assessment.

3.4.8 Walking Tour.

The walking tour assessment tool is designed to evaluate the qualities of important urban areas within the three selected neighbourhoods in Lilongwe. This follows earlier scholarly explorations conducted in numerous urban contexts including: Salama & Azzali, (2014) study in Doha, Salama, (2015) work in Belfast, and Salama & MacLean, (2017) Salama et al. (2017a) and Salama et al. (2017b) research in Glasgow. This is a method that the author has used numerous times in the Glasgow projects, therefore, is practised in operating the tool. The tactic is devised in terms of checklists that underpin two of the major QoUL domains: the social and physical environments. This is adapted from the original tool that uses different categories and questions, however, the overall format is the same. The tool is designed in a manner that allows the researcher to conduct a self-guided walking tour of a setting. It includes an introductory information sheet that explains what the tool is, what it is used for, what it tells you, and which tools complement it (See Appendix 6). The evaluation is considered impressionistic, yet structured and focused, as it allows the researcher to focus on specific factors of the setting (Salama & MacLean, 2017; Salama, 2015).

Each set includes 12 questions which relate to the indicators that are listed down the left of the worksheet. Each of the indicators stem from QoUL literature, with questions designed to reflect the quality of the open spaces. The questions ask about similar issues at a time, as this structure should aid the researcher using the tool to consider the indicators one by one. Alongside the numerical score, there is space for sketching and note-taking. This is an essential element of the tool as the notes and sketches provide reminders for the researcher when returning to their desk for further evaluation. This can then be used to provide a written description of the qualities of the selected settings.

The tool uses a 4-point scale, where scores are assigned against each question in terms of the degree of appropriateness from '1- Definitely not; to '4- Definitely yes'. This deliberately does not use a mid-point scale to force the reviewer to be critical of their environment. The scores are then averaged to reach a cumulative score for each domain. By using a structured tool, this observation provides a numerical score for each indicator. These scores can then be directly compared between the selected settings. This makes the assessment of the quality of the spaces clear and systematic. Using a structured checklist means that the researchers know what they are evaluating, ensuring that this is the same in each setting and helps form an understanding of how the various indicators affect one another. This allows the researcher to determine the impact that each factor has on the setting as opposed to

other factors, and provides justified reasons for the researcher's judgements. Example worksheets can be viewed in Figure 3.10.

This method is ideally conducted by more than one individual. Each researcher uses the tool in solitary, and then re-group to discuss their interpretation of the indicators within the setting. As discussed in Chapter Two, Section 3.3, the city is a temporal object, and as such, it is vital to use the walking tour at both peak and off-peak times, to see if aspects of the space are different. For example, the question "Does the space feel vibrant?" is likely to differ if the area is well-populated or derelict. The walking tour is designed to facilitate a deeper understanding of open urban spaces in the three neighbourhoods. The expected outcome from this tool is that it provides a thorough description of the urban qualities within a setting, that is evaluated with the support of photographs and illustrations. When combined with the residential perspective, this information aims to be meaningful for policymakers and planners in Lilongwe for guiding provision of quality open spaces.

Walking Tour. Thoughts and Notes					
Physical Aspects of the Public Space		1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes
Architectural Quality	Are the majority of buildings in this public space made from good quality materials?				
	Are there any iconic or landmark buildings/structures?				
	Are the buildings in the space visually compatible? (think heights, materials, space between buildings)				
Infrastructure	Is the ground in this space good quality? (think, materials, maintenance, age)				
	Does the space feel safe despite vehicular traffic (Low levels of traffic, slow moving vehicles etc.)				
Transport & Accessibility	Is the public space connected to public transport links?				
	Is this public space essential to the surrounding urban context?				
	Is the space accessible to all users in terms of topography and physical barriers?				
Density & Privacy	Does the public space have private areas for those who want them?				
	Is the space densely populated at peak times of the day?				
Ecological Quality	Is there good quality landscape elements in the space? (such as street furniture or paths)				
	Is there a good presence of shade in the public space?				
Total =sum/12					
Space for sketching or note taking					

Figure 3.10 Example Walking Tour Method

3.4.9 Behavioural Snapshot.

The 'Behavioural Snapshot' draws inspiration from numerous observational scholars to provide a snapshot image of how spaces are used. This discloses insights into the physical spatial qualities of the areas examined, and the social behaviours of the users. This can then be combined with the other information gathered to determine if the public open spaces are nurturing the QoUL of residents in the neighbourhoods. It also discloses if the spaces are well used by residents, and if the areas are inclusive.

The main elements of this tool include counting people and their demographics, residential mapping, photographs and sketches of residents in the settings.

Mapping users movements involves recording their activities on a diagram. This method views people as 'objects' by recording their periodic behaviour (Salama & Azzali, 2014). This provides valuable insight that may be missed by other methods, such as how residents interact with space. This is useful in public spaces as the plan diagrams provide a better sense of how a place is used compared to viewing statistical tables (Zeisel, 2016). Maps can disclose interesting information on peoples choice of routes, and when categorised with their demographic, can provide diagrams of who is spending time with whom. This provides a better understanding of how users engage with their environment, the number of people passing through the space, and the variety of activities they perform (Salama et al., 2017b).

The maps are combined with sketches and photography to bring the setting to life for the reader. Combining photography and sketching improves observational effectiveness, as it encourages the observer to study an event in detail. Using images can capture subtleties that written methods may miss (Sanoff, 1991). Furthermore, sketches, drawings and photographs are useful as they provide illustrative qualities that enhance research, making it more relatable to readers than quantitative numerical data alone. The worksheet includes environmental microclimate data such as the weather, sun, shade and wind as well as perceptual data such as sound and smells. These factors are derived from Whyte's 1980 observational study. Whyte's project is based in America, where he discusses that the quality of experience in the plazas he is examining is more exceptional when the sun is present. This is true in the context that he is investigating, however not in all settings. In Lilongwe, it is more appropriate to look for shade. The heat can be intense, therefore, it is more common to find that residents seek shade from the sun. The environmental and perceptual factors are deliberately stated on the worksheet as these are factors that are significant to urban life, however, we often take them for granted. For example, if an environment has music playing, it may feel more lively or animated compared to a quiet setting. While we are aware of this, without a place to state it, the information could get lost.

A further element of the 'Behaviour Snapshot' is that it uses Gehl's framework of categorising outdoor activities as necessary and optional. Necessary activities, such as walking to work, occur regardless of the environmental quality; however, optional activities are a result of a high-quality environment. This is useful for the analysis, as the observer can attempt to identify if residents are behaving out of necessity or option and to determine if the environment is high or low quality to those who use it. This is

important to consider at the time of observation, as opposed to as an afterthought when one returns to analyse their data as it may not be possible to tell from photographs alone if a resident is using the space out of option or need. Figure 3.11 provides example categories of activities to aid the observer.

Different categories of behaviours:

Necessary behaviours		Optional/leisure behaviours	
Walk to...	Work Shop Transit Run errands	Walk for...	Leisure Exercise
Run to...	To catch bus To catch person (e.g. child running onto road)	Run for...	Leisure Exercise Play
Cycle to...	Transit	Cycle to...	Exercise
Stand to...	Wait for bus Wait for traffic to pass Rest (need a break) Work by trading and selling (Commercial)	Stand to...	Greet neighbours/friends/family Converse with neighbours/friends/family Take photos Enjoy life Watch or listen to people (people watch)
Sit to...	Rest (need a break) Work at market (Commercial)	Sit to...	Enjoy weather Enjoy life Eat and drink Read Chat Relax Meet friends
Lay down...	Sickness/injury	Lay down...	Enjoy weather Enjoy life Eat and drink Read Chat Relax Meet friends
Play...		Play...	Children play Watch children play

Figure 3.11 Optional and necessary behaviours. (Adapted from Gehl & Svarre, 2013)

More than one individual should ideally conduct this method. Each researcher should use the tool independently, then come together to discuss their findings. Much like with the walking-tour, the Behavioural Snapshot should be repeated at peak and off-peak times to understand if the setting changes with time. By completing the worksheet in a structured manner, the researcher should not miss information, therefore ensuring similar information is gathered in each setting. This helps to understand how various factors affect one another. This allows the researcher to discuss the impact that each factor has on the setting and provide justification for research assessments.

The outcome of this method is a narrative of how people use their space, both physically and socially. It can be used to assess the effectiveness of settings for users. The expected outcome from this tool is provision of a thorough illustration of residents

in spaces, maps of users movements, and demographics that use spaces. The results can be discussed and analysed concerning the microclimate and if the residents appear to be acting out of need or choice. This information can be compared with the walking tour to provide a rich understanding of the neighbourhoods spatial qualities.

4.10 Mobile VR.

To further enhance the observational tools, this research incorporated mobile Virtual Reality (VR). VR immerses users into virtual worlds, thus creating an illusion of being in an environment. As such, when conducting the observations in each of the neighbourhoods, the researcher also recorded 360-degree videos. These allow the researcher to return to the neighbourhoods from a distance, becoming fully immersed in the sounds and actions taking place. There are many different forms of VR which are used in research, however this project used mobile VR where the immersive experience is achieved using a 360-degree display on a smartphone. This requires an application that tracks the user head motion to generate a corresponding frame in real time (Zhang et al., 2018). This is a simple form of VR that is gaining popularity due to its affordability, mobility, flexibility and ease of use. A 360-degree camera is used at the site and videos are transferred to the mobile phone through Bluetooth to an application.

In recent years, VR has become increasingly acknowledged as beneficial in architectural projects (Mobach, 2008). Virtual worlds provide the researcher with a source of media that is capable of storing several levels of information which are traditionally obtained using multiple media sources (Petric et al., 2002). A beautiful study conducted by Peter Bosselmann (1998) presented a pictorial sequence of a walk through Venice. This study had the desired effect whereby it pulled the reader into the space, allowing them to take this walk despite not being there. The reader pieces the images together, gaining an illusion of moving through the space, much like a film that transports the viewer into the scene (Bosselmann, 2007 [1998]). However, the pictorial scroll method has its limits; it takes one route and does not allow the reader to stop and take a glance to the left or right, therefore, it limits the information available to the viewer (Bosselmann, 2007 [1998]). This is where the VR has its advantage, as it allows the viewer to turn 360 degrees to see the full circle of a space. Information embedded in VR includes images, sounds, behavioural movements, atmosphere and climatic features.

The primary motivation for incorporating VR for this study is that it is advantageous when the real-world site is unavailable (Mobach, 2008; Witmer et al., 1996). In the

case of this research, the site is on another continent, therefore, returning to the site is time consuming and costly. As such, this problem is tackled by recording 360 degree videos at numerous points in the selected neighbourhoods at various times of the day. This, therefore, allows the researcher to virtually return to the neighbourhoods of Lilongwe, to analyse the sites time and time again. A further benefit of VR over traditional photographs or videos is that it shares the full 3D environment (Zhang et al., 2018). When this is combined with sounds and immersive headset, it feels as though one is back in the neighbourhoods. The VR camera is held at a height, therefore gains images that the researcher may not have seen from their personal view. It also allows the researcher autonomy on their return to the site, where they are not constrained in paths or views pre-set by others, instead the researcher has the independence to explore the environment at leisure (Petric et al., 2002). This allows the researcher time to dwell on actions taking place and time to review the environment in private.

The outcome of the VR is a set of 360-degree videos that support the observational tools to evaluate the qualities of the urban environment. The videos can also be reviewed by other researchers to discuss aspects of the sites and aid with analysis in this respect. VR, therefore, can be highly engaging and interactive (Mobach, 2008) thus providing a welcomed extra to the toolkit.

3.4.11 Residential Attitude Survey.

The most commonly used method for measuring and assessing QoUL is surveys (Pacione, 2003; McCrea et al., 2011; Yin, 2017). This is a widely acknowledged QoUL data collection method due to it providing the subjective perspective of the residents who live and work in particular environments. These are typically designed to gather information on scaled attributes that relate to QoUL domains (McCrea et al., 2011). The focus is therefore on the resident's behaviours, assessments and evaluations of aspects of the urban environment that affect their QoL in general, and QoUL in particular (Low et al., 2018).

As discussed in Chapter Two section 3.4 and section 3.5, QoUL is a personal and subjective phenomenon, therefore, the concept holds different importance to each individual. As such, using a structured questionnaire allows the researcher to gather information on all aspects of urban life to understand the importance of each factor for different residents. Surveys provide information at an individual and at a community level (Marans & Stimson, 2011). However, it is significant to note that there are downsides to survey methods; one is that the information can be costly to gain, which can negatively affect the sample size (Marans & Stimson, 2011). Another downside is

that they may influence responses by asking particular questions instead of possible others (Sanoff, 1991). As such, surveys need to be designed based on sound theories and concepts and relate directly to the indicators that are to be assessed.

3.4.11-1 Designing the Survey Instrument:

Designing a successful questionnaire is a repetitive and iterative process. The survey design begins by deriving the indicators, followed by validation with the expert panel. From this, a first draft is generated. This is translated and reviewed by a colleague in a Malawian community group, who is bilingual between English and Chichewa. Based on his comments, a second draft is generated and consequently examined by the member of the Malawian Governments surveys department. Following this, a third draft of the questionnaire is produced and tested with the fieldwork assistants in Lilongwe. The result of this process is a content valid and practical survey which is ready for use in the fieldwork.

The indicators used in the survey all stem from QoUL literature. All indicators were validated by the expert panel members. The survey uses questions from existing QoUL studies as well as previous household questionnaires that are used in Malawi, such as the Malawi Population and Housing Census Main Report (2018) and the Integrated Household Survey (2016-17). This helped to ensure the survey was relevant in the context under investigation with a focus on QoUL issues. The questionnaire is designed in six sections. The first section gained demographic information from the residents. This was followed by four sections that relate to the four domains of QoUL, namely: physical, social, economic and wellbeing environment. At the end of each of these four sections, validating questions are included, such as:

All things considered; would you say the social quality of your neighbourhood is...? (circle one)	Poor Quality	Below Average Quality	Above Average Quality	High Quality
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Validating questions are essential for the analysis for a number of reasons. One is that they check the dependability of the indicators that are assessed. This is due to the concept of QoUL being vast, therefore it is difficult to cover every aspect. The validating question therefore allows the researcher to check the survey data, and ensure the questions are effective. A second use of the validating questions is that they can be compared to understand if certain domains appear to influence overall QoUL more than others. This is reflected in the final section of the survey which asks with all things considered, what residents like most about their neighbourhood, if they feel satisfied with their life, and if they are happy. By using a systematic manner in the

design of the questionnaire, it allows the analysis to determine if certain domains have a higher impact on overall QoUL than others, which can then be investigated at the level of indicator of that domain.

Language is an integral part of a survey; therefore, vigilant care and attention is required when translating. It is essential to consider that some concepts do not translate between cultures (Verdugo et al., 2005). The translation, therefore, required two bilingual individuals to work together to discuss the concepts and agree on the appropriate language to use. The survey is translated by a member of the expert panel who agreed to participate in the research fieldwork. He is a previous colleague of the author, and his participation in the fieldwork is key to its execution. He recruited a team of fieldwork assistants who implement the residential attitude survey as a household interview. Although the questions are read to the residents, the translation is required to reduce the likelihood of misinterpretation between fieldworkers.

After the return of the revised and translated questionnaire, the survey instrument is sent to a member of the Malawian Government who specialises in survey distribution and analysis. He returned the questionnaire with edits to improve the content to ensure it was as culturally appropriate as possible. See, for example, Figure 3.12. This is a useful step in ensuring the survey instrument is relevant to those who use this type of data as policymakers, planners and government officials are part of the target users for the final data.

f your home and the neighbourhood in which it is located.
rovided.

Q3. How many internal rooms does your home have?

1	2-3	4-5	6+
---	-----	-----	----

Q4. How many external rooms does your home have?

1	2-3	4-5	6+
---	-----	-----	----

Q5. How many people live in your home most of the year?

1-2	3-4	5-6	7+
-----	-----	-----	----

Q6. Is your place of work or school located near to your home?

Less 10-minute	11-30-minute	31-60-minute	Over an hour
----------------	--------------	--------------	--------------

Comments


 **Elfa** July 15, 2019
Consider rephrasing it. How many people live and eat from the same pot in this household?

Figure 3.12 Editing the Questionnaire

Objective and Subjective Questions:

Data that is collected through surveys typically provides the residents' subjective evaluations and perceived levels of satisfaction with factors, as well as objective realities about their environment. As such, the questionnaire is designed in a format that includes both objective and subjective questions. The introductory questions for each of the four sections ask the objective questions, which are then followed up by subjective interpretations of those questions, shown in Figure 3.14. The subjective questions are divided into two sections. The first gains a numerical score from the resident. This is useful in the analysis as it can be easily compared and gives a first interpretation of the condition of aspects of the urban environment. This is then followed up with the justification. The justifications are worded in a way that they can relate to either a good or bad rating. This provides an understanding of why residents perceive their environment in such a way. This, therefore, offers the objective condition: how many rooms, how many people live and eat in home, followed by a subjective rating: does this feel overcrowded? followed by a subjective justification for that rating "Due to the number of people, due to the size of the rooms" etc. This provides a full picture of the conditions of the neighbourhood for policymakers and planners who are working in these areas. A further benefit of providing the possible answers is that it removes the issue of back-translation that can be found in open-ended questions. If residents had extra concerns not included in the optional answers, they stated them, which was recorded by the fieldworkers. This happened a minimal number of times. The full survey instrument can be found in Appendix 8.



Figure 3.13 Objective and Subjective Questions

Section 2. This section asks about the physical aspects of your home and the neighbourhood in which it is located. Please tick ONE answer in questions 1-6 in the tick boxes provided.

Q1. What is the main material used for the walls in your home?

- ☐ Traditional Dwelling: Made from grass, mud & wattle, mud brick
- ☐ Modern Dwelling: Made from burnt brick, concrete, stone & lime
- ☐ Combination of both construction types

Q2. How many internal rooms does your home have?

1	2-3	4-5	6+
---	-----	-----	----

Q3. How many external rooms does your home have?

1	2-3	4-5	6+
---	-----	-----	----

Q4. How many people live and eat from your household?

In the following section, please answer the following questions by ticking ONE column per question.

Against the selection you make, please select the main reasons for your choice from the provided. Tick all that apply.

	1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes		TICK
1. Do you think your house is a good quality building?					a. Due to the external finish	
					b. Due to the internal finish	
					c. Due to the material it is made from	
					d. Due to its maintenance	
2. Do you think that your house feels overcrowded?					a. Due to the size of the rooms	
					b. Due to the number of people	
					c. Due to number of rooms	

Figure 3.14 Examples of residential attitude survey

Similar to the rationale behind using a 4-point scale in the expert questionnaire, the same Likert scale is used here. This is the traditional scale for this type of instrument, as it removes the neutral midpoint numbers. This is because neutral scores are thought to neither support nor criticise an indicator, therefore do not bring valuable information to a study.

Conducting the survey:

The research is conducted across three residential neighbourhoods. As such, only those who live in those neighbourhoods are targeted to participate as a purposeful sample. Three fieldwork assistants conducted the surveys. They all have previous experience of conducting surveys for government and private sector agencies. As such, they are already well trained and competent in the method. The fieldworkers are all bilingual between Chichewa and English and are all Malawian. Using local people as fieldworkers is recognised as a successful technique as they know the area well and are not intimidating to occupants of the area. The surveys are conducted as face-to-face interviews, which are structured around the questionnaire. Residents are approached at their homes or on the street near by their homes. Each interview takes around 1 hour, and no incentives are offered to residents to take part. The response rate was 100%, in fact, the research assistants commented that residents began approaching them, asking if they can take part. This was encouraging as it confirms that residents are keen to be involved in public participation matters.

The fieldwork assistants and author met before the dissemination of the survey. At this meeting, the author discussed the aims and objective of the project and the purpose of gaining residential perceptions. The fieldworkers then read over the questionnaires to ensure they are happy with the questions. The fieldworkers test the survey with 5 residents each to discover if any issues had not yet been picked up. Feedback from this was that residents often had numerous answers for a question; for example, as shown in Figure 3.15 “what type of fuel do you use for cooking”, a resident may use electricity when it is available, however when the power is out they use charcoal. Therefore, it was decided to put a ‘1’ for their most common, and a ‘2’ ‘3’ etc. for the other methods they use. This was agreed between all fieldworkers to ensure consistency in how questions are being asked and recorded.

The residential survey is an appropriate method for gaining the perspective of those who live in the selected neighbourhoods. Surveys are the most common method used to gain the residents evaluation of their neighbourhoods. This method provides objective conditions, subjective ranking and subjective justification, therefore is in itself a mixed-method tool. The survey gathers qualitative information on the perspectives and feelings of residents, thus is essential for evaluating residential QoUL.

Section 4. This section asks about the well-being aspects of your home and neighbourhood. Please tick **ONE** answer for each question in the tick boxes provided.

Q1. What type of fuel do you use for cooking?

- ☐ Firewood and charcoal
- ☐ Electricity (including solar or battery)
- ☐ Paraffin
- ☐ Solid fuels
- ☐ Straw/shrubs/grass

Q2. What type of fuel do you use for lighting?

- ☐ Firewood and charcoal
- ☐ Electricity (including solar or battery)
- ☐ Paraffin
- ☐ Solid fuels
- ☐ Candles
- ☐ Grass/straw

Q3. Does your household own a toilet?

- ☐ Yes
- ☐ No
- ☐ Prefer not to say

Q3. What type of toilet do you use?

- ☐ Flush/pour toilet
- ☐ Ventilated improved pit (VIP) latrine
- ☐ Traditional latrine
- ☐ Composting toilet
- ☐ No Facility/bush/field

Q4. How do you get your drinking water?

- ☐ Piped water into or near dwelling unit
- ☐ Community standpipes
- ☐ Protected well
- ☐ Unprotected well
- ☐ Boreholes
- ☐ Spring, stream or river, pond or lake
- ☐ Rainwater
- ☐ Tanker truck/bowser
- ☐ Bottled water
- ☐ Other (please specify)

Q5. Where do you go if you fall sick?

- ☐ Medical worker
- ☐ Traditional healer
- ☐ Family member/friend
- ☐ Self
- ☐ Other (Please specify)

Figure 3.15 Example questions from residential attitude survey

3.5 Ethical Issues.

Ethical considerations are relevant at all stages of social research (Banks, 2007). Research must be conducted ethically, therefore sound ethical considerations are thought to be a professional necessity (Wiles et al., 2011). In this thesis there are three primary ethical considerations: anonymity, literacy levels and ethical approval.

The main ethical concern when conducting a social or human participant research project concerns anonymity. Generally, all social researchers agree that, unless there is a clear reason to do otherwise, social researchers have a duty to protect the privacy of research subjects (Banks, 2007). As such, maintaining anonymity and confidentiality is considered central when conducting ethical research (Wiles et al., 2011). With this in mind, the residential questionnaires are designed without an option for participants to include their name, so that they know their results are entirely confidential. However, with regards to the expert panel, it is important for the researcher to categorise the results into occupational classifications, therefore it is beneficial to know who had completed the survey. As such, experts are asked to include their name, however, are then given the option to select, if they wished to remain anonymous. This, therefore, allowed the researcher to understand who had completed the survey, but to keep their personal identification and results of the survey confidential. Maintaining anonymity and confidentiality in the observational

assessment presents separate challenges. It is often impossible or impractical to provide anonymity of individuals if captured in images and film (Wiles et al., 2011). With regards to the visual data, sketches are used where possible to minimise photographs of residents being used. Research must be sensitive to local perception of photography (Banks, 2007; Wiles et al., 2011). This is reflected in the choice of urban open spaces that are observed, as photography and VR are not appropriate within the neighborhood markets. As such, markets are not used as observation points despite them being integral neighborhood settings.

Ethical approval was granted by the University of Strathclyde Department of ethics after a comprehensive ethics form was submitted (see Appendix 7). As well as gaining ethical approval from the University of Strathclyde, the research also sought ethical approval from the Lilongwe city council. This was obtained through email discussions with the CEO and Director of Planning at Lilongwe City Council. This involved detailing when the fieldwork takes place and providing the residential questionnaire for their approval.

3.6 Practical Limitations.

One of the main limitations in this PhD thesis is that the research is conducted abroad, therefore the time available for the fieldtrip is constrained as it is expensive and time consuming to visit numerous times. As such, the researcher integrated the VR to allow a virtual return to the fieldwork sites to tackle this first limitation. A second limitation is that the researcher is not from the context under investigation. This provides several challenges, first is that residents are aware that the researcher is not local, and second, that the researcher does not speak the local language. To tackle these limitations, the researcher worked closely with a colleague from Malawi. The colleague translated the questionnaire into the local language and recruited three fieldwork assistants to conduct the residential questionnaire. Using local fieldwork assistants allowed the residents to discuss their answers in their preferred language.

A further limitation when conducting a residential questionnaire is the literacy level of the area. This was again tackled by the fieldwork assistants as they read out the questions to the residents, therefore residents did not have to be able to read. Fieldwork assistants are careful not to influence the resident's answers by using the same tone for all questions.

3.7 Conclusion.

This chapter has provided a discussion about the thesis research design, from the strategic to the operational level. This follows the theoretical discussion provided in Chapter Two, Figure 2.8; however, here, the research operationalises the theoretical discussion into methods and tactics to perform a QoUL study. The chapter begins by deliberating which research paradigm effectively fits the research, concluding that epistemology is the appropriate paradigm. This is due to epistemology, and corresponding theoretical perspective of constructivism, being directly connected to the research model that was presented in Chapter Two. They share numerous philosophies, including; that reality is locally and culturally specific, that it is dependent on the individual viewing that reality, and that an urban environment has both an objective and subjective reality. The paradigm and theoretical perspective are thus directly connected to the research framework, providing a coherent strategy for the thesis.

Following this, the chapter discusses the methodologies at the operational level. Here it discusses the selection of ethnographic research due to it emphasising the need for in-depth engagement in site-specific settings. This again relates to the model presented in Chapter Two, Figure 2.8, with regards to the temporal nature of ethnographic studies. Ethnographic research emphasises the importance of observational assessments, however, it may also use other methods such as surveys to provide a fuller picture of a setting. This consequently means that while ethnographic research is primarily qualitative, it also utilises quantitative techniques, thus uses a mixed method design. At the heart of any mixed method research is a basic design, the most appropriate of which for this study is exploratory sequential design. This involves exploring a problem using qualitative data collection and analysis, then developing an instrument or tool, then following up with a quantitative research phase. This form of design is often used when the researcher wants to gain a deeper understanding of the phenomenon in question before developing their measurement instrument. The measurement instruments are used in the third phase of the design, where they are tested in fieldwork. This, therefore, outlines the various stages in the research including explorative research, refined research, instrument design and testing.

The chapter goes on to discuss the various methods that are designed and tested in this thesis. This includes: analytical case study comparison, expert panel assessment, neighbourhood profiling, two structured observational techniques, mobile VR and the residential questionnaire. These are represented in Figure 3.3 to provide a multi-

layered methodological approach to investigating QoUL. Together, these tools provide a rich understanding of the neighbourhood under investigation from a variety of perspectives. The methodology is cautious to confirm the indicators are valid thus ensuring the correct factors are investigated by the fieldwork toolkit. By combining the various strands of inquiry, the research can provide confident information to policymakers and planners to help resolve urban issues.

Having discussed the research design, the theoretical model presented in chapter two can now be operationalised to provide a theoretical framework that is used in the fieldwork. The model is operationalised by completing seven tasks as illustrated Figure 3.16.

1. Select a scale to investigate (dwelling, neighbourhood, city etc.)
2. Determine which (potentially all) domains that are addressed
3. Identify the context and culture specific indicators (Phase 2: Exploratory Research)
4. Select and design suitable objective and subjective tools (Phase 3: Instrument Design)
5. Combine the data found in the two strands of research to produce a merged data set. Analyse the data to discover any correlations, strengths and weaknesses in the urban environments of residents in selected neighbourhoods
6. Output a list of recommendations for policymakers and planners in the case-study city
7. Repeat over time to see if conditions are improving due to the recommendations

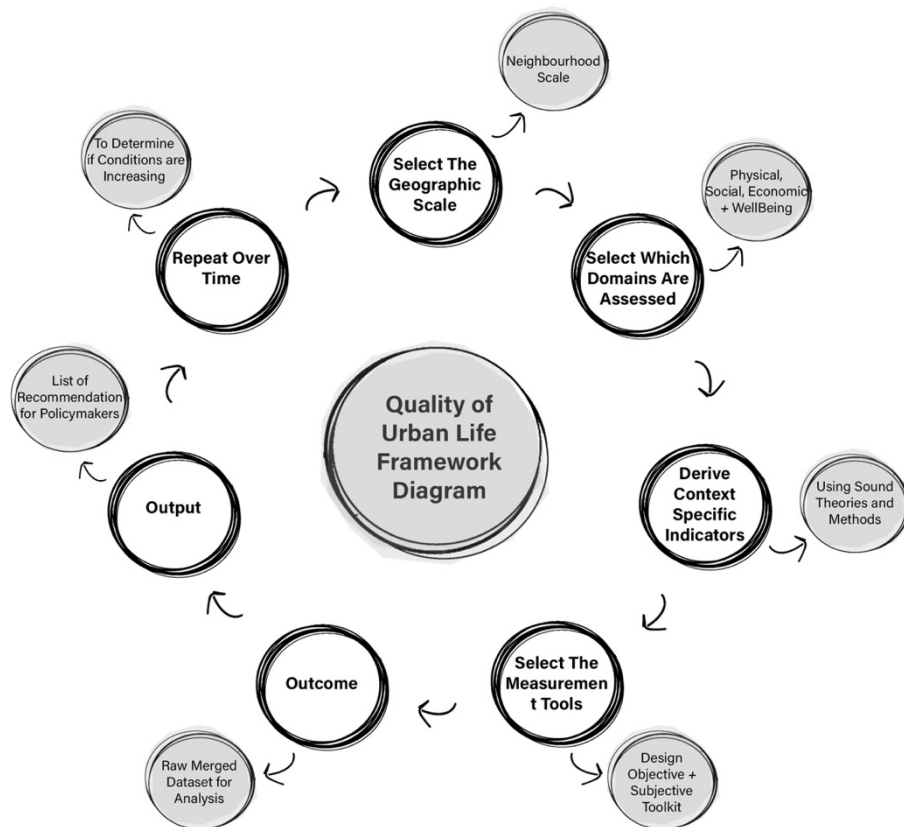


Figure 3.16 Theoretical Framework

The theoretical framework presented here in Figure 3.16 is a development of the theoretical model presented in Chapter Two, Figure 2.8. Together they build on numerous existing frameworks, to present an inclusive QoUL framework that can be operationalised in practice. The framework highlights the seven core dimensions of QoUL as presented in Chapter Two, Figure 2.8 to provide a comprehensive framework that is tested in the thesis. The model and framework combined are intended to be used by policymakers and planners, as well as for scholars investigating QoUL. The framework and model aim to guide the study by ensuring that the research follows the seven interconnected dimensions of QoUL to produce a comprehensive output that can resolve urban issues.

Chapter Four: Reconstructing QoUL Indicators:

4.1 Introduction

Having addressed the major theoretical and methodological issues and established a conceptual model and framework, this chapter now obtains detailed insight into the field by analysing fourteen QoUL literature sources. Ten of the literature sources are empirical case studies, and four are exemplar indicator models or indicator lists to enrich the indicator comparison. Through this, the chapter develops a comprehensive, corroborated and reliable indicator list that can be used effectively in a QoUL study in Malawi that is tested in the empirical research fieldwork.

The cases are reviewed across several steps. First, they are deliberated individually to anchor and contextualise the discussion. Each individual case-study provides a short synopsis concluding with any lessons imparted and main findings from that study. The results of this can be viewed in Appendix 9. The ten case studies are analytically compared to determine the successes and best practice to take forward to the fieldwork. This involves a structured format which first covers the setting and scale of the study, the methods and tools that they use, and the intended use of the data. This is a central section of the chapter as it displays the different approaches for the evaluation of QoUL and highlights that the envisioned use of the study influences the choice of indicators and methods.

To validate and contextualise the indicators, an expert panel of Malawian government, academics and NGO staff are asked to rate and rank the importance of the indicators to life in Lilongwe. This allows insight of knowledgeable people in the area to feed into the research. The need for this step is that it provides agreement of numerous experts, as opposed to leaving the decision to a single professional. The result of this is thus a valid, corroborated and reliable indicator list. These indicators are used to form the measurement tools which are used in the empirical research fieldwork. They structure the investigation, thus this chapter is fundamental in ensuring that the fieldwork is based on sound social science methods.

4.1.1 Justification and Identification of the Case Studies:

The cases are selected for a variety of reasons. Together they cover a range of geographical contexts, in both Developed and Developing Countries. This allows the analysis to view if different domains, indicators and methods are addressed depending on the circumstances of the setting. They also include analysis from influential QoUL scholars including Robert Marans, Rod McCrea and Robert Stimson whose in-depth exploration and investigations are indispensable in the field. The Shafer et al (2000)

study and Marans and Kweon (2011) studies are included as the models used by these cases are essential in setting out the theoretical model as discussed in Chapter Two. Other projects are included if they use an interesting methodology or provide essential guidelines for carrying out the fieldwork.

Having provided insight into the practical methods required, the chapter then includes four literature sources that have imperative QoUL indicator lists to draw from. This complements the existing discussion and thus provides fourteen literature sources for the debate of indicators for QoUL studies. In both chapter two and three, this thesis reiterates the fact that the indicator section is not and cannot be an exact science. The indicators selected should be based on sound theories and concepts and not derived haphazardly. This is an essential step in a QoUL study, and one which deserves deliberate care and attention to ensure the study is researching the correct issues. Indicators are the basis for what the project studies. As such, the table produced in Table 4.7 is the first step in deciding the indicators for use in the fieldwork. A full detailed indicator table can be found in Appendix 9.

4.2 Case Study Comparison

Chapter Two presented the seven interconnected dimensions of QoUL, which are visually represented in the conceptual model (See Figure 2.8). This chapter uses these seven dimensions to analyse the aforementioned case-studies. This influences and improves the methodology and fieldwork of the thesis by learning from previous studies. This chapter discusses the seven dimensions concerning the case-studies, using the dimensions outlined in Chapter Two, which are context, domains, geographic scale, objective and subjective data, personal experience, time and indicators. Using a case-study comparison to select indicators is a repetitive and rigorous task. This is commonly used for theory building to understand a real-life phenomenon, thus an appropriate tool indicator selection. For a case study comparison to be valid, the research must use multiple sources of evidence from various scholars. The information is recorded using a parallel method for each case study to ensure structured findings across the multiple data sources.

4.2.1 Context and Culture:

Together the case studies cover a range of geographical contexts in both Developed and Developing Countries. This provides a range of indicators and methods that are used in the various geographic settings. The case studies are plotted in blue in Figure 4.1, and Malawi is plotted in green to illustrate their geographic locations.

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of the thesis for copyright reasons.

Figure 4.1 Location of empirical case studies

4.2.2 Domains

The discussion in Chapter Two, Section 3.1: 'The Domain Dimension', identified that there is considerable overlap among researchers on the relevant domains for assessing QoUL. This is examined further in Table 4.1. The primary objective of Table 2.2 in Chapter Two was to identify the terms, synonyms and main domains addressed by studies. Here, however, Table 4.1 is used to analyse the case-studies which are being compared in more detail, including sub-categorisation of the domains, and example indicators. This reiterates the fact that the majority of studies are using the four QoUL domains. In this table, each of the primary domains is subcategorised into two classifications; for example, the physical environment is categorised as 'built environment' and 'natural environment'. The table includes a shortlist of example indicators that are found on each of the classifications, however, the full indicator list can be found in Appendix 9.

4.2.3 Case Study Domains:

	Westaway & Gurnede (2001)	Shafer, Lee & Turner (2000)	Sandru (2012)	Møller & Schlemmer (1983)	McCrea et al., (2005)	Marans & Kweon (2011)	Low et al., 2018	Lofli & Solaiman i (2009)	Gavrilidis et al., (2016)	Das (2007)
Physical Environment	Built environment measured by: housing, image of the city, building stock, basic built infrastructure, transportation and accessibility, residential density, public transit riders, house vacancy, house area, building quality.									
	Natural environment measured by: green spaces, climate, air pollution, conservation of open land, amount of parkland, natural resources.									
Social Environment	Population characteristics measured by: relationships, marital status, ethnicity, census data, age									
	Community characteristics measured by: cultural facilities, sense of community, civic participation, community involvement, neighbouring, government, pride in community/local area, recreational opportunities									
Economic Environment	Personal finance measured by: income and consumption, employment, savings, GDP, level of academic education.									
	Affordability of Surrounding Environment measured by: house price, house market, living space per capita, moving intentions, home ownership.									
Well-Being Environment	Health measured by health facilities, health services, chronic illnesses, frequency of leisure activity, sanitation & drainage system, solid waste disposal system, clean water, emotional well-being									
	Safety and security measured by: crime rates, social problems, health safety, road safety									

Table 4.1 Case Study Domains (Source: The Author)

As these are QoUL studies, it can be seen in Table 4.1 that the physical environment is well represented. This is due to the aim of QoUL projects to reflect how the urban environment affects a residents QoL. The physical environment is considered in every case study, with only one not focusing on the sub-category of the natural environment. Many scholars investigate the interaction between the physical and social dimensions of urban life. As such, the social environment is studied in 9 out of 10 of the case studies, with more focus upon community indicators than personal indicators. Both the economic and well-being categories are well represented in the QoUL case studies, appearing in 8 out of 10 studies in Table 4.1. This again highlights the fact that there is overlap among researchers on the general domains of urban life to include. This confirms that the thesis must address the four domains of urban life, as demonstrated by the previous case study examples.

4.2.4 Geographic scale of study:

As discussed in Chapter Two, Section 3.2 ‘The Scalar Dimension’, each distinct geographic scale has its environmental characteristics, thus the indicators used to assess QoUL at each scale differ. This is because people live their lives in a series of places, which each have particular environmental characteristics. If a scholar is investigating QoUL at a household scale, they review more touchable experiences, whereas the urban scale investigates less palpable familiarities. The most commonly studied scales are household, neighbourhood, or city to regional scale (Low et al., 2018; Kamp et al., 2003; McCrea et al., 2005; McCrea et al., 2011; Pacione, 2003). As such, this section categorises the geographic scales into these classifications in Table 4.2.

	Westaway & Gurnede (2001)	Shafer, Lee & Turner (2000)	Sandru (2012)	Mϕller & Schlemmer	McCrea et al., (2005)	Marans & Kweon (2011)	Low et al., 2018	Loffi & Solaimani (2009)	Gavrilidis et al., (2016)	Das (2007)
Dwelling										
Neighbourhood										
City/Region										
Multiple										

Table 4.2 Geographic scale of studies

Viewing Table 4.2 the most dominant scale is highlighted in dark grey, and if the study examines spill-over effects, they are tinted in light grey. This acknowledges that the geographic scales of urban life are interlinked (McCrea et al., 2011; McCrea et al., 2005; Sirgy & Cornwell, 2002). This, therefore, means that satisfaction with one’s home would influence satisfaction with one’s neighbourhood and so on. As such, it is felt that QoUL is a multi-scalar phenomenon (Esmailpoorarabi et al., 2016). For example, the study by Das (2007) reviews six neighbourhoods to represent a full city, therefore while it is a neighbourhood discussion, it represents the city as a whole. This can be a successful method for representing the QoUL of a city if the neighbourhoods are selected to represent all aspects of the city, as in the case of Das (2007).

Table 4.2 illustrates that neighbourhood scale is most commonly investigated as it is used in 70% of the examples and is the primary focus for 50%. The second most common scale is the city scale as it is represented in 60% of studies and is the primary focus of 30%. Studies that approach multiple scales of QoUL are found in 30% of case studies and are the main focus of 20%. Investigating QoUL at a household level is not the sole focus of any of the examined cases, however it is found in the discussion of

20% of the studies that are reviewing multiple scales. The lack of empirical studies focusing on the household scale is particularly interesting as the McCrea et al. (2005) study in Australia concludes that housing satisfaction is the most important predictor of overall life satisfaction.

The various geographical scales have their part to play in forming a person's QoUL. We perceive cities as places with their own particular characteristics at various scales, and this helps us to form images of the cities in our minds (Romice et al., 2016). This affects indicators such as place attachment and sense of community. It can, therefore, be concluded that the geographic scale is an essential aspect of a QoUL study that defines the scope of the project. This research is investigating QoUL at a neighbourhood scale because local peculiarities are not often the focus of QoUL studies in African cities. The case-study comparison illustrates that this is a well-recognised scale to conduct a study, and, with the majority of existing cases using this scale, the indicators should represent neighbourhood individualities.

4.2.5 Objective, subjective or mixed methods + Personal Experience:

Before evaluating a study in detail, it is significant to understand the paradigm through which the research is being conducted. As discussed in Chapter Three: Section 2.1: 'World View' this research believes that knowledge is best derived from a subjective interpretation of an objective reality, thus using the epistemology paradigm with the theoretical perspective of constructivism. By reviewing if the studies use objective, subjective or mixed methods, it can provide insight into the belief system and theoretical perspective of the researchers conducting the study. In the same style as the previous tables, this table uses grey for the most dominant method and tints light grey for supplementary methods.

	Westaway & Gurnede (2001)	Shafer, Lee & Turner (2000)	Sandru (2012)	Möller & Schlemmer	McCrea et al., (2005)	Marans & Kweon (2011)	Low et al., 2018	Lofti & Solaimani (2009)	Gavrilidis et al., (2016)	Das (2007)
Objective Methods										
Subjective Methods										
Mixed Methods										

Table 4.3 Objective, subjective and mixed methods

Table 4.3 clarifies that every case study uses subjective methods, whether that be surveys with residents or expert panel focus groups. Subjective measures are essential for gaining the residents' personal perspective of the objective condition of their environment. It is thus significant as it shows that QoUL studies are moving away from objective second-hand data which are primarily economic, to gather primary data on other domains of urban life. By including subjective methods, studies provide insight into the residents' opinions and perceptions of the urban environment, presenting information on the aspects that they consider to be important.

The table also highlights the number of mixed methods approaches as they are found in 70% of the case studies. Using both objective and subjective methods should provide more reliable and valid results as combining the two methods reflects the two meanings of quality, the one which is objectively agreed upon, and one which is individually valued by the resident. This links back to the discussion in Chapter Two: Section 3.4 'The Personal Dimension' which discusses in-depth that each individual has a different interpretation of the quality of an environment. There are no studies reviewed that use a solely objective methodology. This suggests that none of the studies considers urban life to be purely objective, thus, none are positivist studies. This confirms the belief of this research that a QoUL project should view an urban environment through a constructivist lens, seeing multiple constructed realities. The research fieldwork used a mixed-method approach to investigate QoUL in Lilongwe.

4.2.6 Methods and Tools Used:

One of the shortcomings in the discourse of QoUL is that there is no agreed method of investigating QoUL, therefore, each project selects their methods and tools as they see fit (Diener, 1995). An issue that can come from this is that different studies may gain different results depending on the tools and indicators they use to gather the data, and there is currently no procedure for resolving this. From the case study comparison in Table 4.4, it can be seen that the most common tool to investigate QoUL is survey methods as these are used in 90% of the cases. The advantage of surveys is that they enable the researcher to gather an extensive amount of information among a large sample in a limited amount of time. The popularity of this method, as illustrated by the case study comparison, is a testimony to its usefulness in this type of project.

Møller & Schlemmer (1983) discuss the fact that although surveys are quantifiable, this does not make them an objective data source. The primary use of QoUL surveys is to understand the perception of the resident, thus quantifying the results does not make them less feeling-based or subjective. Researchers can integrate both objective

and subjective questions into their survey, thus designing a mixed-method tool. Surveys are useful in QoUL studies as they can accommodate a considerable amount of information in a simple format and provide the viewpoint of the resident.

	Westaway & Gurnede (2001)	Shafer, Lee & Turner (2000)	Sandru (2012)	Møller & Schlemmer (1983)	McCrea et al., (2005)	Marans & Kweon (2011)	Low et al., 2018	Lofth & Solaimani (2009)	Gavrilidis et al., (2016)	Das (2007)
Survey Data										
	Includes mail questionnaires, face to face interviews, telephone interviews, face to face questionnaires and on-site questionnaires									
Focus Groups										
	Includes focus groups with professionals, or with citizens									
Objective Data Analysis										
	Includes census data, environmental data, community data etc.									
Direct Observations										
	Includes structured observations; direct observations and indirect observations									
GIS/Satellite Image Data										
	Includes using GIS data to form space profiles; using GIS to map environmental characteristics such as temperature, green space etc.									
Studying Context										

Table 4.4 Methods and tools used

The second most utilised method is objective data analysis. This helps to provide information from secondary sources such as census data and environmental data to provide a first sight of the urban environment. This is often combined with GIS to form space profiles as seen in the Marans & Kweon. (2011) study and the Low et al. (2018) study. Sandru (2012) is an exemplar case study for using GIS in evaluating QoUL. She uses GIS to analyse and represent spatial data concluding with a sound methodology for influencing policy based on sound knowledge that can be quantitatively illustrated. GIS is undoubtedly a beneficial method for a QoUL study from a geographic and urban perspective, as it can be used to form maps of the neighbourhoods to understand where amenities are located.

Two other interesting methods that are not used by many case studies but should be considered in more future studies are direct observations and focus groups. Both of these methods are only used in 10% of studies. A thought-provoking study for direct observations method is Gavrilidis et al. (2016). Here the scholars evaluate the urban environment using a structured observational tool which not only states which aspects of the urban environment are good or poor but also determines how good or how poor the aspect of the urban area is. This is then directly beneficial to the policymakers and planners as they can use this information to make changes on the specific factors that are affecting their urban spaces.

Lofti & Solaimani (2009) use an expert focus group to aid in determining the indicators for their QoUL project. They invited fifty experts to judge their indicator list, and included experienced urban specialists, and impartial citizens. The experts helped to formulate dimensions of QoUL, weigh the criteria and rank the indicators. Lessons from the Lofti & Solaimani (2009) influence this thesis by including the expert panel, which is discussed in Section Two of this chapter. 70% of the empirical studies use more than one method to gather their data. This suggests that a QoUL toolkit is likely to require multiple methods to successfully gather the information required. As survey methods are the most popular method, the following section reviews the various survey methods in more detail, and discuss the intended use of the data.

4.2.7 Characteristics of the Surveys:

Table 4.5 displays the various types and the number of surveys that projects use and shows that there is a relatively even distribution among the types of survey used by different studies. Face-to-face interviews using structured questionnaires are used in 30% of the studies. This allows the researcher to read the participant the questions and note their responses. Typically, this form of survey receives high response rates compared with mail questionnaires. Marans & Kweon (2011) study combines face-to-face interviews with mail questionnaires to gain a higher overall level of responses. The interviews take around 1 hour, thus are a time-consuming data collection exercise. Their mail questionnaire is shorter, as it is designed to take around 20-minutes to complete thus complementing the longer survey to gather the primary information in a less time-consuming manner. The Shafer et al. (2000) case study took an opposite approach; they gathered the majority of their data in a short 1-page questionnaire administered on-site and this is followed up with a longer mail questionnaire. It aims to gather extra information, where the on-site questionnaire gathered the essential. From reviewing the various case studies, it appears that combining survey typologies yields the highest response rates. This is the ideal way to conduct the study, however,

there are practical issues that make this form of data collection difficult such as budget and time.

Westaway & Gumede (2001) express the benefit of using local people as fieldwork assistants. They state that this is useful as residents know the area well, and are not intimidating to occupants of the area. This is reflected in the fieldwork for this thesis as the author is not local, therefore, local fieldwork assistants conduct the research surveys.

	Das (2007)	Gavrilidis et al., (2016)	Lofli & Solaimani (2009)	Low et al., 2018	Marans & Kweon (2011)	McCrea et al., (2005)	Møller & Schlemmer (1983)	Sandru (2012)	Shafer, Lee & Turner (2000)	Westaway & Gumede (2001)
Mail Questionnaires					4,077				642	
Telephone Interviews						1,347		400		
Face-to-face Interviews	379				315		409			
On-Site Questionnaires									1,004	500
Unspecified Surveys		61		1,169						
Total Number of Responses	379	61	0	1,169	4,392	1,347	409	400	1,646	500

Table 4.5 Survey methods used

There is a broad range in the number of participants that take part in the various studies. This is likely to depend on the size of the research team, their funding, and the time available to conduct the research. 60% of the case studies use 500 or fewer surveys in their projects. Collecting information through surveys is expensive and time-consuming. The Sandru (2012) study discusses that small sample sizes may be acceptable if the sample is carefully chosen. This does not mean selecting the individual people for the study; however, if the researcher is deliberate in selecting neighbourhoods which are diverse from one another, the study may be reliable to represent the heterogeneity of the city. This therefore means that the research should select neighbourhoods carefully, using purposeful sampling. Neighbourhood selection is discussed in Chapter Three: Section 6.3: 'Establishing Neighbourhood Profiles'.

4.2.8 Use of data + Temporal Studies:

Chapter Two, Section 1.2: 'Benefits and Beneficiaries of QoUL Data' discusses that there are numerous uses for a QoUL study. This is significant as the various projects select different indicators depending on the goal of the research (Kamp et al., 2003; Cicerchia, 1996). For example, if a study is primarily scientific, it will select different indicators than a project that is principally policy-based (Kamp et al., 2003).

	Westaway & Gurnede (2001)	Shafer, Lee & Turner (2000)	Sandru (2012)	Møller & Schlemmer (1983)	McCrea et al., (2005)	Marans & Kweon (2011)	Low et al., 2018	Loffi & Solaimani (2009)	Gavrilidis et al., (2016)	Das (2007)
Inform policy makers and planners										
	Inform about conditions of the region, provide insight when redirecting resources, policy decisions, and provide framework for participation of local urban authorities and experts									
Establishing benchmarks for measuring and comparing against past										
	Benchmarks for measuring social change, environmental change, and comparable measurements of different aspects of QoUL									
Provide information to compare with other urban areas										
	Provide reliable and comparative information on urban areas and provide comparable measurements on different aspects of QoUL									
Improve understanding of existing urban conditions										
	Improve understanding of relationship between perceptions, evaluations and behaviours in the urban environment									
Contribute to academia										
	Further knowledge about QoUL theories, and further knowledge about the conditions of particular environments									

Table 4.6 Use of Data

Table 4.6 clarifies the significant role that 'Informing policy-makers and planners' plays in the existing QoUL projects as it is seen in 90% of the selected cases. This is a central outcome for the majority of QoUL studies, as planners can use this information to improve their city design and enhance the residential quality of living (Marans, 2012; Pan et al., 2016; Das, 2008; Marans, 2003). This case study comparison clarifies that QoUL studies are used by policymakers and planners in various contexts. 70% of the case studies stated that they aim to contribute to academia. This is significant as increasing knowledge on the topic helps it to grow and develop. This helped the topic

move from one that was focused primarily on economic concerns, to the current topic that takes a wide-reaching approach to understand the holistic conditions of resident's lived-in lives.

A further contribution of many of the case studies is to 'Establish benchmarks for measuring and comparing with the past'. This is an essential issue in a QoUL study due to the temporal nature of urban life. Cities should be viewed as temporal scenes that change over long timespans. As such, planners need to assess and gauge the impact of their policies and determine if they are positively influencing urban life over time. This ties in with the need to 'Improve the understanding of existing urban conditions' which was assessed in 30% of the above-mentioned studies. This is particularly important in areas that have a low scholarly interest, therefore a lack of empirical knowledge of the urban environments. This is a critical factor that this thesis aims to address as there remains a lack of scholarly understanding of urban life in Lilongwe.

The final use is for 'Comparison with other urban areas'. Comparing QoUL across geographic areas can be tricky as it is possible that two areas would weigh the same factors differently depending on the opinions of their residents. A comparison study can be useful in highlighting significant differences between cities. This is discussed further in the subsequent section. By analysing the existing case studies, other uses of data besides influencing policy have become evident. This is important as the project must know the intended use of their data to ensure the correct indicators and tools are selected. It can also be seen in the table that a project can aim to use the data in multiple ways. The intended use for the data from this thesis is to influence policy, to extend writing on ESA cities and thus improve knowledge on existing urban conditions and contribute to academia.

4.2.9 Indicators:

Chapter Two, Section 3.7: 'The Tailored Dimension' states that literature on indicator typology could fill a book in itself. Even though numerous studies focus on QoUL, there is still not a definitive accepted list of criteria for assessing the discourse (Pacione, 2003). The Moller & Schlemmer (1983) case study discusses that it would be an impossible task for individuals to accurately describe exactly which components of their lives make up the total of their well-being. As such, academics and those researching QoUL must use sound knowledge and theories to derive an acceptable indicator list for each project.

Reaching a definitive list that is applicable for all people in all places is riddled with difficulties for many reasons; one is, as discussed in Chapter Two, the theory of QoUL is soaked with individual meaning. A second, also discussed in Chapter Two, is that the factors that are important in different contexts will vary. The third challenge for a definitive list is that the choice of indicators will likely vary depending on the goal of the research. If the research is aiming to affect public policies, or if it is primarily scientific, they are likely to select different indicators (Kamp et al., 2003).

This, therefore, results in different studies using various indicators, and the variables are often selected in an ad-hoc fashion (Diener & Suh, 1997). This can create controversies among scholars regarding which indicators to choose and how they should be weighted (Diener & Suh, 1997). Frequently used indicators lists are established by a number of studies, two of the well-cited lists which are included in the case study comparison, are included here for this discussion:

TABLE 3
Quality of Life Indicators

Dimension	Exemplary indicators	
Emotional well-being	Safety Spirituality Happiness	Freedom from stress Self-concept Contentment
Interpersonal relations	Intimacy Affection Family	Interactions Friendships Supports
Material well-being	Ownership Financial Security Food	Employment Possessions Socioeconomic status Shelter
Personal development	Education Skills Fulfillment	Personal competence Purposeful activity Advancement
Physical well-being	Health Nutrition Recreation Mobility	Health care Health insurance Leisure Activities of daily living
Self-determination	Autonomy Choices Decisions	Personal control Self-direction Personal goals/values
Social inclusion	Acceptance Status Supports Work environment	Community activities Roles Volunteer activities Residential environment
Rights	Privacy Voting Access	Due process Ownership Civic responsibilities

Figure 4.1- Indicator List (Schalock et al, 2002)

Frequently used objective social indicators (represent social data independently of individual evaluations)

Life expectancy
Crime rate
Unemployment rate
Gross Domestic Product
Poverty rate
School attendance
Working hours per week
Perinatal mortality rate
Suicide rate

Subjective social indicators (individuals' appraisal and evaluation of social conditions)

Sense of community
Material possessions
Sense of safety
Happiness
Satisfaction with 'life as a whole'
Relationships with family
Job satisfaction
Sex life
Perception of distributional justice
Class identification
Hobbies and club membership

Source: Items drawn from Cummins (1996b); Hagerty et al. (2001) and Noll (2000).

Figure 4.2 Indicator List (Rapley, 2003)

Viewing the two lists, which were generated in a close time frame, it can be seen that while there are similarities between them, there are also differences. For example, Shalock et al. (2002) uses physical well-being as a domain with eight indicators attached, where Rapley (2003) uses three indicators of health, namely life expectancy, suicide rate, and perinatal mortality rate. While both studies illustrate that health is an essential determinant of QoUL, the actual indicators used to assess the quality of a resident's health is different. This confirms the concern that while different projects are researching the same topic, they are using different attributes to do so.

An interesting observation on this challenge was discussed by Becker et al. (1987) who researched QoL in 329 metro areas of America using indicators such as climate, healthcare, crime and economics. The scholars discovered that depending on how the same variables are weighted, resulted in dramatic differences in their ranking. 134 different cities could be ranked as number one, and 150 different cities could be ranked last depending on how the very same indicators are weighted (Becker et al., 1987). This presents further problems with devising an indicator list, as even if a definitive list were devised, it could be used entirely differently depending on how the indicators are weighted (Diener & Suh, 1997). As such, there remains no definitive list nor an agreed procedure for weighting indicators (Diener & Suh, 1997). This further corroborates a belief of this research, that indicator lists should be devised and tailored to the context under investigation, and that comparing cities against indicators that are not directly relevant to them can be problematic and careless.

Table 4.7 is created using the fourteen key literature sources to derive a generic indicator list. The table states the indicator and attributes that describe the indicator; for example, the indicator 'Urban Infrastructure' can be further broken down to 'Streets and Roads' and 'Road Safety'. The table then provides a concise definition. A full table can be found in Appendix 9 which also includes the references that use each indicator and a list of evaluation criteria. The evaluation criteria is taken from the literature discussions and example surveys used by many of the case studies and it is used to develop the QoUL toolkit. This was a laborious task that involved categorisation and identification of indicators used in each of the studies. The table uses the four domains as discussed in Chapter Two: physical, social, economic and welfare to categorise the indicators. A full list of the indicators from every study can be found in Appendix 9, however a condensed version is provided in Table 4.7. This generic list is subsequently reviewed by the expert panel to add or remove indicators as required.

Derived Indicator List Table:

Physical Environment		
Indicator	Attributes	Concise Definition
Building Quality + Housing	Building upkeep + maintenance; Dwelling size; Home services; Garden; Outdoor Space; Satisfaction with home	That the building is a well-built structure, that is strong and solidly made, and well maintained. That the home meets the needs of the family that occupies it.
Urban Infrastructure	Streets + Roads; Road safety	That the streets, pavements and roads in the area are well built and maintained. That they feel safe for pedestrians and cyclists.
Density	Crowding; Privacy; Density	That there is enough space between houses and that the neighbourhood doesn't feel overcrowded. That residents have privacy in their homes
Urban Form	Degree of planning; Land use	That the neighbourhood has a variety of land use and spatial diversity.
Accessibility & Transport	Convenience of location; Public transport; Accessible to special users	That the location has convenient access to physical and social amenities; that it is conveniently connected to the rest of the city, that there is an opportunity to use public transportation
Open Space + Climate	Green space; Parks; Open space; Greenery; Vegetation; Climactic conditions.	That the neighbourhood has adequate green/open space parks for its residents. That it has naturally occurring features. Overall comfort from climatic conditions
Social Environment		
Social Relations	Family/household life; Social relationships	This relates to the persons relationships with their family and family status. Also, the relationships out with the family
Place Attachment	Residence in area; Moving intensions	If the resident is settled and attached to their area, or if they have the desire to move
Social Amenities	Public meeting places; Accessibility and availability of shops	This relates to if the neighbourhood has access to cultural, recreational and social activities/amenities.
Sense of Community	Neighbouring; overall sense of community	This relates to whether or not the participant feels that the community interact well together and have strong relations with neighbours.

Local Governance	Local government; Independence, choice + freedom	This relates to local leaders, if the resident feels they have running in their community
Identity	Personal identity; Cultural identity; Country identity	This relates to if residents have a strong identity or attachment
Economic Environment		
GDP + Poverty Rates	GDP per resident; poverty rates	This relates to the gross domestic product of the people in the area.
Household Income	Gross monthly income to the household	This relates to the financial situation of a family in the neighbourhood.
Household Expenditure	Housing costs; Material possessions	This relates to the material possessions that the occupant owns. This gives an indication of wealth and spending choices.
Work Status	Job Status; Housewife; Travel to work	This indicates the main job (if any) of people in the area. It discusses their feelings about their job, and the employment opportunities in the area.
Education Status	Personal education; Neighbourhood education	This relates to school attendance, and educational attainment of the resident and neighbourhood
Education Services	School buildings	This relates to the physical buildings where education takes place
Well-Being Environment		
Physical Well-Being	Long-term health; Short-term health	This relates to the physical health of the resident over recent years
Emotional Well-Being	Stress; Anxiety; or Satisfaction of resident	This relates to the emotional health of resident over recent years
Health Services	Clinics; Hospitals; local healthcare facilities	This relates both to the provision of services, and the quality of those services.
Environmental Services	Bin Services;	This relates both to the quality of environmental services, and access to the environmental services
Personal Safety	Perception of crime; Perception of safety in home	This relates to the resident's perception of how safe they feel
Neighbourhood Safety	Perception of crime; Perception of safety in streets	This relates to crime rates, and if they feel safe in the streets of the neighbourhood

Table 4.7 Derived Indicator List

4.2.10 Conclusion on Indicators:

Physical Environment	Social Environment	Economic Environment	Well-Being Environment
Building quality Housing Urban Infrastructure Density Urban Form & Neighbourhood Type Accessibility & Transport Green & Open Space Climate	Social Relationships Place Attachment Social Amenities Sense of Community Local Governance Identity	GDP & Poverty Rates Household Income Residential Expenditure Work Status Education Status Education Services Tenure & Home Ownership	Physical Well-Being Emotional Well-Being Health Services Environmental Services Personal Safety Neighbourhood Safety Natural Disasters

Table 4.8 Conclusion on Indicators

The main indicator groups are taken from Table 4.7 and summarised in Table 4.8. The intention is to have a relatively equal number of indicators in each category; each classification is home to five or six indicators. The indicators written in blue are added by the author and are elaborated on in Chapter Five. These indicators form the basis of the expert assessment in Section Two.

4.3. Expert Panel Assessment:

A panel of Malawian experts are asked to provide feedback on the proposed indicator list. The initial steps of this process were discussed in length in Chapter Three, Section 5.3; including the sample size and how the survey instrument was designed. The following section discusses the experts, how they are selected, and the results produced by this method and concludes with a revised, refined diagrammed indicator list for use in the PhD fieldwork.

4.3.1 Expert demographics and how they are selected:

QoUL spans many disciplines, therefore the expert panel includes a range of categories of expert including academics, government officials and NGO staff. This takes its stimulus from the (Lofti & Solaimani, 2009) study that used experts to judge their QoUL indicator list to formulate the dimensions that are relevant to their case study. Due to the context-specific nature of the work, it is fundamental that the experts live and work in Malawi, and ideally, are Malawian themselves.

4.3.1-1 Academics:

Academic 1- Human Ecology Academic University of Malawi

Academic 2- Human Geography Academic University of Malawi Chancellor College

Academic 3- Lecturer in Urban Planning, Polytechnic University of Malawi

The researcher approached academics at Malawian universities within relevant disciplines. This gained a positive response from an academic within the Human Ecology department at the University of Malawi. He has a PhD in human geography and social sciences, therefore, provides extensive knowledge to the panel. He was then able to recommend two other contacts that he believed would be suitable for the study. This brought a second lecturer to the panel who is an expert in urban development from the University of Malawi Chancellor College. He has a PhD in urban and regional planning and development geography, therefore, also has wide-ranging knowledge of the factors affecting QoUL to Lilongwe's residents. The third expert in this category is a lecturer in urban planning at Malawi's Polytechnic University. He is head of the land surveying and physical planning department thus has a solid knowledge of the urban environment. He was contacted directly due to his position in the university. This category of expert is essential as they have an in-depth theoretical knowledge of the aspects of urban life that affects Lilongwe's residents.

4.3.1-2 Government Officials:

Government Official 1- Development Planner for Zomba City Council/ Human Ecology Academic University of Malawi

Government Official 2- Department of Surveys – GIS and Remote Sensing Expert

Government Official 3- Planning Department of Lilongwe Government

'Government official 1' is a development planner for Zomba city council and is also a part-time lecturer in housing and development within the department of Human Ecology at the University of Malawi's Chancellors College. As such, he has both academic and governmental knowledge on the factors affecting the daily life of urban residents, making him an instrumental member of the expert panel. He was recommended to the research by one of the academic experts.

The second member of this category is a GIS expert at the Department of Surveys. The researcher was in contact with the Department of Surveys to get access to a GIS map of Lilongwe, and through these discussions also asked for a member of the department of surveys to join the expert panel. The Department of surveys is the official agency of the Government of Malawi on all matters of land surveying and mapping. They are an essential government body as they provide geospatial

information to the government, businesses, and developers. Their work underpins decision making, supports economic growth and helps to tackle issues such as resource management. As such, they are a fundamental organisation for the expert panel as it is this knowledge of resource management that drives a QoUL study. 'Government official 3' is included here; however, he did not take part in this step of the research. Nevertheless, he is a fundamental expert for editing and preparing the QoUL survey and met the researcher as part of the fieldwork.

4.3.1-3 Non-Governmental Organisations (NGOs):

NGO 1- Malawi Scotland Partnership

NGO 2- Water Aid Malawi

NGO 3- Habitat for Humanity - Civil Engineer

NGO4- The Centre for Community Organization and Development (CCODE)

NGO5- The Centre for Community Organization and Development (CCODE)

NGO6- Chisitu Action for Development (CAD)

The third group of experts are those who work in high positions of various Malawian NGOs. The first NGO contacted was the Malawi Scotland Partnership (MSP). They are a Malawian led national network which exists to support links between Scotland and Malawi. They form a hub of Malawians organisations linked with Scotland, sharing knowledge and resources between both countries. The organisation consequently has excellent knowledge of what work is being conducted in Malawi by various NGOs, thus understand the conditions of urban life for the city's residents. One member of the MSP joined the expert panel. The researcher followed this discussion by asking if they could recommend other NGO's working in Lilongwe, to which they provided Water Aid Malawi's details. Water Aid is an excellent NGO that works across 28 countries, improving access to clean water and sanitation. They are thought to be one of the most respected organisations dealing with water, sanitation and hygiene issues, therefore their contribution to the expert panel was greatly appreciated.

The third NGO approached by this investigation was Habitat for Humanity. They were selected after the researcher read about them in the Malawi Urban Housing Sector Profile (UN-Habitat, 2010). This report describes them as one of the key players in housing, stating that they have been providing houses in Malawi since 1986. They have helped to build nearly 6,500 houses, working on the ground with residents to construct their homes (UN-Habitat, 2010). As such, they have excellent knowledge of the daily life of Lilongwe's residents, so their contribution to the expert panel was much appreciated. Following this, another NGO that was contacted was the Centre for Community Organisation and Development (CCODE). They were also described as

one of the key players in housing in the Malawi Urban Sector Profile. They work in alliance with the Malawi Homeless People's Federation (MHPF) on issues of urban poverty in most urban centres in Malawi (UN-Habitat, 2010). As such, they work on the ground, thus understand the conditions of QOUL for residents. Both Habitat for Humanity and CCODE are well respected NGOs who contribute to housing in Lilongwe. CCODE was kind enough to provide two staff members to contribute to the expert panel, which is hugely appreciated.

The final NGO member involved in the project is a previous colleague and friend of the researcher. They previously worked together at his NGO, therefore he was asked to contribute to the study. His NGO, Chisitu Action for Development, works on community projects such as classroom construction and school teaching, thus he has sound knowledge on issues affecting communities in Malawi. This category of expert is fundamental as NGO's work directly with people in communities, therefore, are aware of many of the residential issues. Between these eleven panel members that contributed to the survey, there is a vast knowledge of different aspects that affect urban life in Lilongwe.

4.3.2 The Questionnaire:

Q3. How important are each of the following physical indicators in the daily life of Lilongwe's residents?
Please put a cross where appropriate

Physical quality of urban life indicators	Not at all Important	Less Important	Somewhat Important	Most Important
1.1 Building and House Quality This includes the materials used, dwelling size, and overall quality of home				
1.2 Physical Urban Infrastructure This includes the quality, safety and legibility of neighbourhood streets and roads				
1.3 Density This includes if the neighbourhood is overcrowded, the concentration of buildings and privacy felt in residents home/outside space				
1.4 Urban Form & Typology This includes if the neighbourhood is high density, medium density, low density or a quasi-residential area.				
1.5 Urban Transport & Accessibility includes availability, quality and type of transport, as well as neighbourhood proximity to work & city				
1.6 Ecological Quality This includes the green and open space in the neighbourhood, for recreation and events, as well as the families farming and cultivation.				

Q3b. Having reviewed the 6 physical quality of urban life indicators, do you feel that there are any missing that should be added to this investigation?

Figure 4.4 Example of Expert Questionnaire- Source The Author

The questionnaire design is discussed in depth in Chapter Three, Section 5.5: 'Expert Panel'. Principally, as illustrated in figure 4.4, the experts are provided with the various indicators, which are categorised into the four domains. Each indicator included a concise definition to avoid any misunderstanding. The experts are also provided with an accompanying booklet which states detailed definitions for each indicator as illustrated in figure 4.5. The full booklet can be found in Appendix 1.



Figure 4.5 Expert Booklet

4.3.3 Findings of Expert Panel Assessment:

Having received all the results from the experts, the researcher then conducted the quantitate analysis using Microsoft Excel. The literature presents that there is not one specific approach to examine the validity of expert panel results (Almanasreh et al., 2019). The methods used in this study are first to evaluate the inter-rater agreement, then to calculate the mean and median result for each indicator. Indicator ranking is subsequently compared by expert group for a discussion of the various indicators prioritised by expert backgrounds. This is followed by a discussion of the open-ended questions, and finally, the indicators are refined and revised based on the expert opinions.

4.3.3-1 Inter-rater Agreement

Before evaluating which indicators are seen as necessary for the study, it is vital to assess the inter-rater agreement (IRA). This is a method used to understand how representative the mean score for each indicator is (Rubio et al., 2003; Grant & Davis, 1997). The original 4-point Likert scale is dichotomised, seeing the values of one and

two combined, and the values of three and four combined (Rubio et al., 2003). The researcher sums the number of times respondents rates an indicator within the more dominant grouping and divides that by the number of responses. The acceptable inter-rater agreement suggested in the literature ranges from 0.70 to 0.80 (Grant & Davis, 1997). Due to the subjective nature of this research, the research uses 0.70, or 70%, as an acceptable inter-rater agreement.

Inter-rater Agreement:

Indicators	Inter-rater Agreement	1-2 or 3-4	As a percentage	(Un) Acceptable
Building & House Quality	10	3-4	100%	Acceptable
Household Income & Expenditure	10	3-4	100%	Acceptable
Physical Urban Infrastructure	10	3-4	100%	Acceptable
Urban Transport & Accessibility	10	3-4	100%	Acceptable
Work Status	10	3-4	100%	Acceptable
Density	9	3-4	90%	Acceptable
Environmental Services & Basic Infrastructure	9	3-4	90%	Acceptable
Health Services	9	3-4	90%	Acceptable
Physical Well-Being	9	3-4	90%	Acceptable
Tenure & Home Ownership	9	3-4	90%	Acceptable
Urban Form & Neighbourhood Typology	9	3-4	90%	Acceptable
Local Governance	8	3-4	80%	Acceptable
Sense of Community	8	3-4	80%	Acceptable
Urban Safety	8	3-4	80%	Acceptable
Education Status	7	3-4	70%	Acceptable
Emotional Well-Being	7	3-4	70%	Acceptable
Poverty Rates	7	3-4	70%	Acceptable
Public Meeting Spaces	7	3-4	70%	Acceptable
Ecological Quality	6	3-4	60%	Unacceptable
Natural Disasters	6	3-4	60%	Unacceptable
Personal Relationships	6	3-4	60%	Unacceptable
Place Attachment	6	3-4	60%	Unacceptable
Identity	6	1-2	60%	Unacceptable
Overall Agreement Across the Survey	191/23 =8.3	Either	83%	Acceptable

Table 4.9 Inter-rater agreement

The results show that 18 out of the 23 indicators have an acceptable IRA. The bottom five indicators, representing 21% of the overall list, have an unacceptable IRA. This, therefore, means that while some experts see these as essential indicators for reviewing QoUL, others feel that they are either less important or not important. This is to be expected with the subjective nature of the survey. It can be understood that while an indicator such as personal relationships may be deemed as necessary to one expert, another may feel this is less important to the daily life of Lilongwe's residents. The overall IRA can then be calculated by summing the IRA across all 23 indicators and dividing that by 23. This gives an overall IRA of 83% presenting that the experts mostly agree about which indicators they deem as necessary in the study, thus the research can progress to the next step of the analysis.

4.3.3-2 Content Validity Index (CVI) vs. the Mean

The literature presents different ways to quantify which of the indicators are perceived as valid for use in the following work. Establishing a content valid measure of a theoretical concept can be complicated (Almanasreh et al., 2019). One method is the content validity index. This is calculated by determining the proportion of experts who scored an item as relevant by using a score of either 3 or 4 and dividing that by the number of experts (Almanasreh et al., 2019; Grant & Davis, 1997; Rubio et al., 2003). It is argued that even although one or more expert may disagree about the indicator's importance, it may still be content valid. This disagreement can be accepted if over six experts are used (Polit & Beck, 2006; Rubio et al., 2003). An issue with the CVI is that it is seen to throw away information by categorising the expert's multipoint ratings into two categories of relevant or not relevant (Polit & Beck, 2006; Almanasreh et al., 2019) as opposed to the 4-point scale that indicates how relevant an indicator is.

As such, this research uses the full 1-4 scale that was given to the experts and calculate the mean for each indicator. This provides a more detailed score for the indicators to see which are deemed as acceptable or unacceptable to take forward to the fieldwork. The table presents the ranking scores as percentages as this is commonly used in the literature to determine which indicators experts deem as acceptable. The research is using a scale suggested by Hyrkäsa et al. (2003) that states that over 79% should be deemed as acceptable, between 70 and 78% should be thought of as questionable, and below 69% is considered unacceptable. Table 4.10 presents the quantitative assessment aiding to rank the indicators from most to least important. This includes how many times each indicator was scored with each number, and an overall average for that indicator, for example, 'Health Services' was rated '2-Less important' once, '3-Somewhat important' once, and '4-Most important' nine times, thus averaging a score of 3.7 or 93%.

4.3.3-3 Quantitative Assessment of Indicator Ranking:

	Not Important	Less Important	Somewhat Important	Most Important	Mean Score	As a Percentage
Household Income & Expenditure	0	0	0	11	4	100%
Work Status	0	0	2	9	3.8	95%
Health Services	0	1	1	9	3.7	93%
Building & House Quality	0	0	3	8	3.7	93%
Urban Transport & Accessibility	0	0	3	8	3.7	93%
Physical Urban Infrastructure	0	0	3	8	3.7	93%
Physical Well-Being	0	1	2	8	3.6	90%
Urban Safety	0	2	1	8	3.5	88%
Environmental Services & Basic Infrastructure	0	1	3	7	3.5	88%
Urban Form & Neighbourhood Typology	0	1	4	6	3.5	88%
Density	0	1	4	6	3.5	88%
Tenure & Home Ownership	0	1	4	6	3.5	88%
Local Governance	0	3	2	6	3.3	83%
Personal Relationships	0	4	0	7	3.3	83%
Education Status	0	3	3	5	3.2	80%
Poverty Rates	1	2	3	5	3.1	78%
Public Meeting Spaces	1	2	3	5	3.1	78%
Emotional Well-Being	2	1	3	5	3	75%
Natural Disasters	1	3	2	5	3	75%
Ecological Quality	0	4	3	4	3	75%
Sense of Community	0	2	8	1	2.9	73%
Place Attachment	0	4	5	2	2.8	70%

Table 4.10 Quantitative assessment of indicator ranking

15 of the 23 indicators gained a score of 3.2 (80%) or higher thus are validated as essential elements of urban life in Lilongwe, and as such, are included in the fieldwork. This is illustrated by the green line on Figure 4.5. Following this, five indicators scored between 3-3.1 (75-78%), while this is a high score, the literature classifies this as 'questionable', therefore these are investigated in more depth to decide which to discard and which to retain. The bottom three indicators; sense of community, place attachment and identity gained scores of 2.9-2.2 (73-55%) placing them in the invalid category. Nevertheless, they are still to be further investigated to determine their importance due to the subjective nature of the topic. These classifications are segregated using the red lines on Figure 4.6.

From reviewing this quantitative data table, it can be seen that two indicators stand out as being rated '1- Not important' twice or three times. These are 'Emotional well-being' and 'Identity'. Due to the highest number of experts deeming these indicators not necessary, they are removed from the study. The indicator mean scores are presented in figure 4.6 which includes three lines to illustrate the three categories.

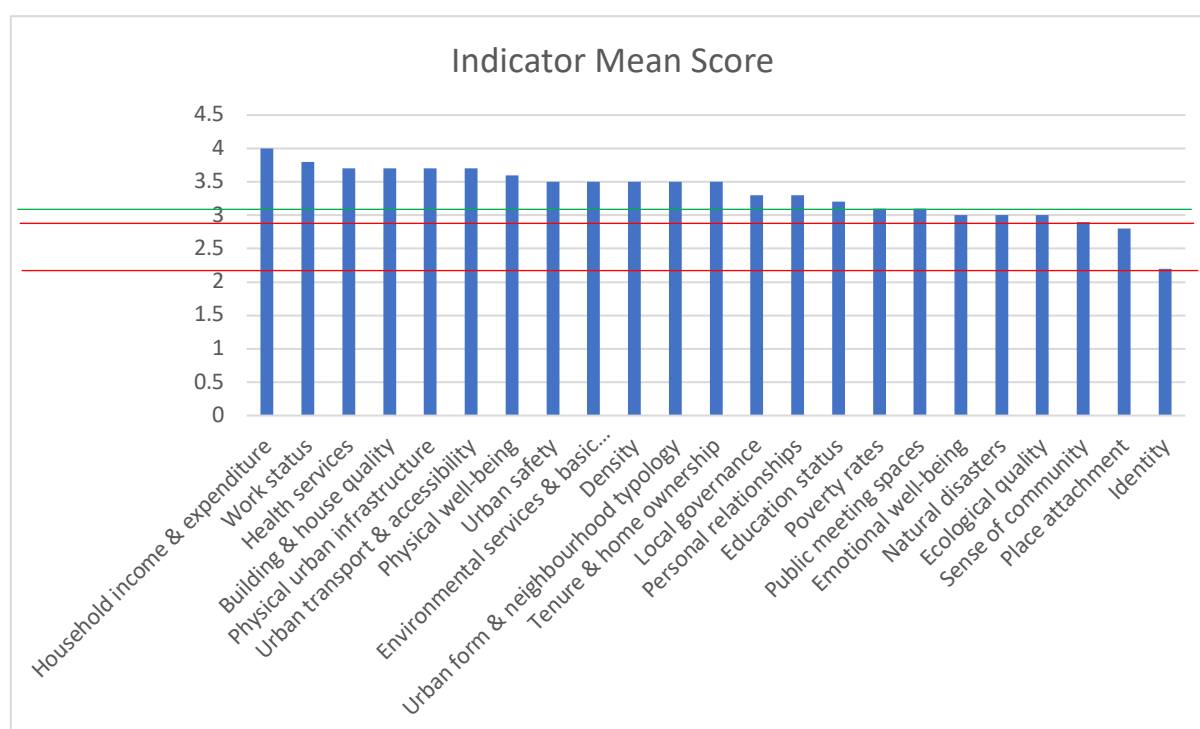


Figure 4.6 Indicator mean score

4.3.3-4 Comparison of Mean and IRA:

Reviewing the IRA and the mean together shows that the indicators that have a lower average, also have disagreement between experts regarding the indicators ranking. This is significant as it suggests that even the lower placed indicators are deemed important to some panel members. One which is particularly notable is 'Sense of community' where the IRA is higher than the mean on Figure 4.7. This is because 'sense of community' was scored '3-somewhat important' 73% of the time. This is significant, as although the mean score for this indicator is 2.9, the median and mode score is 3. This justifies retaining this indicator for use in the QoUL fieldwork, as it can be concluded that it is an essential indicator for life in Lilongwe.

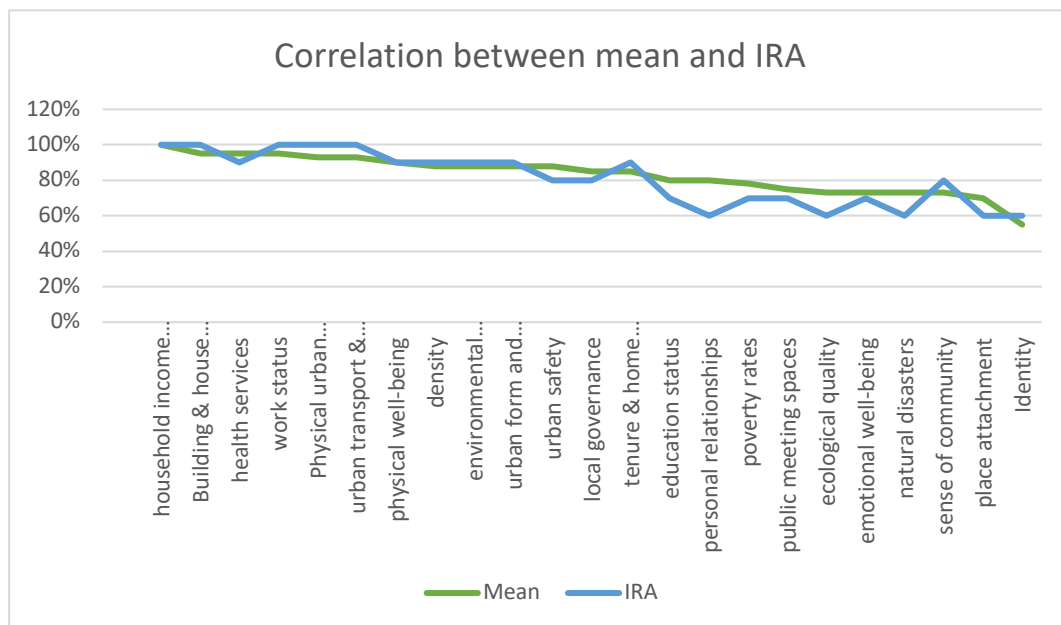


Figure 4.7 Correlation between mean and IRA

Comparing the mean and the IRA illustrates the subjective element of this study. This makes it vital to gain knowledge from a large number of experts as opposed to leaving the indicator selection to one individual. As such, the following section reviews which indicators are most important depending on the professional group.

3.3.3-5 Most important indicator by professional group:

Table 4.11 presents all indicators which scored 3.5 (88%) or higher, thus considered the highest-ranked indicators. The academic group have 13 indicators, government officials have 18, while the NGO only have 8 in this category. This is significant as it illustrates that the government officials have prioritised over double the number of indicators than the NGO group. The NGO is the largest group, while the government officials are the smallest group. Due to the ranking score, the government officials have less scope to influence the overall ranking.

Important Indicator By Professional Group:

Academics	Mean Rating	Government Officials	Mean Rating	NGO	Mean Rating
Household income and expenditure	4	Household income and expenditure	4	Household income and expenditure	4
Poverty rates	4	Work status	4	Work status	3.83
Health services	4	Physical well-being	4	Physical urban infrastructure	3.83
Environmental services & basic infrastructure	4	Health services	4	Building and house quality	3.67
Building and house quality	4	Urban transport and accessibility	4	Urban transport and accessibility	3.67
Physical urban infrastructure	3.67	Tenure and home ownership	4	Personal relationships	3.67
Density	3.67	Density	4	Physical well-being	3.67
Urban form and neighbourhood typology	3.67	Urban form and neighbourhood typology	4	Health services	3.5
Urban safety	3.67	Urban safety	4		
Work status	3.67	Building and house quality	3.5		
Education status	3.67	Physical urban infrastructure	3.5		
Urban transport and accessibility	3.67	Sense of community	3.5		
Natural disasters	3.67	Natural disasters	3.5		
		Place attachment	3.5		
		Public meeting spaces	3.5		
		Local governance	3.5		
		Identity	3.5		
		Environmental services & basic infrastructure	3.5		

Table 4.11 Important indicator by professional group

The indicators which are highlighted in green are the ones which are placed in the invalid or questionable category based on their mean score alone. This is interesting as it shows that the NGO group are the only ones who do not have any of the overall low ranked indicators within their set. This is significant because the NGO is the largest subset, therefore, they might be controlling a reasonable number of indicators that are in the bottom category.

It can be seen that 'Natural Disasters' is included in two of the expert groups top priority indicators; as a country, Malawi is vulnerable to climatic variabilities and extreme weather events. The most recent flood was Cyclone Idai which devastated Mozambique, Zimbabwe and Malawi. However, the majority of the damage was in the Southern region of Malawi, not Lilongwe. Perhaps this is why it is not included as a top priority by the NGO experts. Natural disasters and their effect on QoUL are less tangible indicators than many of the others; however, the effects of natural disasters are often felt as spill-over effects in other indicators. Natural disasters are retained due to it being considered of high importance by two of the expert groups, however, it may be investigated through spill-over questions and objective data analysis as opposed to through the residential attitude survey.

4.3.3-6 Median Indicator Scores:

The median is the middle number of the data set when ordered from least to greatest. Figure 4.8 displays the median score for all indicators. The graph brings to the foreground that the indicator 'Identity' has a median score of 2. This is an unacceptably low median score, and it is the only indicator with this low median. This, combined with the low mean, results in this indicator being removed from use in the fieldwork. This is the only indicator to score below a median of 3 which is encouraging for the remaining 22 indicators.

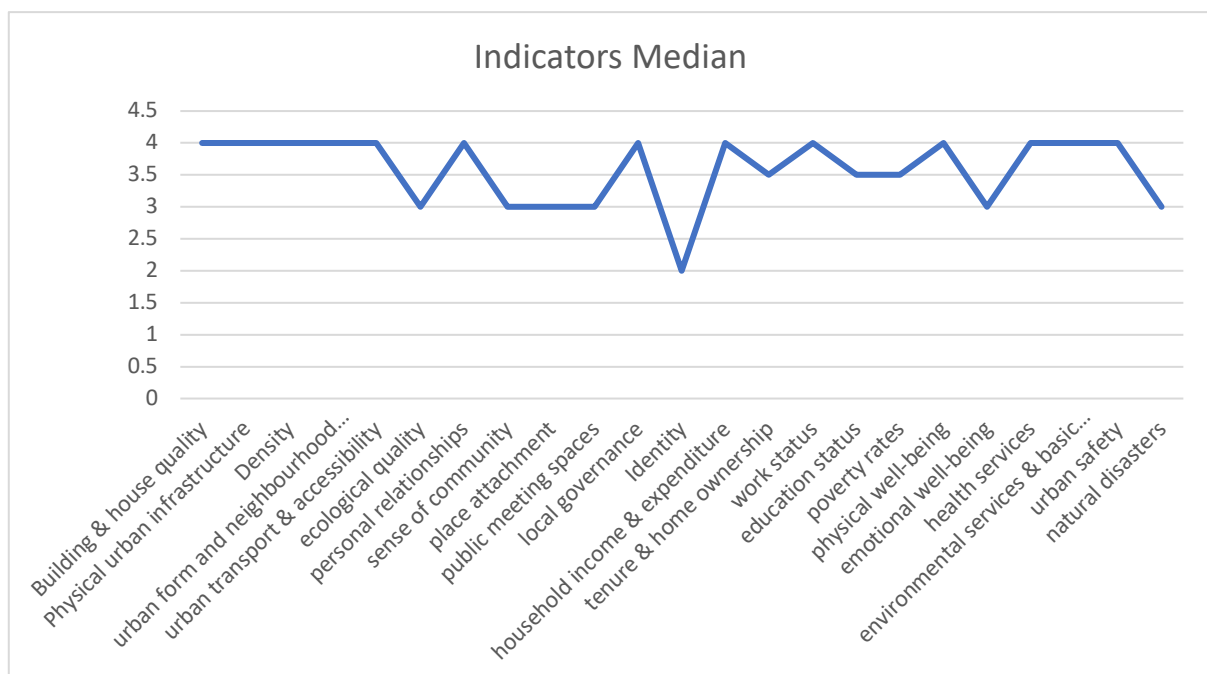


Figure 4.8 Indicator median score

4.3.4 Themed responses, the qualitative assessment.

Collecting expert's comments for judgement is a further important part of the survey. Each of these responses is enlightening and is considered in the design of the QoUL toolkit. The written feedback is summarised and split into five main themes depending on if they relate to physical, social, economic, well-being or summary sections. Table 4.12 then includes which question they are in response too, and which professional group the expert was a member of.

Themed responses		
Relating to physical domain	Response Question	Professional Group
Urban parks	3b	Academic
Consider area of impact of migration on physical parameters of quality of urban life	8	NGO
Relating to social domain		
Social amenities like schools and hospitals	3b	NGO
Relations in terms of culture, status between poor and rich people	4b	Government
Relating to economic domain		
Number of children who are working (the assumption is that others would be better off if they have people who assist them economically)	5b	NGO
Probable land tenure issues, most urban dwellers are renting	6b	NGO
Economic indicators of people (average urban dweller)	3b	NGO
The investigation should also include retailers of merchandise such as groceries so as to determine the expenditure levels in different locations	8	NGO
Relating to well-being domain		
Something to do with amenities like availability of water and electricity	3b	Academic
Access to water and energy are also important elements	3b	Academic
You might wish to consider delivery of utility services (water, electricity, communication)	3b	NGO
Waste pollution	3b	NGO
Summary		
Investigation seems to be of high quality	8	NGO
The indicators have been well developed and cover a wide set of parameters	8	Government
I think the indicators are good enough to know about urban life	8	NGO

Table 4.12 Themed responses

An expert communicated the need to include 'urban parks' within the QoUL toolkit. This relates to the questionable indicator 'ecological quality'. As such, 'ecological quality' as it relates to urban parks and large open spaces is retained in the indicator list. Another expert expressed the need to consider the impact of migration on QoUL. This brings into question the indicator 'Place Attachment' as it relates to how attached a resident feels to their urban environment, thus their desire to migrate. As such, place attachment is retained and should include discussion about migration in Lilongwe.

The responses that relate to the well-being category are stated at the end of question 3, which was discussing the physical quality of urban life. This is significant to note, as the majority of the questions relate to the delivery of basic infrastructure, which is then included later in the questionnaire. As such, they are all addressed by the indicator 'Environmental Services & Basic Infrastructure'. The responses concerning the economic domain have aided in the construction of the survey tool to ensure that it is addressing the economic indicators of the average urban dweller and includes all sources of income to the household, not just asking the individuals' occupation. Land tenure issues are also addressed by the indicator 'Tenure and Home Ownership'. Finally, three experts expressed that the indicators are high quality, and cover a comprehensive set of parameters, which further validates the indicator choice for use in Lilongwe.

4.3.5 Methods to gain information:

The final section of the survey aims to understand how the experts recommend sourcing data in this context. Of the eleven experts surveyed, seven completed this question in full. This is likely to be due to the way the question was formatted on the online survey as it appeared over numerous pages. Experts are provided the various methods and the indicators and asked to select multiple methods if they believe that more than one is applicable.

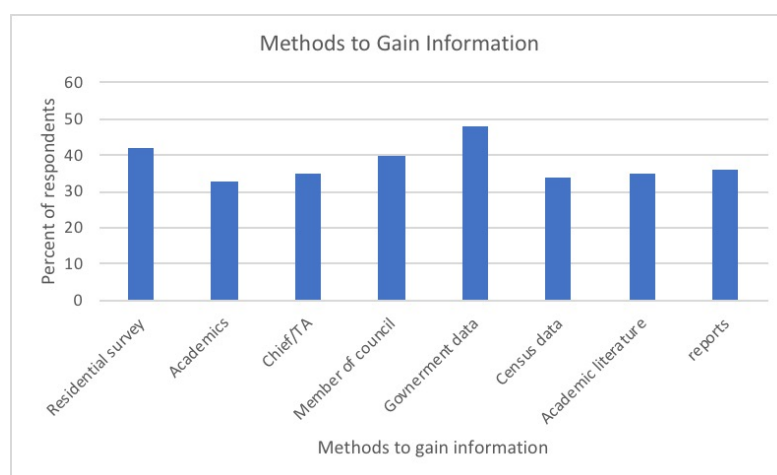


Figure 4.9 Methods to gain information

The results displayed in Figure 4.9 suggest that the two most frequently recommended methods for gaining information are to review government data or utilise a residential survey. This provides a primary and secondary data collection technique to provide both subjective and objective data on QoUL. This information is strongly considered for designing the QoUL toolkit. The results also illustrate a wide range of methods which may be used for each indicator, showing that there are numerous ways to conduct a survey on QoUL in Lilongwe. It also demonstrates that there is no perfect solution, as all experts did not fully agree on the indicators to select. This corroborates the discussion in Section 2.6: Methods and Tools Used as it states that there is not an agreed method for investigating QoUL. A detailed breakdown of which methods are appropriate for which indicators can be seen in Appendix 9.

4.4. Conclusion:

This chapter has used an extensive method to provide a validated indicator list. It combined a case study comparison with an expert assessment to conclude with 21 indicators to assess QoUL in Lilongwe. The process of analysing and investigating exemplar case studies had three main objectives; one was to derive the indicator list for use in the fieldwork, and the second was to obtain insight into the methods and tools used in the discourse, and third was to learn valuable lessons from the other scholars conducting similar research to mirror in the fieldwork. This research concludes with the main lessons that are taken forward to the fieldwork and reflects on the indicators which are essential for the fieldwork.

One lesson from the case-study comparison is the importance of testing the proposed indicator list before fieldwork. This can be done through numerous methods, however, this research used the expert panel assessment. This successfully confirmed the indicators that are relevant to the specific environment being investigated in the

research fieldwork. The second lesson from the case study comparison is the importance of surveys. Scholars confirmed the need for surveys as they are a useful method for gaining the perspective of residents. Shafer et al. 2000 disclose that on-site questionnaires gain high response rates. This typically gains a higher response rate than the post or online questionnaires, therefore, this is a desirable method to use in the fieldwork. By conducting the surveys face-to-face, the tool operators can ensure they are reaching a varied demographic. This is important because different groups may have different perspectives on the urban environment, thus, it would not be desirable to miss a full group from the survey. If a research project elects to use face-to-face surveys, it should be careful to select streets at random to remove bias from the research.

Westaway & Gumede (2001) case study disclosed that local people make good fieldworkers because they know the areas well and are not intimidating to occupants of the area. This is another important lesson from the case-study comparison which this research uses in the data collection. Marans & Kweon (2011) case study taught many lessons on conducting QoUL fieldwork. One of which is for the fieldworkers to gather extra objective information about the dwellings that they visit while conducting the surveys. This research adapted this concept and used walk-through observations in the neighbourhoods to gather objective information on the dwellings in the neighbourhoods. The final lesson with regards to surveys is that using complementary tools can be an effective way to gather data. For example, using both on-site questionnaires and mail questionnaires will gain a higher volume of responses. While this is an excellent lesson, rather than combining two types of survey, this research instead utilised both surveys and observation methods. The study by Gavrilidis et al. (2016) study was a motivation for using direct observations in the QoUL toolkit. Observations complement face-to-face surveys as they can gain results in a short period and conclude on the specific areas of the landscape that require improvement. Direct observations provide a graphic insight into the examination of the streets. This illustrative research complements the numerical data provided by surveys. The case-study comparison disclosed that neighbourhoods vary, therefore best practice is to observe the context at different periods. As such, the research was careful to visit settings at different days of the week, and various periods of the day.

Sandru's (2012) research discussed that if the research aims to represent a full city by investigating a number of neighbourhoods, a small sample can be satisfactory to characterise the cities condition. The small sample is only acceptable if the research is careful to select neighbourhoods which are diverse from one another to represent the heterogeneity of the city. Selecting the case-study neighbourhoods was discussed

in Chapter Three, and was influenced by Sandru's (2012) study. Finally, another important lesson from the case-study comparison is the need to segregate and store information into different data sets. This allows the analysis to explore the relationship between different factors which can be thought-provoking and provide vital information for policy-makers and planners in the cities. From this case-study comparison, the research is well-informed on the best practice for conducting a QoUL study.

Having established the methods of practice to conduct a QoUL study, the chapter then validated 21 of the 23 indicators as necessary for the research fieldwork, which can be seen in Table 4.13. These are debated by the expert panel which included those experienced in urban planning through the government, those experienced with theoretical concepts through academia, and those experienced with the lived-in life of citizens through NGO members. The researcher aimed to retain as many indicators as possible to provide a wide-ranging view of QoUL in Lilongwe. It is the opinion of the researcher that 'identity' and 'emotional well-being' are the only two indicators which require removal from the study. This is due to their low mean and median scores, with the highest numbers of experts deeming them 'not important'. The expert panel assessment is a suitable method for deriving QoUL indicators as it is a complex phenomenon; thus, the selection of indicators requires a rigorous deep method to ensure the correct indicators are used in the study.

4.4.1 Retained and removed indicators:

Physical Indicators	Social Indicators	Economic Indicators	Well-Being Indicators
-Building and House Quality -Physical Urban Infrastructure -Urban Transport & Accessibility -Density -Urban Form & Neighbourhood Typology -Ecological Quality	-Local Governance -Personal Relationships -Public Meeting Spaces -Sense of Community -Place Attachment	-Household Income & Expenditure -Work Status -Tenure & Home Ownership -Education Status -Poverty Rates	-Health Services -Physical Well-Being -Environmental Services & Basic Infrastructure -Urban Safety -Natural Disasters
Removed Indicators			
	-Identity		-Emotional Well-Being

Table 4.13 Retained and removed indicators

This information is displayed across Figures 4.10-4.13, which includes the attributes of the indicators as expressed in the table in ‘Section 2.7-Indicators’. These indicators and their attributes provide the starting point for a further investigation through African urban literature in Chapter Five, to fully contextualise the discussion before the fieldwork. The indicators that are removed are coloured in red. The indicators which are classified as questionable by the mean score but are retained by the discussion are coloured in orange. The indicators which are fully validated from the initial step are coloured in green. Chapter Five contextualises each indicator to Lilongwe to fully understand what the indicator describes for the lived-in life of Lilongwe’s residents, before the fieldwork. Visually, these diagrams display that economic and physical domains are considered as most relevant to the expert panel. The social domain has several questionable indicators, however only one is entirely removed from the study. Similarly, the well-being domain has lost one indicator.



Figure 4.10 Physical QoUL Indicators





Figure 4.13 Wellbeing QoUL Indicators

The results of the expert panel method have been formatted into a report which has been returned to each of the experts to review. This allows them to state if they believe any mistakes are made, or if they are happy with the results. The researcher also extended an invitation to meet any of the experts for a follow-up interview, or for them to be involved in the data collection. The report gained positive responses from the experts who expressed that they felt the report was easy to understand and that they are happy with the results. Six members of the expert panel also expressed an interest to meet for a follow-up meeting, or to be involved with the fieldwork. This resulted in the CEO of a community group overseeing the survey data collection, as well as helping to recruit three fieldwork assistants to conduct the residential surveys plus meetings with members of the Malawi government and a follow-up meeting with a university academic while in Lilongwe. The fieldwork is discussed in full in Chapters Six and Seven of the theses. Chapter Five will now return to the indicators displayed across Figures 4.10-4.13 to contextualise their meaning within Malawi.

Chapter Five: Contextualising the QoUL Indicators to Lilongwe, Malawi.

5. Introduction:

Having reviewed the QoUL literature, models and case studies to determine the general domains and indicators that are required to conduct a QoUL study, this chapter contextualises the research to Lilongwe, Malawi. It concludes with a revised indicator model for the quality of urban life in Malawian cities that is used in the fieldwork based on a literary understanding of the concepts. The indicators are discussed using the structure of the four domains of urban life as extracted from the literature discussion in Chapter Two namely; physical, social, economic and well-being domains.

Each domain has five or six indicators which are discussed individually within the contextualised literature. These indicators were derived through the case study comparison and expert panel assessment in Chapter Four, however, here their specific meaning is deliberated to dwellers of Lilongwe's neighbourhoods. This process is necessary because factors of urban life have different meaning and significance in different contexts, therefore, it is fundamental to discuss their meaning within Malawi and Lilongwe to ensure the correct questions are being addressed by the research. This is a central theme of the research, therefore this chapter is essential for contextualising and authenticating the research indicators. The indicators are deliberated based on Malawian literature where possible, however, due to the lack of scholarly work related to Malawi, at times the research has used literature that is based on Eastern and Southern African cities. This reiterates the need for additional scholarly work on ESA cities, as often they remain in the periphery of urban discussions thus there is a lack of literature specifically on Malawian urban settings.

The objective of this chapter is to create a scholarly space that discusses urban life in Malawi. The findings from this chapter are empirically tested in the subsequent chapters based on the results from this literature review to validate or contest the literary discussion. This chapter is essential for contextualising the indicators prior to the fieldwork to ensure the fieldwork methods are investigating the correct factors and phrasing the questions correctly to understand the important aspects of urban life in Lilongwe.

5.1 Physical Domain

This section discusses the six indicators associated with the physical quality of urban life, to contextualise the research to urban life in Lilongwe. This takes its basis from the indicator discussion in Chapter Four. This section discusses these aspects of urban life and concludes with a revised indicator model that reflects the various factors of the physical environment that affects QoUL in Lilongwe. The physical indicators are discussed in the order that the experts prioritised them.

5.1.1 Building a Housing Quality

A house provides much more than shelter (Hansen, 1997). The home space reflects both the physical space, including house, annex, gardens and the social way in which people live in the space (Jenkins, 2013a). The housing need of the resident varies widely depending on the family size, stage in the family cycle, and if the home is used for income generation (Jenkins, 2013a). The built structure of a home is synonymous with a host of activities and social relations as well as a place for residents to dwell. The household can thus be seen as the primary organisational unit of urban society (Rakodi, 2014).

Residents of certain Malawian neighbourhoods are expected to erect their own houses, which is discussed further in Section 1.4. This varies according to their finances, tastes and family needs. The majority of houses in lower income neighbourhoods have been built using similar materials and indigenous house style. For the most part, houses in Lilongwe and across Malawi are single storey detached family houses (Gerke & Viljoen, 1968). When the neighbourhoods were planned, they were designed to be low density with large plot sizes. This was socially appropriate for Malawians based on three primary factors: one is that Malawians have a strong attachment to the land, which they were expected to retain even in an urban setting (Gerke & Viljoen, 1968). The majority of Malawians partake in gardening to produce food for consumption, therefore it was believed that there would be minimal land wasted. A second reason for the detached bungalow is that there is a strong social resistance to semi-detached, row or multi-storey flats. This is because Malawians feel they are individualists and are accustomed to open space (Gerke & Viljoen, 1968). The third factor contributing to the low-density planned neighbourhood layout was to reduce the chances of health problems associated with overcrowding (Gerke & Viljoen, 1968).

Area 49 is a traditional housing area in Lilongwe, and is a neighbourhood used in the PhD fieldwork. Here, many houses are made from adobe bricks (Manda, 2007). This

building material is a more robust version of the sunburnt mud brick used in the majority of poor urban houses (Manda, 2007). This neighbourhood typically uses lime plastering instead of cement to keep costs down, while cement is used for floors and foundations (Manda, 2007). Over recent years, urban dwellers have been moving from non-permanent to permanent building materials. This includes cement slab floors, iron sheet roofing, and timber rafters (Jenkins, 2013a). Housing typology today is a mixture of modern and traditional. Important traditional aspects of housing typology that remain in use today includes the separation of the lived in spaces from functional areas. This sees cooking and sanitation areas continuing to be found in external parts of the home, far from the living space (Jenkins, 2013a). Verandas remain a significant part of the house typology, providing a transitional space from the private home to the public street.

5.1.2 Urban Transport & Accessibility

Urban transport and accessibility are essential aspects of a person's QoUL as they relate to their ability to reach various economic and social facilities. This includes their place of work or education, their healthcare and their leisure facilities. Pirie (2014) found that residents of many African cities feel existing transport currently performs less well than they would wish across almost every indicator in respect of cost, delays, inconvenience, danger and discomfort.

All people need to move in order to carry out activities that provide access to essential resources and to satisfy their basic needs. As such, urban travel is seen as a means of assisting people in poverty (Godard, 2011). Transport systems provide accessibility to employment, health, education, water and energy supplies (Howe, 2001). Access to transport can, therefore, positively contribute to poverty alleviation and QoUL. A related consequence of transport is that it also enables more involvement and participation in civil society by giving residents access to community social capital (Godard, 2011; Pirie, 2014). The cost of public transport excludes many peripheral urban residents from accessing transport. These residents could therefore feel stranded in their neighbourhoods, where there are likely to be fewer job prospects (Godard, 2011; Pirie, 2014). A comprehensive literature review on household transport expenditure in sub-Saharan African cities by Olvera, et al., (2008) found that transport is a significant component of poor-household expenditure and that using public transport daily is unaffordable for much of the underprivileged population. This reinforces the trend to stay in one's district, which hinders economic and social capital assets (Olvera et al., 2008).

Modes of Travel Used in ESA Cities:

The three most used transport types in ESA cities are walking, public transport and cycling (Howe, 2001). Howe's 2001 study in Dar es Salaam and Nairobi found that 46-47% of the adult population were pedestrians. Often the distances travelled by pedestrians from outlying neighbourhoods to their place of work in the CBD can take several hours to cover (Bryceson, 2006). This extends their working day dramatically, which in some cases can be unmanageable, resulting in livelihood options being reduced (Bryceson et al., 2012). The minibus taxi is a common form of mass public transport in many ESA cities. These are a controversial transport system, as while they successfully transport a large number of passengers around the city, they are also associated with un-roadworthy, unlicensed and overloaded vehicles (Pirie, 2014). The benefit of this method of transport must therefore be balanced with the risks the passengers are exposed to. Cycling is a relatively popular means of transport in many ESA cities, however, a significant restraint on bicycle use is safety (Howe, 2001). Urban areas often have heavy and dangerous traffic conditions which are off-putting for cyclists (Bryceson et al., 2012).

Transport in Malawi:

The increased urban population has put a strain on the existing public commuter transport in Malawi (Kalipeni, 1997). During the 1980s, Malawi had an economic crisis that resulted in a severe shortage in foreign exchange allocated to the transport sector. As such, there were no new buses or spare parts for repairs (Kalipeni, 1997). This resulted in a gap in the market for private-public transport, which now meets a substantial proportion of Malawi's public transport needs, seeing private buses and minibuses carrying over 50% of the total passenger traffic (Kalipeni, 1997). In Malawi, overloading vehicles is standard; buses with a capacity of 60 passengers frequently carry over 100, and minibuses designed for 16 passengers regularly take double this (Kalipeni, 1997). This overcrowding is then accompanied by the fact that many buses are not considered roadworthy, bringing into question the safety of travellers. As this is one of the few means to commute to work, travellers regularly take this risk (Kalipeni, 1997).

While urban transport is a significant factor in many urban residents lived-in life, and their perceived QoUL, it appears to remain in the background for policy attention and funding (Howe, 2001). This is important when investigating QoUL, as transport increases a person's urban mobility and expands their employment opportunities. When someone is unable to use transport, either due to cost, availability or safety, it is likely to negatively affect their QoUL.

5.1.3 Physical Urban Infrastructure

Following on from the transportation is the streets, roads and pavement that the traffic utilises. The condition of these roads and pavements plays a vital role in outlining transport and traffic conditions, for both motorised and non-motorised modes (Vasconcellos, 2001). The outlining of a street in Malawi is hugely important as it is a permanent feature which cannot be easily altered (Gerke & Viljoen, 1968). Many roads within developing countries do not have pavements or are in a poor state of repair, pedestrians are, therefore, forced to use carriageways which are often dangerous and uncomfortable (Vasconcellos, 2001).

A common issue is the design and maintenance of streets and roads. This is associated with issues such as: insufficient repair of potholes, poor lighting, poor road markings, and slow response to accidents (Pirie, 2014). Road and pavement improvements can expand mobility and accessibility for urban residents. This can include for example, taking measures such as introducing pedestrian crossings, construction of pedestrian shortcuts to provide networks of direct pedestrian and cyclist routes, separate walkways on urban corridors with capacity for uncongested flow, and increasing residential services and economic opportunities (Howe, 2001). These measures could have a direct positive impact on residential QoUL.

Urban infrastructure in ESA cities is still often inadequate; however, dramatic progress is being made in telecommunications (Cilliers et al., 2011). Decent telecommunications can reduce the demand on surface transport (Bryceson, 2006), as residents do not need to travel to converse. An issue for telecommunication in ESA is the lack of consistent power. Access to energy is thought to be by far Africa's most substantial infrastructural challenge, with 30 countries facing frequent power shortages, and many paying high premiums for emergency power (Cilliers et al., 2011). However, mobile phones are becoming commonplace in many ESA countries, which increases the access to telecommunication. In some ESA countries, more people have access to a mobile phone than to clean water or electricity (Sambira, 2013).

5.1.4 Urban Form & Neighbourhood Typologies

In Malawian cities, residential areas were initially split into three categories: planned residential areas, 'traditional housing areas' (THAs) and squatter settlements. The different neighbourhood typologies have different characteristics. To understand modern neighbourhoods, their planning history must be understood.

THA's are laid-out neighbourhoods with some essential services and infrastructure. The Malawi Housing Corporation (MHC) demarcate plots that are serviced with a fifteen-foot pit latrine, and each plot should be no further than 1000 feet from access roads and piped water (Ansell & Blerk, 2005; Englund, 2002). Individuals are then allocated a plot on leases of 33, 66 or 99 years (Ansell & Blerk, 2005; Englund, 2002). Once allocated their plot, occupants were expected to construct their home within six months (Ansell & Blerk, 2005). The intention of THAs was to deliver a planned framework within which residents could build their house, according to their financial situation and their taste (Manda, 2007). This approach aimed therefore, to facilitate the provision of as many houses, as quickly and cheaply as possible (Manda, 2007). The official policy of THAs was that they should have only one dwelling unit per plot. There is evidence that this policy was not always followed and that the plots were instead occupied by multiple owners (Englund, 2002). Surveys by the MHC found that some plots housed as many as ten dwellings, with an average of five dwellings per plot (Englund, 2002). As such, many residents were tenants to the plot-holder.

During the 1990s however, much of Malawi's urban poor began to be drawn towards the squatter settlements. Squatter settlements vary from one another and are often thought to be characterised by their residents (Myers, 2011). The demand for THA plots outgrew the supply being produced by the MHC, therefore many low to medium-income urbanities moved to the expanding 'squatter' colonies (Kalipeni, 1997). As such, the THA plots were becoming over congested, and many found that squatter settlements had more space (Englund, 2002). Often informal settlements provide economically viable, socially legitimate and culturally embedded spaces (Anderson et al., 2015). Another factor was that squatter settlements were cheaper than THAs, and that regulation over building standards were lower (Englund, 2002). An additional incentive underlying the growth of squatter settlements was the move to multi-party politics at that time. This introduced 'freedom' as a value in everyday life, which dismissed previous fears of eviction from the illegal squatter settlements (Englund, 2002).

A problem for squatter settlements was that while they retain the status of 'illegal', their urban living standards will remain underdeveloped (Englund, 2002). This, therefore, impacts on a resident's QoUL, as their surroundings may be impoverished and disadvantaged. For example, city authorities feel that due to plots not being officially demarcated, sanitation and water services cannot be extended to all households (Englund, 2002). While THAs and informal settlements were not synonymous with slums, the five characteristics of a slum put forward in the UN-Habitat are: a lack of access to improved water supply, access to improved sanitation, the security of tenure,

the durability of housing, and sufficient living area (UN-Habitat, 2007; Myers, 2011; Pieterse & Parnell, 2014). These conditions are at times characteristics of these neighbourhood typologies.

Today, Malawi's housing is categorised into six classifications: low-density housing, medium-density housing, high-density housing, THA, unplanned settlement area, and 'other'. These classifications are used in the '1986 Lilongwe Outline Zoning Scheme' which has reclassified many of the existing neighbourhoods. The density of an urban area indicates the social class, from high-class being low density, to high density being low class (Manda, 2014). This research has deliberately used neighbourhoods with different zoning classifications to review a wide spectrum of the city.

5.1.5 Density

Continuing the concept of neighbourhood typology is the subject of density, as the neighbourhoods are often characterised by their building density. At the time of the Lilongwe Master Plan, the city did not have issues with squatter settlements and was not aware of how fast the city would urbanise. The population density of Malawi is among the highest in Africa at 139 people per square kilometre (Brown, 2011). The increased urban population has led to overcrowding, poor sanitary conditions and increasing rent in the four urban areas in Malawi (Kalipeni, 1997). As mentioned in the previous section, THA plots were significantly overcrowded, averaging five dwellings per plot. This resulted in minimal space between buildings and smaller gardens. Although ESA neighbourhoods are often crowded, and denser than a typical village, they do continue to reflect tight-knit rural sociality, as opposed to conventional urban anonymity found in cities elsewhere (Lewinson, 2009). However, the high-density neighbourhoods can have negative implications on health and sanitation, as overcrowding with poor ventilation encourages the spread of infections (Bartlett, 1999). Overcrowding is a difficult problem to solve, however providing good ventilation can help to alleviate some of the health issues that are consequential of overcrowding (Bartlett, 1999).

Connected to the concept of density, is privacy, as denser areas often feel less private to residents. Urban life for many Malawians, especially women and children, is highly public. Numerous activities commonly take place in the gardens or on the verandas including cooking, laundry, and hair braiding (Lewinson, 2009; Hansen, 1997). This puts residents in view of their neighbours and passers-by, resulting in QoUL being found in public spheres.

That being said, Malawians feel privacy is a desirable quality for their urban environment (Gerke & Viljoen, 1968). The aspiration for privacy is reflected in the provision of verandas as a semi-public space in the private plot (Jenkins, 2013a). They allow social engagement without entering into the private home. Typically, verandas and the rear of the building are seen as the most private areas of the garden. The residential desire of privacy has been reflected in the physical realm by plot enclosure; many residents build side garden walls first, and fully enclose the space when financially possible. The building of side walls illustrates a desire for privacy, as opposed to building for safety reasons (Jenkins, 2013).

5.1.6 Ecological Quality

When Lilongwe was planned, it was designed using the garden city movement. As such, the city boasts greenery and trees integrated into the city design. Within the city Master Plan, Lilongwe has two natural forests which are protected as the nature sanctuary and the botanical gardens. These are adjacent to Area 18, which is one of the case study neighbourhoods. The city retains numerous green and open spaces, particularly towards the outskirts of the north and south-east of the city. Lilongwe benefits from biodiversity through different ecosystems services such as water, fresh air, food, energy and recreation spaces (LAB-Project-Team, 2013). The vegetation of Lilongwe is characterised as savanna grassland and Miombo woodland (LAB-Project-Team, 2013).

In recent years, the rapid urban growth has led to environmental degradation, pollution, deforestation and uncontrolled development. This brings threats and loss to the cities biodiversity (LAB-Project-Team, 2013). For example, during the 1960s, the cities of Blantyre, Lilongwe and Zomba were surrounded by wooded areas, however, these areas are now gone (Kalipeni, 1997). The primary culprit of this deforestation is energy supply through firewood and charcoal. There are two distinct seasons in Malawi: the hot, wet season from November to March, and the cool, dry season from April to October (LAB-Project-Team, 2013). Malawi suffers from numerous climatic conditions which are discussed in detail in section 4.6 Natural Disasters.

The majority of Malawian livelihood is supported by agriculture, as it employs around 80% of Malawian workforce (Brown, 2011). The vast majority of Malawians are rural farmers and many residents keep livestock. It is commonplace to see chicks and goats in the villages of Malawi. Maize is the country's staple crop, and is grown on over 90% of the cultivated land (Brown, 2011). Malawi also relies on tobacco, however this has been vulnerable to international price fluctuations since anti-tobacco campaigning;

Malawi is the world's most tobacco-dependent country. The decision to farm tobacco originates from Malawi's colonisation period, and a recent study found that tobacco only benefits a minority of Malawians at the expense of local growers (Smith & Lee, 2018). The agricultural economy of Malawi is threatened by land pressure from population growth, as well as from issues surrounding climate change, as discussed in Section 4.6 'Natural Disasters'.

5.1.7 Conclusion on Physical Domain:

Reviewing the various aspects of physical QoUL in ESA cities, shows us that Lilongwe is a complex city with a range of physical settings. The city was formally planned post-independence during the capital relocation project, using the garden city movement. The imprints of Lilongwe's planning history are still evident in the physical layout of the city today.

The physical quality of urban life model can now be tailored to include features that are specific to urban life in Lilongwe as illustrated in Figure 5.1. While this starts from the basis of Figure 4.7 in Chapter Four, there is an extra layer of detail that provides attributes of each indicator. Some indicators have been edited, for example where Figure 4.7 uses 'Urban Form', Figure 5.1 uses 'Urban Form & Neighbourhood Typologies' to reflect the critical role that the various types of neighbourhood play in Lilongwe. A second indicator that has been edited is 'Accessibility' to 'Urban Transport and Accessibility' to exhibit the significant role that urban transport plays in the daily lives of many residents of Lilongwe. Many of the attributes of the indicators have also been edited to adapt them to the urban environment of Lilongwe. For example, under the indicator 'Ecological Quality' is 'Farming & Cultivation' and 'Deforestation'. Farming is a hugely important industry in Malawi, with many Malawians being involved with urban gardening for food. Reviewing the various indicators, variables and attributes can assist in the selection of the most appropriate methods to provide an understanding of the conditions of urban life in Lilongwe.

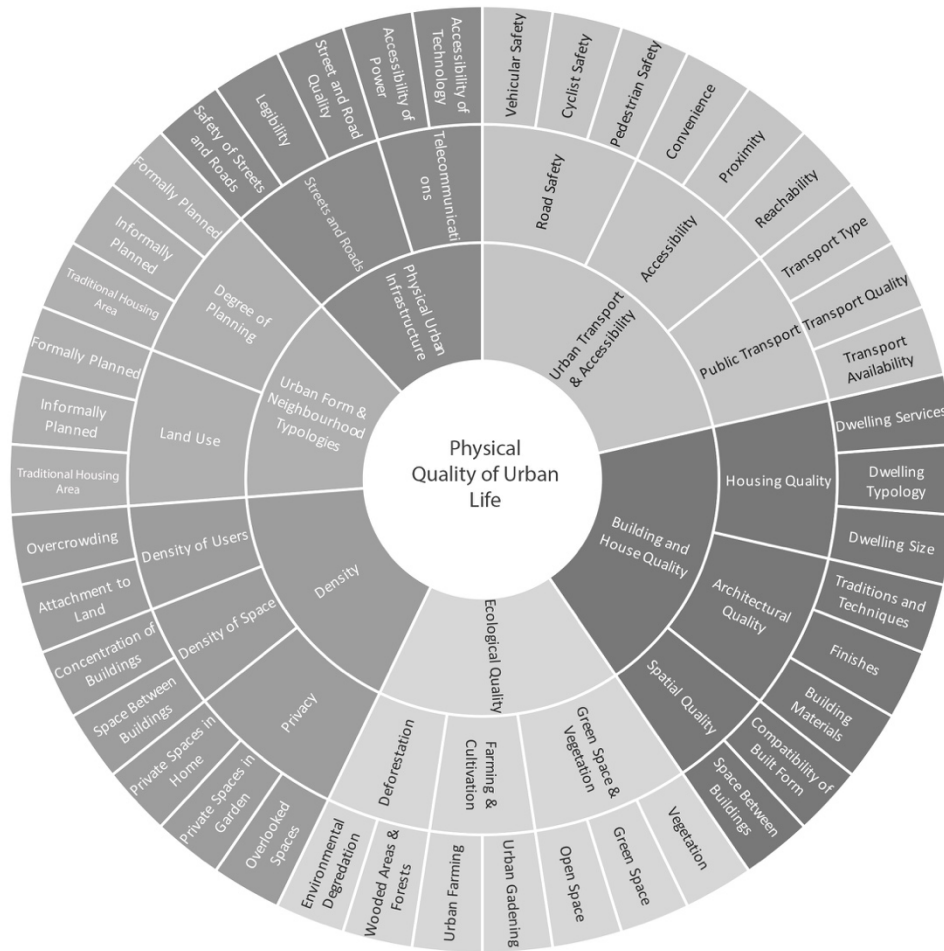


Figure 5.1 Physical QoUL Indicators in Lilongwe

5.2 Social Domain

Urban life and urban societies are heterogeneous and are continuously influenced by a range of social indicators including intra-family relationships, migration, gender, generation, ethnicity and religion (Rakodi, 2014). Each of these characteristics is repeatedly interacting with one another within a cityscape that is seeing demographic, physical and economic change. The social characteristics of a city directly influence how people behave, their life satisfaction and their happiness. This section reviews the six social QoUL indicators to contextualise the indicator to the conditions of Malawian urban life and discusses these aspects of urban life to conclude with a revised model that reflects social QoUL in Lilongwe. The indicators are discussed in the order of priority as presented by the expert panel.

5.2.1 Local Governance

Much like many other forms of social relations, politics unfolds in space (Tonkiss, 2005). As such, politics, governance and power often invoke a set of spatial relations. Politics in the city takes many forms, and everyday urban spaces are often the stage upon which governance unfolds. Ordinary spaces, such as the street, can become the site for micro-politics where individuals exercise their spatial claims, while negotiating the spatial rights of others (Tonkiss, 2005). Politics is therefore found in the everyday neighbourhood settings. An issue found in numerous ESA cities is that it can be unclear who the best person to interact with is for efforts to improve urban livelihoods (Pieterse & Parnell, 2014). Within a community, there are several leaders including the traditional authorities and chiefs, modern governments and the religious leaders. Consequently, it is important to understand the history and tiers of government in a specific context, to understand how it unfolds. Malawi gained independence from Britain in 1964 after almost seventy years of colonialism. This was followed by thirty years of one-party politics until 1994, then multi-party politics, which is the system in place today (Manda, 2007). The various political reigns have had a profound effect on modern Malawi. Colonisation produced the form and layout of Malawi's cities.

Traditional Authorities (TA) and Local Chiefs:

Malawian cities are under the authority of a local chief who reports to their Traditional Authority (TA). Both the TA, and the chiefs, are hereditary positions passed down through the family. Chiefs are thought to have an intimate knowledge of the land and issues in their area, acquired through their long residence (Ng'ong'ola, 1982). Chiefs continue to play a direct role in land management in Malawi. In Lilongwe, Chiefs are involved in selling and allocating land, and retain authority in many modern settlements (Lindstrom, 2014). In many parts of ESA, as the communities get more substantial and more fluid, it can be hard for the local chief to know all the people in their area. This, therefore, can make it difficult for them to intervene in all local disputes (Ansell & Blerk, 2005). That being said, the chief remains an essential figure in most ESA cities, and are of huge importance in their rural counterparts.

Religion in Governance:

Many urban dwellers turn to religion as a way to constitute their new personal moralities (Simone, 2010). It is often found that a critical link is formed between faith-based leaders as intermediaries for navigating power in urban areas (Pieterse & Parnell, 2014). In Malawi, local church politics encompasses a thriving stage of groups and offices (Englund, 1996). Religious groups contribute money when members suffer hardships and sickness, making them an essential part of daily politics (Englund, 1996). This affects QoUL because there are numerous political and governmental

bodies at play which each interact with one another in the neighbourhoods of Lilongwe. Good local governance and peaceful politics have positive implications for residential QoUL.

5.2.2 Personal Relationships

Urban residents are linked by complex webs of social relationships. In recent years, these have been evolving from well-defined and regulated, to vaguer and informal relationships (Rakodi, 2014; Myers, 2011). Strong community ties are often formed between people who have close friendships and high levels of trust, however, their primary social responsibility is to the extended family (Khavul et al., 2009). In Malawi, social networks remain more significant than government for assisting city residents (Kita, 2017).

A study in Kinshasa's informal sector found that many women had strong reciprocity relationships with friends, relatives, colleagues, neighbours and close members of the community (Lyenda & Simon, 2006). The welfare of their household is of high importance to urban women; therefore, many women are thought to lead altruistic family lives where selfishness is driven out by the need of the family unit (Lyenda & Simon, 2006). Urban dwellers often expand their relationship circle to help one other. These valuable relationships have positive implications on residential QoUL, as they support all aspects of life from economic and welfare hardships to promoting positive social well-being.

Family Life & Marriage:

Many ESA cities were built on the system of circular migration. This formed a bachelor city life rather than a family life when many cities were being formed. Today, however, cities are home to full families, including women and children. Family relationships are at the core of many contemporary ESA cities. Links and obligations between extended family in both urban and rural areas remain at the heart of most urban households (Rakodi, 2014). Often the shared resources of both the household and extended family group are regulated by informal norms, which are thought to be characterised by mutual exchange and trust (Rakodi, 2014). Access to the family resources may be influenced by power, gender and established property.

Many marriages are thought to be between the extended families as well as between husband and wife (Khavul et al., 2009). The network consequences of marriage vary for men and women. In many ESA countries, the family structure is patrilineal, therefore the woman joins her husband's family. Malawi however, is one of the few countries that has a predominantly matrilineal society within the central and southern regions; thus women have rights over land.

Urban marriage in many ESA cities today does not necessarily require a formal ritual or legal formalities. If a man and women live together and are introduced to their extended family, they can be recognised by their community and kinship as husband and wife. The key to urban marriage is thus demonstrating a commitment to a long-term permanent relationship (Ogden, 1996). In some ESA cities, marriage is felt to be central to a woman's identity, as it maximises the likelihood of her gaining respect in the eyes of her community, providing a wife with legitimacy, respectability and status, even within informal neighbourhoods (Ogden, 1996). All these various social relationships are fundamental for a person's QoUL because it impacts their identity, belonging and interactions.

5.2.3 Public Meeting Spaces

Public meeting places are a crucial arena for social relations in cities. In ESA cities, they can take many forms. Lewinson (2009) describes civic spaces as spaces where "all residents of a city are free to gather, relax, make or reinforce social bonds, experience diversity in non-threatening ways, and generally create the urban community in a public realm". While on the one hand, this includes areas such as plazas, parks, stadiums and theatres, other significant public meeting places are smaller and hold significance and meaning only to those who use them, such as the street, verandas or pipe stands (Lewinson, 2009).

Streets and Roads as a Public Space:

In ESA cities, the routes that people take often become stages for social interaction. They are spaces where people directly experience the city, therefore, constitute civic spaces (Lewinson, 2009). In Malawi, streets are a communalistic space for communities to share. Street corners have open access and play an essential role in urban sociality (Lewinson, 2009). The imperial 'street' plays the social role of the home in that it radiates warmth, company and collective enjoyment along with a sense of common identity (Ndi, 2009). As such, they should be included when considering important public meeting places in this context.

The transitional space between the private home and public street in many ESA homes is the veranda. This is an essential space for urban life and regularly hosts several activities. The literature discusses that they are often occupied by women, who use the space to provide services such as hair braiding, clothes tailoring as well as selling cooked foods or household goods (Lewinson, 2009). The occupiers tend to be visited by neighbours, friends or customers who spend time conversing, making the veranda a lively active public meeting space.

Spaces for children:

Another frequent use of the veranda is for young children. Children spend time immediately outside the dwelling as it is free from environmental hazards that may be found in the neighbourhood (Ansell & Blerk, 2005). This allows them to be close to their mother. Urban life for women and children is thus both domestic and intensively public (Ogden, 1996). Ensuring spaces are suitable for children is desirable and can positively affect residential QoUL. Infants absorb the quality of their environment, and older children are believed to respond to how a place feels (Day & Midbjer, 2007). Good quality spaces are thus at the centre of education for child development (Day & Midbjer, 2007). Spaces for children do not need to be formal and extravagant. It is often found that childlore is still vibrant in many settings that children dominate (Hicks & Hicks, 2005; Penn, 2005). Children use space to play games and amuse themselves, thus childlore is created wherever children gather, be that in the street or the playground (Hicks & Hicks, 2005; Penn, 2005). It is therefore desirable to make streets liveable, as this is often where children spend their time (Penn, 2005).

Shops, sellers and stalls:

Shops are an important public service and social amenity, and they are also significant civic spaces. One shop style, typical of ESA is the stall. A stall is an open booth located by the side of the road (Lewinson, 2009). They are frequented by the seller, as well as their friends and customers who drop by to converse and socialise, making them an active part of urban life in ESA. The public meeting spaces of ESA cities promote social interaction through various forms. Some spaces are frequented more often by different genders or ages. Many of the main public spaces in neighbourhoods of ESA are informal, as discussed. This is significant as it can require local knowledge to know where people choose to spend time.

5.2.4 Sense of community

Almost everybody interacts and socialises within several different groups, be that family, school groups, workgroups and peer groups (Gasper, 2006). Sense of community is thus an essential aspect of a person's daily lived-in life as it affects whom they interact with and their support network.

Religious Groups

In ESA, being a member of a religious group is more common than being part of any other organisation (Rakodi, 2014). Religion continues to play a significant role in the daily life of most urban Malawians. This is meaningful for QoUL, because religion is thought to influence people's world views, their values, behaviours and sense of identity (Rakodi, 2014). Religion is often seen as a positive attribute in urban life, as it can provide a pathway to success (Sommers, 2012). Being part of a community of believers often provides structure and support for residents as well as resources and

activities that help urban dwellers to thrive (Sommers, 2012). Religious organisations are thought to deliver education and health services to their members and the wider population. They are well trusted because they are thought to have deep local roots (Rakodi, 2014). In the case of Malawi, Christianity is a valuable aspect of a resident's lived-in life. Belonging to a Catholic group produces a set of valued relationships (Englund, 1996). These relationships are integrated into the rest of society and are organised through a diverse range of relationships, including kinship, affinity, friendship, politics (Englund, 1996). The Muslim religion is also popular in Malawi.

Youth Groups:

In Malawi, 51% of the country is under 18 years old (2018 census). In 2015 the average age of the sub-Saharan African was 19 years (Møller, 2018). The absolute youth population of sub-Saharan Africa is growing faster than anywhere else in the world, and the youth population has not yet peaked (Pieterse & Parnell, 2014). Despite such a youth bulge, documentation on vital dimensions of urban youth in ESA remains thin (Sommers, 2012). Urban youth life occurs in a mostly separate world from the rest of society (Sommers, 2012). While traditional values such as African humanism remain important in many aspects of life, it can be seen that the values held close by the educated youth in ESA are shifting towards emancipation and secular beliefs (Møller, 2018). The subsequent generation's lifestyle and values are thought to, at times, be the reverse of, or even reject rural perspectives (Bryceson, 2006). It is therefore vital to engage with the aspirations, goals and choices of young people to understand their QOL assessments (Møller, 2018). This considerable youth population brings in question the urban services that are required in terms of education, health services, housing and stable employment (Pieterse & Parnell, 2014).

Another common form of civil society in ESA is the male-youth social groups. A group of young males might meet by a bench on a sidewalk at the end of the day (Sommers, 2012). Here, they may discuss economic, social or political events, and together, they form a community of belonging and identity (Sommers, 2012). These groups often develop to start sports clubs or neighbourhood protection. The club tends to be peer-oriented and non-hierarchical, thus have a positive impact on young males living in the city.

Nyau and Tribal Societies:

Malawian tribes have various societies that play a crucial role in urban life. An important tribal society in the central region is 'Nyau', as it runs deep in the Chewa culture. As such, these deep roots are thought to bind people living in the area through

a shared set of local knowledge, based on practices of inscription and embodiment (Probst, 2002).

Nyau is a masked association that are interwoven in the complex arrangement of political, religious, economic and social activities of the Chewa society (Probst, 2002). They are considered a key institution in Chewa culture (Englund, 1996). *Nyau* is best known for their performances at various social events including initiation ceremonies, funerals and political rallies. At these events, the *Nyau* members wear masks that represent different animals (Englund, 1996). As such, it is an important part of people's urban identity and their urban life, and thus has a crucial place in the lived-in urban setting. Having a strong sense of community, and being part of community groups, directly and positively influences a person's QoUL. In Malawi, there are numerous groups that urban dwellers can be part of, with this literature review highlighting some of the more common forms.

5.2.5 Place Attachment & Internal Migration

Place attachment focuses on the psychological sense of place. People feel committed to spaces that they attach a sense of meaning too, which is said to change a space to a place. Attachment to homeland can be intense (Tuan, 2001). In almost all cultural contexts, humans regard their homeland as the centre of their world (Tuan, 2001) thus, the settings in which they spend their lives are of huge importance to residents. Place attachment is thought to be linked to a number of issues, such as how long a resident has resided in an area, as it can take time to form an attachment to a place. The quality and intensity of experiences in places also affect a resident's perception of place attachment (Tuan, 2001). The following section discusses some factors which affect residential place attachment in the context of Malawi.

Residence in Area:

The majority of colonial cities in ESA were posited on circular migration (Demissie, 2009; Bryceson, 2006). The open-ended nature of ESA residence in cities was established during the colonial period, where cities were intended to be used by bachelor labourers for income generation (Bryceson, 2006). East African cities were initially home to residents who continued to have close connections with their village of origin, and there remained a significant population in the region who ultimately planned to return to their home village (Elkan, 1967). These residents lived in the towns and cities for financial gain, but, only a small proportion remained in urban centres for their whole life (Elkan, 1967). In the case of Malawi, traditionally, many residents would not believe that urban areas provide an adequate place for belonging

(Englund, 2002). Even if a resident has lived most of their life as a migrant, they tend to be able to state their village and district of origin (Englund, 2002). This illustrates that Malawians have a secure attachment to their home district.

While this portrayal of impermanence characterised many ESA cities, with the idea that residents straddle urban and rural resources, recent trends are starting to change. As the second and third generations are being born in cities, their attachment to rural ties is beginning to thin (Bryceson, 2006). Many residents, particularly the younger generation, no longer return to their former rural homes, but instead are becoming permanent urban dwellers (Sommers, 2012). This is partly due to the economic advantages found in the city, but also due to the modernity that cities provide. That is not to say that residents have severed all ties with their home village. Many migrants continue to actively preserve links with their rural kin, particularly when they have claim over rural land (Rakodi, 2014) and there are still those who retire to the country.

Place attachment is thus changing in Malawi. While many residents previously saw their stay in the city as impermanent, they are now residing in the city for longer. This is significant as it not only affects the increasing urban population, but this also affects residential behaviours. If a resident sees themselves as temporary, they may be less inclined to invest in their neighbourhood both in terms of social capital and in the physical fabric (Ansell & Blerk, 2005). As such, the permanent residence sees inhabitants taking pride in their home and garden and engaging positively in the social stage of their community.

5.2.6 Identity

Modern ESA cities are made of a plurality of urban spheres and arenas. These are not formed by a single coherent 'public space' (Mbembe, 1992). Different spaces have their logic; therefore, residents need to adapt their social behaviour in that sphere. As such, the post-colonial ESA resident mobilises several fluid identities, which are continuously revised to achieve maximum instrumentality and efficiency when required (Mbembe, 1992). Ethnicity is often regarded as the primary source of identity in ESA cities and forms the primary social web in which people are embedded.

Tribal ethnicity is a critical element of Malawian identity and has growing importance in Malawian culture. The different tribes have annual festivals, where they meet for dances and other cultural displays. Tribalism thus plays a fundamental role in the social realm of a person's QoUL. There remains little documentary agreement about the number of ethnic groups in Malawi, with some studies describing up to 25 ethnic

groups within the country (Kaspin, 1995). The Malawian press often refers to the ethnicities that are seen to dominate the social geography of Malawi as the 'Tumbuka north' the 'Chewa centre' and the 'Yao' as one of the several groups indigenous to the south (Kaspin, 1995). Due to Lilongwe being located in the central region, the research discusses some of the social aspects of the Chewa tribe and how they affect personal QoUL.

Chewa History:

President Banda (1964-1994) claims to have attempted to create a national identity for Malawi through promoting one language, one tribal culture and one political party (Kaspin, 1995). This was demonstrated through statements such as "My tribe is the whole nation, the tribe of Malawi" and his dictum "We are all Malawians" (Englund, 1996). Reference to the nation is a practical way to achieve a sense of mutual connection and belonging. However, it was felt that as he was Chewa, this was the tribal culture he promoted.

Hitherto President Banda's reign there were other African languages spoken in Malawi, but he decided that there should only be one African language spoken in official use which was Chinyanja, which he renamed Chichewa. As such, all other languages were banned from government offices, schools, the press and the radio (Kaspin, 1995). In the cultural arena, language, religion and nationality are often considered the main form of social inclusion (Madanipour, 2003 [1998]). Language is often seen as one of the most prominent features of ethnicity (Rakodi, 2014), therefore the elimination of languages implies the elimination of aspects of ethnic cultures. This advancement of Chichewa promoted Chewa culture as the cornerstone of nationhood, and President Banda was the embodiment of this (Kaspin, 1995). While in many ways this linked Malawians together seeing that they had shared identities and characteristics, many felt that President Banda's version of nationhood privileged the Chewa over other tribes. This made it appear as though some residents had a greater claim to national patrimony than others (Kaspin, 1995). This allowed regionalism as a form of identity to come forward where people would describe themselves as being from a particular region of the country, be that north, central or south. However, as discussed, post-colonial Africans take on multiple identities, thus are not defined by their tribal ethnicity alone.

Residents in modern-day Malawi have multiple identities. These are influenced by numerous elements including cultural and historical factors, their tribal ethnicity, religion, age, family cycle, personal relationships and political association, to name a few. These various identities provide a source of meaning and a base for interaction

and are continuously changing and evolving (Rakodi, 2014). As such, while identity has not been retained as a significant indicator of QoUL by the expert panel, it can be seen that this is understood through spill over effects in other indicators as identity reaches many aspects of residents' lives.

5.2.7 Conclusion on Social Domain:

Reviewing the literature on social life in ESA cities, reveals that urban life occurs in a range of heterogeneous spaces, that are continuously influenced by numerous social indicators. These are affected by historical and modern factors, as well as tribal ethnicity, religion, age, family cycle, personal relationships and political association, amongst others.

This section is concluded with Figure 5.2. Again, this takes its basis from the indicator discussion in Chapter Four, however with the extra outer strand denoting the attributes of the variables included, providing a more detailed insight into the social QoUL in Lilongwe. For example, 'Local Governance' has the attribute 'Types of Leaders', which includes 'Traditional Authority (TA)' and 'Chiefs'. These are significant positions within Malawian communities and continue to stay actively involved in the lived-in lives of many residents, thus should be considered when evaluating QoUL in Lilongwe. Another variation from Figure 4.8 is that 'Place Attachment' has been changed to 'Place Attachment & Internal Migration'. This is due to the literature discussing the influential and widespread migration found within Malawi's history, which can affect how attached a resident feels to their neighbourhood.

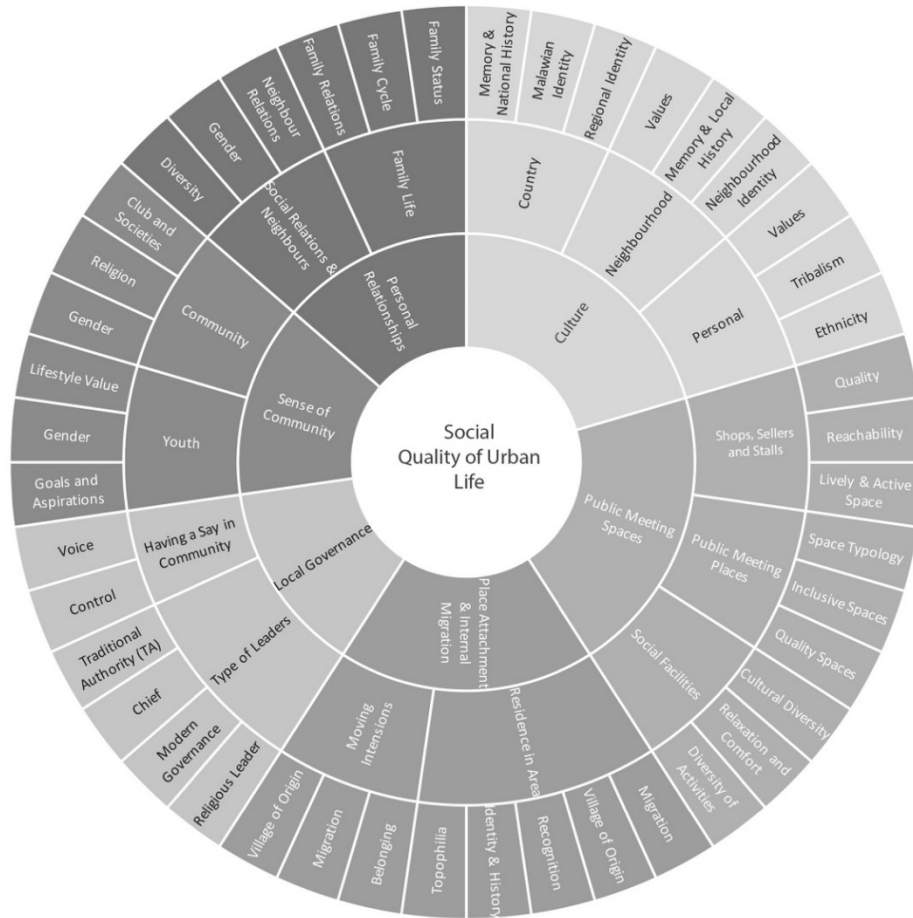


Figure 5.2 Social QoUL Indicators in Malawi

5.3 Economic Domain

Malawi is a developing country and remains one of the poorest countries in the world (World-Bank, 2019; Brown, 2011). Agriculture is the most important sector as it contributes to around 33% of the country's GDP and 80% of national employment (Nkomwa et al., 2014). As such, the economy is vulnerable to external shocks and natural disasters.

Economic indicators play an indispensable role in urban life. They affect where a person lives, their lifestyle and material possessions. This section discusses six factors that are important in the economic sphere and analyse their significance within the context of Malawi. Using the same method as the previous two sections, the indicators are discussed in the order that the expert panel prioritised them. This discussion stems from the indicators that were derived in Chapter Four. This forms the basis for the following discussion, before concluding with a revised model that reflects the various factors that affect economic QoUL in Lilongwe.

5.3.1 Household Income & Expenditure

The vast majority of people in ESA countries rely on land and land-based resources for livelihood (Akinboade, 2005). Maize is the staple food in Malawi, and the most important crop (Takane, 2008). A study across Malawian villages found that due to land scarcity, fields were used annually and that every household in their study cultivated maize (Takane, 2008). This agricultural base for the economy often results in food insecurity and struggles to sustain economic growth (Mukherjee & Benson, 2003). Cultivation and agricultural land are therefore valuable assets for an urban dweller in Lilongwe. Livestock is also a desirable possession in Malawi. It is noted that often those who live in the city have less access to cultivated land, which is a disadvantage of urban life compared with rural.

Expenditure:

In Malawi, many youths engage in *Ganyu*, which is informal labour outside the home. Many adolescents express that they use this money to buy basic needs, including clothes, groceries and provide for other household needs such as soap (Zietz et al., 2018). During December and January, some labour is paid for in food as opposed to money as food is insecure during these months (Zietz et al., 2018). Malawi is not an extravagant culture, rather expenditure is primarily used to provide for essential items.

5.3.2 (In)Formal Economy/Work Status

A primary characteristic of the postcolonial city is the emergence of 'informal economies' (Ndi, 2009). These informal economies provide livelihoods for millions in lesser developed countries (LDCs) (Potts, 2008). The informal sector was established in many African cities by the 1960s; however, the phrase 'informal sector', when referring to economics, can be credited to Keith Harts 1973 paper on economics in Accra (Hart, 1973; Myers, 2011; Potts, 2008). Hart categorises income opportunities under three headings: formal income, informal income- legitimate, and informal income- illegitimate (Hart, 1973).

Many researchers at this time viewed the informal sector as an *autonomous, unregulated, often illegal, small-scale, low technology arena*, for people to use as a route to formal employment (Myers, 2011; Potts, 2008). Formal employment was thus characterised as the opposite, described as *registered, regulated, legal, waged and often larger-scale and higher technology work* (Myers, 2011; Potts, 2008). However, more recent research on the informal sector in urban Africa has called for reconsidering of informality (Myers, 2011). Instead of viewing informality as an absence of regulation, some believe that it can be seen as alternative forms of

regulation that operates outside the framework of the state (Meagher, 2005). Although the formal and informal economies exhibit different characteristics, this does not mean that they do not feel the same economic forces (Potts, 2008). The two strands often work together and are strongly linked (Potts, 2008; Myers, 2011). Many informal activities are connected to the formal sector through customer networks or supplies (Akinboade, 2005).

The growth of the informal sector can partly be attributed to the rapid urbanisation that occurred without significant growth in formal sector jobs (Potts, 2008). The informal activities based on kinship, friendship and community ties have entered into the heart of contemporary economies (Meagher, 2005). While there are negatives of the informal sector, there are also positives that should be recognised. The low technology used often results in a higher number of jobs for those working on the production; for example, tailored clothes instead of mass-produced clothes (Potts, 2008). Another favourable consideration of the informal sector is that it can be flexible, which allows participants to temporarily withdraw if needed, and it can often be done from home, allowing work and household responsibilities to be combined (Akinboade, 2005). However, there are also significant negative aspects of the informal sector, including that often those working in the informal sector are poorer than those in the formal sector (Akinboade, 2005) and that there is not a minimum wage or pension. Economic informality is thus essential in the World economy and is the predominant organisational form across much of Africa (Khavul et al., 2009). Understanding informality is therefore essential for understanding a person's QoUL, as their economic situation impacts their urban life in numerous ways.

Entrepreneurship:

In East-Africa, many entrepreneurs have few resources, therefore draw on their social networks. This was discussed in section 2.4 *Personal Relationships*. The primary relationships relied upon when starting a business are either family or community (Khavul et al., 2009). Social networks are an essential concept when viewing informal economies and entrepreneurship (Meagher, 2005). Many entrepreneurs choose to operate informally due to the administrative hurdles that occur when registering and licensing a business (Khavul et al., 2009). Classic examples of informal entrepreneurship include sub-division of luxury items such as half a loaf of bread, or one cigarette (Potts, 2008). The economic activities of women working in cities today are diverse. Many working women in ESA today are entrepreneurs who link their economic activity with domestic life. This can involve selling cooked food, crafts, clothing and cosmetics (Akinboade, 2005; Ogden, 1996). Many still feel that domestic life is as important as bringing in money (Ogden, 1996).

The economy of Lilongwe includes informal industry and entrepreneurs. These are important aspects of urban life and can be difficult to measure through secondary data sources due to informality being unofficial. This is significant for the research as it requires engaging with residents of the city to discuss their economic reality.

5.3.3 Tenure and Ownership

The only characteristic of a 'slum' put forward by the UN that is not related to the physical urban environment, is 'security of tenure' (Pieterse & Parnell, 2014). An overwhelming number of urban dwellers lack legal security of tenure in the form of a deed or title to the property (Myers, 2011). Many believe that formal tenure can reduce poverty (Myers, 2011). Renters are identified as the most powerless and invisible informal settlement dwellers (Kita, 2017).

A lack of secure tenure can cause anxiety and stress for urban residents, and therefore make it difficult for family members to establish a sense of belonging (Ansell & Blerk, 2005). Forced evictions are a reality for those with insecure tenure. This can cause a range of negative social and economic impacts including homelessness, interruption of education and financial difficulties (Ansell & Blerk, 2005; Bartlett, 1999). Tenure is thus vital to a person's QoUL as it helps to improve place attachment and belonging, and contributes to residents feeling positive and comfortable about where they live (Ansell & Blerk, 2005). It also directly impacts the willingness of residents to invest in their community (Bartlett, 1999).

Since land is seen as the most fundamental resource for social and economic needs of a country, the land rights and inheritance rules are fundamental for economic QoUL in Malawi. Secure and reliable tenure and right over land, help urban residents feel secure in their home and neighbourhood, thus positively affecting their QoUL.

Home and Land Ownership in Malawi:

Land in Malawi is classified between three categories: public, private and customary land. The public land is owned by the government or Traditional Authority (TA), and includes areas such as conservation areas, national parks and forest reserves. Private land is the land owned under a freehold title, leasehold title or Certificate of Claim, granted by early colonial governors to European settlers (Takane, 2008). The third category is the customary land which makes up 69% of the total land in Malawi (Takane, 2008), this land is held under the customary law of each ethnic group. Much of the land is used for cultivation by smallholder farmers (Takane, 2008). The National Land Policy identifies land as the most basic resource for meeting social and economic development needs of the country (Brown, 2011).

Within customary land, the land is not owned, as much as it is vested in the community. Thus the sale of land is usually prohibited, however, it is worth noting that it does sometimes take place (Takane, 2008). In many countries of ESA, women have little rights over the land. However, in Malawi, matrilineal and matrilocal lines are dominant in the central and southern areas, including with the Chewa tribe (Peters, 2010). Women in Malawi, therefore, exercise considerable authority alongside their brothers, working closely together as a family.

In some cases, inheritance rules are applied with flexibility, where others are rigid (Takane, 2008). Recent literature usually agrees that regulation of arable land is often characterised by ambiguous and open-ended norms and rules in sub-Saharan Africa (Jul-Larsen & Mvula, 2009). Land rights in Malawi are complex, multi-faceted and transformational (Peters, 2010). Often the best asset of the urban poor is their properties. In many African countries, houses are part of the family's social and political biography (Myers, 2011). The application of customary rules can generate conflict between individuals and lineages, and the complex reality of the land and homeownership cannot be oversimplified (Takane, 2008). An issue with this, is that within informal settlements, it can be difficult for non-natives to gain access to land (Myers, 2011). In the THA's, it is seemingly illegal to sell a plot, however, due to overcrowding of plots, residents are often monthly tenants (Ansell & Blerk, 2005). Tenure is thus significant to QoUL as it effects emotional well-being, place attachment and belonging.

5.3.4 Education Status

Education is an important driver for a country's economic potential and performance (Cilliers et al., 2011). Access to education, as well as the quality of that education, are fundamental for a society's successful graduation up the value-added production ladder (Cilliers et al., 2011). Malawi introduced free primary education (FPE) in 1994, after Malawi's first democratic election. This resulted in a dramatic enrolment increase (Kadzamira & Rose, 2003; Durston & Nashire, 2001). Hitherto, education was not widespread, and most adult Malawians were illiterate (Durston & Nashire, 2001). The main objective of FPE was to increase access to education, eliminate inequalities, and sensitise communities to the importance of education (Kadzamira & Rose, 2003). Unfortunately, although enrolment increased at this stage and fees were abolished, many poorer households still found that costs associated with schooling too expensive for them to continue. As a result, many leave school before obtaining basic literacy and numeracy skills (Kadzamira & Rose, 2003). An issue for many poorer households in Malawi is that the children's labour is essential for the household. A study in Malawi

found that children who attend school often work an additional two to three hours per day for the household, and those not in school do an additional four and a half hours per day, either domestic or income-generating work (Kadzamira & Rose, 2003). These are important tasks that hinder children's ability to finish their education.

Education is an important factor of a person's QoUL because it has been found to strongly correlate with improvements in health, and is thought to be highly economically and socially desirable (Kadzamira & Rose, 2003). Investing in education provides residents with better opportunities for employment and income (Akinboade, 2005; Durston & Nashire, 2001). Education raises labour productivity which results in higher income, therefore has a direct impact on a person's QoUL.

5.3.5 Poverty Rates

Income and consumption are only two measures of poverty; however, poverty cannot be isolated as a purely economic phenomenon (Akinboade, 2005). Other fundamental factors such as lack of: political power, services, facilities and infrastructure including schools, housing, water points, health centres and roads are also features of poverty (Manda, 2007). Various social, political and historical conditions combine to create poverty (Akinboade, 2005). These factors directly impact QoUL on numerous levels. Poverty in Malawi is reported as widespread and deep (Durston & Nashire, 2001). Internationally, the economic poverty line is set at \$1 per day, however, the Malawian poverty line is set at \$0.30 per day. Malawi's GDP per capita has remained relatively unchanged, placing it amongst the ten poorest countries in the world (Kadzamira & Rose, 2003). As such, three-fifths of the population are unable to meet their basic daily requirements (Mukherjee & Benson, 2003).

Household and Neighbourhood Poverty:

A study of 12 villages in Malawi discovered that at a household level, residents describe their poverty in basic material terms: lack of food, drinking water, shelter and clothes (Durston & Nashire, 2001). Additionally, they included lack of economic means, including farming land, credit, agricultural inputs and livestock (Durston & Nashire, 2001). The same study, found at a community level the indicators of poverty were different; they included lack of infrastructure including boreholes, schools, clinics, roads and others that deliver social and economical services such as health institutions and ADMARC, a body for marketing agricultural produce (Durston & Nashire, 2001). This is important because it illustrates that there are different indicators affecting poverty at different geographical scales and a QoUL study must be sensitive to the scale of study under investigation.

Food Insecurity:

The insecurity of not knowing where the next meal will come from, can cause significant stress for those living with food insecurity (Hjelm et al., 2017). Hunger and lack of secure food are significant stressors in sub-Saharan Africa (Pike & Patil, 2006). The literature here shows that poverty indicators vary depending on the scale, which affects the choice of methods for investigating poverty in neighbourhoods in Lilongwe.

5.3.6 Conclusion on Economic Domain:

The literature presents a picture of both formal, informal, agricultural, and entrepreneurial economic life in Malawi. It has also revealed that the economic condition of Malawi is relatively equal across the country, with the majority of residents' sensitive to external forces.

From reviewing the literature, this section provides a revised model for economic QoUL. Again, Figure 5.3 has an extra layer of attributes to those discussed in Chapter Four, to provide more detailed insight into the economic QoUL in Lilongwe. For example, Figure 4.9 in Chapter Four made reference to 'Housing Costs', however through the literature review it became clear that the concept of 'Tenure & Home Ownership' are of importance in urban life. This aspect of economic life then relates to factors such as 'Inheritance Rules' and 'Customary Land' which are specific to the different regions of the country. Another variation from Figure 4.9 to Figure 5.3 is the concept of the informal sector. This is an aspect of urban life that is found in many LDCs, which provides income for a large percentage of the population.

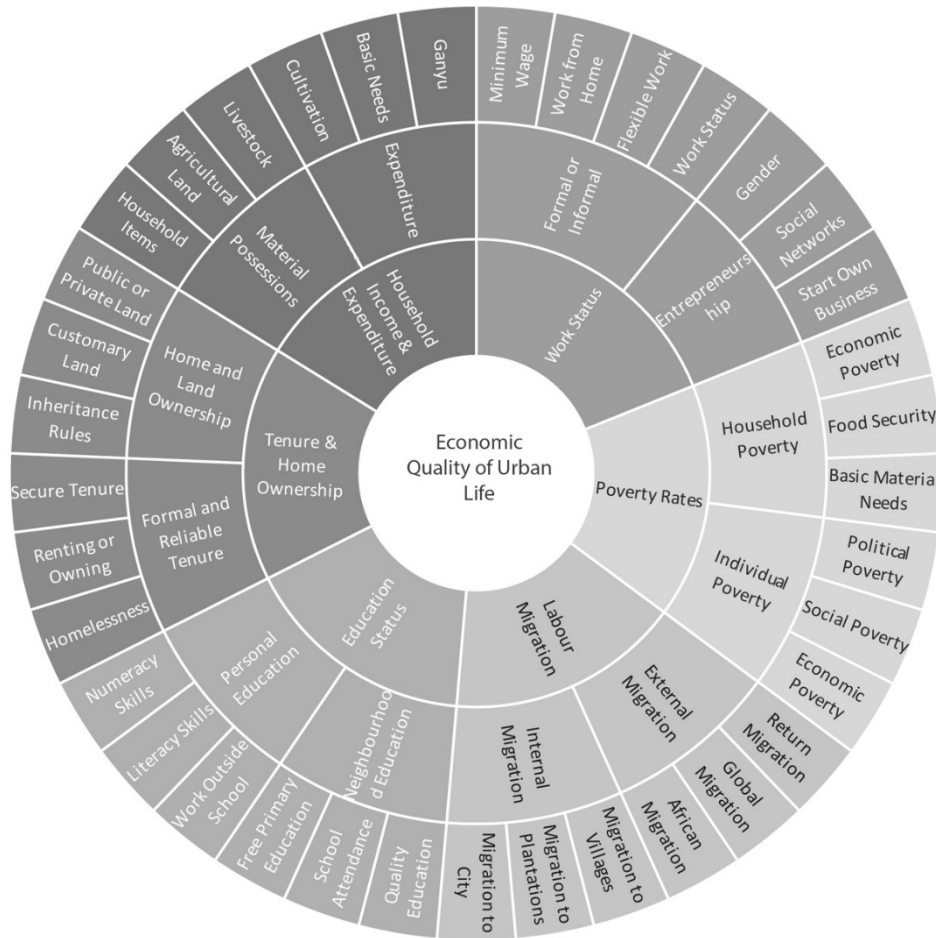


Figure 5.3 Economic QoUL Indicators in Malawi

5.4 Well-Being Domain

In the existing literature on QoUL, well-being is not always seen as a domain in its own right, rather many discuss the physical, social and economic conditions of an urban environment (Kamp et al., 2009). However, in chapter two, this research included the well-being domain as it is thought to be a prominent indicator within the social indicators movement, thus fundamental for a person's QoUL (Maclean & Salama, 2019). Within this section are factors relating to health, safety, sanitation, and natural disasters. The original well-being indicators were derived from the QoUL literature in Chapter Four. This forms the basis for the section, however, they are adapted to tailor the discussion to urban life in Lilongwe. The section concludes with the revised model to reflect well-being QoUL in Lilongwe. Using the same format as the previous three sections, the indicators are discussed in the order that the expert panel prioritised them.

5.4.1 Health Services

Healthcare facilities comprise of many essential services including for example, hospitals, clinics, and traditional healers. The assumption that urban dwellers have a higher standard of health than rural dwellers is not always the case for the urban poor (Sommers, 2012; Bryceson, 2006). This is because they lack the locational position and purchasing power to access adequate sanitation or health facilities (Bryceson, 2006). It should also be considered that urban dwellers may be more likely to experience certain health threats than their rural counterpart as more threats may exist in the urban areas (Bryceson, 2006). Thus, urban dwellers do not necessarily receive better health services than their rural equivalents.

As discussed in section 2.3 *Sense of Community*, and 2.6 *Local Governance*, urban dwellers support one another through neighbourhood connections, kinship and religious means. Different social groups meet and contribute money when members suffer hardships and sickness, thus helping provide services for neighbours in need. This social relationship is a valuable health service as the community provide aid for those who need it, which has positive implications for a person's QoUL, and health is a fundamental aspect of a person's life.

5.4.2 Physical Well-Being (PWB)

The design of the built environment is a determinant of people's health (Rice, 2019). It is fundamental to emphasise the positive role that urban design can play in developing healthy environments (Salama, 2020). As such, the setting in which a person lives affects their health and wellbeing, be that for better or worse (London, 2020). Health in the urban realm includes the physical, social, and emotional wellbeing, as opposed to merely the absence of disease (London, 2020). Places which support people and their health, are thus essential for the overall well-being of urban dwellers (Ng, 2016).

The concept of QoUL is thus deeply rooted in the thinking of health, and provision of a healthy environment (Kamp et al., 2003; Westaway & Gumede, 2001; Das, 2008). Urban environments affect the health of residents through several means. This can be seen, for example, through the availability of open spaces in neighbourhoods which positively affect physical and emotional well-being, as they provide space for residents to exercise and promote social interaction. Many health problems can be addressed through positive urban design. This includes issues such as: traffic related accidents which can be addressed by good transport design, cardiovascular diseases and forms of cancer, which can be addressed by providing urban open spaces, respiratory

diseases which are associated with poor air quality, which can be addressed by limiting emissions and mental illness, which can be addressed by community facilities such as safe, sociable supportive environments (London, 2020).

In Malawi, there are a range of urban health issues. This research is being conducted during the Covid-19 pandemic. Covid-19 is known to be especially dangerous to those with underlying health conditions, and a high percentage of Malawians fall into that category (Bahaji, 2020). A large proportion of Malawians suffer from HIV/AIDS and this remains a significant health, economic and social problem (Akinboade, 2005; Sommers, 2012). Other infectious diseases such as hepatitis, malaria, schistosomiasis and typhoid are common in Malawi (Bahaji, 2020). As such, encouraging healthy urban design has never been more important. Inevitably, this global health pandemic has brought a growing interest in designing healing environments (Salama, 2020) as they impact residents QoUL.

5.4.3 Urban Safety

In everyday urban environments, people face a mixture of threats including crime, terrorism, fast-moving vehicles, air pollution, water contamination, and natural disasters (Carmona et al., 2003). Safety and security relate to the protection of oneself, family, friends and property. By lacking safe and secure environments, the use of the public realm and the creation of thriving urban environments are threatened (Carmona et al., 2003). Therefore, the sense of security and safety are fundamental for successful urban design (Carmona et al., 2003).

The quality of an urban space influences residential social interaction and thus contributes to the safety felt by residents. By providing quality spaces that people want to frequent, the level of activity increases and positively affect anti-social behaviour (Bartlett, 1999). If an urban space or neighbourhood has shops and other facilities, this contributes to the liveliness of the space, thus making it feel safer (Bartlett, 1999). The layout of the urban environment can thus contribute to the feeling of safety, for example by laying eyes upon the street through orientating buildings to face forward thus not leaving neighbourhoods blind (Jacobs, 2011). By having neutral proprietors' eyes on the street it feels safer, thus encouraging more people to use the spaces. Another aspect contributing to urban safety is for spaces to be actively and regularly used, this adds to the eyes on the street and increases the safety felt by those using the streets (Jacobs, 2011). One method to encourage users onto the street is to provide mixed-use in neighbourhoods such as stores and public places alongside

houses, give people reason to walk on the streets and create routes around the neighbourhood (Jacobs, 2011).

At a neighbourhood scale, factors such as having ownership over spaces improves residential safety (Newman, 1996). If numerous families share territory, each family feels they have less right to it, making it unclear as to who has rights over the land, and what constitutes acceptable usage. This has negative implications for urban safety as the larger number of people that occupy a communal space, the more difficult it is to identify who should be in it. This makes it easier for outsiders to access and linger in spaces, which has negative implications for crime and safety (Newman, 1996).

Generally, having well-lit areas and places to sit and socialise, reduces urban crime (Bartlett, 1999). Unfortunately, in Malawi due to lack of infrastructure, street lighting is rare, particularly within neighbourhoods. However, it is a social community lifestyle which does encourage street safety. Urban safety is affected both by the physical layout of the neighbourhood and by the supportive social structures. If a resident has strong social ties, they are more likely to feel safe. Safe and supportive neighbourhoods are essential for a person's QoUL as feeling safe positively affects mental health and attachment to an urban area. Malawi is often referred to as the 'warm heart of Africa' because of the perception of friendly people and safe environments.

5.4.4 Environmental Services & Basic Infrastructure

Sanitation within urban settlements in ESA cities is often lacking, resulting in water-related diseases being commonplace (Sommers, 2012; Bryceson, 2006). Only 59% of people in sub-Saharan Africa have access to safe drinking water and sanitation facilities (Zaman et al., 2016). In some areas of East Africa, women and children spend up to 27% of their caloric intake fetching water, and can spend hours making trips to water collection points (Akinboade, 2005). If the water source is too far, and supplies are irregular, many caregivers struggle to get the quantities that are required for young children (Bartlett, 1999). A further problem is that, due to water not being piped to the home, it must be stored. This can create problems such as children contaminating the water with dirty hands (Bartlett, 1999). These issues are hugely detrimental to a person's QoUL because they not only affect their health but have an impact on their leisure, education and work time, as the time that would have been dedicated to other tasks is, instead, spent on fetching water.

An issue found during the establishment of many of Lilongwe's unplanned neighbourhoods was contaminated water (Englund, 2002). Before communal water points were established, many wells were being erected too close to pit latrines, which was a significant cause of death and disease among urban residents, particularly youth (Englund, 2002). Urban layout and design are therefore hugely important for health and QoUL in informal settlements.

In Area 49, one of the PhD case study sites, pits were being built without waterproof roofs and therefore flooded during the rainy season (Manda, 2009). Due to Area 49's close vicinity to a stream, it was flooded by both ground and stormwater. This resulted in pollution, contamination and foul smells (Manda, 2009). The health, safety and liveability of urban areas are therefore hugely reliant on the urban layout.

A study of water supply in Lilongwe discovered that the information on which areas of the city receive water on which days is not formalised, but instead it is embedded within the employee's knowledge of the system (Alda-Vidal et al., 2018). The scholars worked with staff at Lilongwe water board to map the water distribution for the city to retrieve this indigenous knowledge. The findings were that the critical areas of the city were commonly located in the south of the city, including Area 36, Area 23 and Chilinde which were considered when selecting the PhD study sites. Area 36 for example, reportedly only received water at night for the past eight months (Alda-Vidal et al., 2018). In contrast to this, Area 49 and Area 30, which are also PhD study sites to the north of the city, reportedly receive reasonable levels of water (Alda-Vidal et al., 2018). This is of interest for analysing the fieldwork to see if residents of the various neighbourhoods feel their water levels are adequate or inadequate to compare their perception with the reported reality.

Drinking water & Waste Management:

The Malawi standard for basic access to water is 20-27 litres per person per day (Manda, 2009). Depending on the cost of the water, and distance travelled to collect it, has an impact on the amount that communities consume. Often families in Malawi buy drinking water from kiosks and use stream or well water for other purposes (Manda, 2009). In Lilongwe Area 49, it was found that one kiosk served as many as 220 households, whereas the kiosk is designed to serve only 120 households (Manda, 2009). In all towns in Malawi, waste management is a neglected sector (Manda, 2014) and this neglect increases vulnerability to health catastrophes (Manda, 2014). The main human waste typology in Malawi is the pit latrine. These can be intimidating for young children as they are dark with a large opening that is designed for adults (Bartlett, 1999). As a result, most young children often choose not to use latrines until

they are five to seven years old resulting in their waste being disposed of outside (Bartlett, 1999). A consequence of this is that areas become fouled, which has negative implications for health and sanitation and QoUL.

Provision of water, sanitation, drainage and waste removal are essential for improving a person's QoUL as it affects their life across numerous strands, including their health and free time. These factors amalgamate to negatively impact a person's life if they are not sufficiently provided. These essential services are rarely found in unplanned neighbourhoods, and inadequately located in THAs.

5.4.5 Emotional Well-Being (EWB)

The quality of community spaces and an individual's home affect not only their physical health and safety, but also their emotional and social well-being (Bartlett, 1999). As discussed in section 3.3, *Tenure and Home Ownership*, the lack of secure tenure on a person's home can be a significant source of distress for urban dwellers which negatively affects their EWB.

Poverty is a chronic stressor that can lead to poor mental and physical health (Hjelm et al., 2017). However, there has not been a great deal of scholarly attention on EWB in the context of sub-Saharan Africa (Hjelm et al., 2017). There has only recently been any investigation empirically addressing the relationship between poverty and EWB in low- and middle-income countries (Lund et al., 2010). As discussed in section 3.5, *GDP and Poverty Rates*, aspects that relate to poverty are not purely economic. The Hjelm et al. (2017) study in Zambia, found that perception of stress directly correlates with food insecurity and household deaths, thus suggesting that these are vital sources of stress compared to other areas of poverty that were examined in the study. As such they negatively affect a person's EWB.

A literature review by Lund et al. (2010) found a consistent trend in the association between common mental disorders and dimensions of poverty. They found strong associations between poverty indicators such as food insecurity, housing, social class and financial stress, with poor mental health (Lund et al., 2010); this echoes the findings from Hjelm et al. (2017). It can thus be concluded that living in poverty negatively affects a person's EWB; and consequently, is detrimental to their QoUL. As such, although EWB is not directly included within the prioritised indicator list, it is assessed through spill over connections with the other indicators.

5.4.6 Natural Disasters

Malawi is heavily dependent on rain-fed agriculture which means that the country is vulnerable to climatic variabilities and extreme weather events (Brown, 2011). Malawi has been experiencing a variety of climatic hazards, including: intense rainfall, floods, seasonal droughts, multi-year droughts, dry spells, cold spells, strong winds, thunderstorms, landslides, hailstorms, mudslides and heatwaves (Nkomwa et al., 2014). The most recent flood resulted from Cyclone Idai which devastated Mozambique, Zimbabwe and Malawi (AfricaNews, 2019); the cyclone brought heavy rains and flooding to the southern region killing 60 Malawians and affecting almost 869,000 people in Malawi (AfricaNews, 2019). These hazards exacerbate the existing issues in the country including water-borne diseases and food insecurity; thus climate change is thought to be one of the most substantial challenges for achieving sustainable development (Brown, 2011). These profound climate changes are expected to continue to negatively affect agricultural production across Malawi, directly affecting farmers, therefore resulting in food insecurity (Nkomwa et al., 2014).

Climate change and Housing:

Many informal settlements are located at the periphery of the city and in areas that are exposed to multiple hazards (Kita, 2017). This poses a significant risk to the urban poor as even moderate storms can generate rivers flows which produce wetlands and damage homes and infrastructure (Kita, 2017; Brown, 2011). This is significant for a person's QoUL as natural disasters can leave people homeless, and they can lose loved ones. Urban planning can assist in the reduction of the risks from natural disasters by careful consideration of the location of vulnerable populations (Kita, 2017). Climate change is thus an important aspect of QoUL because the lives and livelihoods of current and future generations are increasingly dependent on what is done to address climate change in cities (Brown, 2011). Neighbourhood location requires planning and thought to minimise their risk of destruction from natural disasters to improve QoUL.

5.4.7 Conclusion on Well-Being Domain:

This literature review reveals the fundamental role that well-being plays in urban life in Lilongwe. It concerns issues such as health, safety, sanitation and natural disasters which each have a huge impact on the daily lives of many Malawians. Figure 5.4 has been adapted from the indicator discussion in Chapter Four. Once more, an outer layer of attributes has been added to provide a deeper understanding of the well-being conditions of the city. For example, an indicator which has been varied is 'Environmental Services' to include 'Environmental Services and Basic Infrastructure'.

The variables of this section include 'Water and Sanitation' and 'Waste Management'. These various services and infrastructure are at the core of the daily lives of residents of Lilongwe. Access to a source of water are fundamental concerns of those living in unplanned neighbourhoods in Lilongwe. By investigating the well-being conditions of Lilongwe, the chapter can determine the most suitable methods for providing insight into the characteristics of QoUL in Lilongwe.

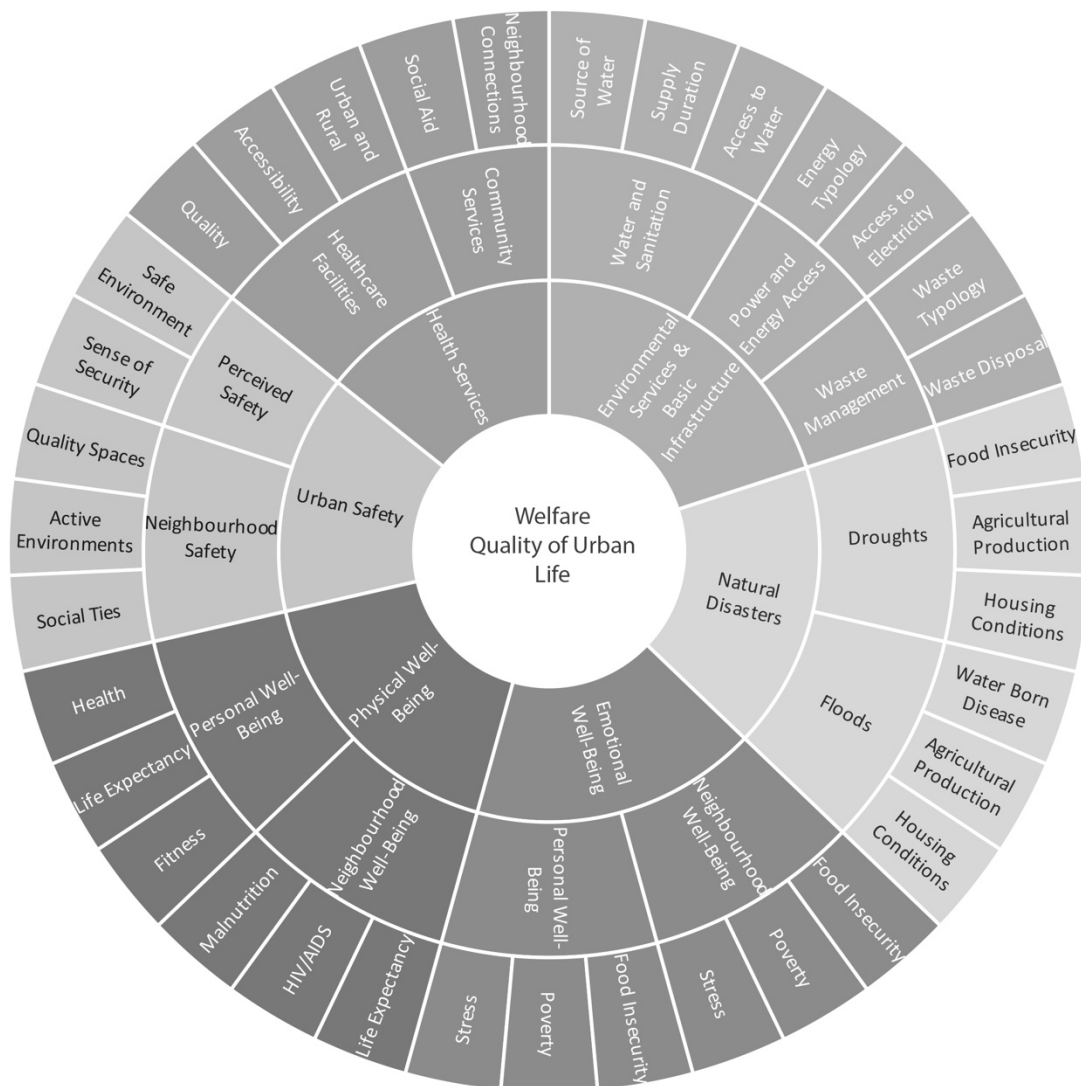


Figure 5.4 Well-being QoUL Indicators for Malawi

5.5 Conclusion:

This chapter has provided a comprehensive literary understanding of the many indicators that influence urban life in Lilongwe, which has created a roadmap for conducting the research fieldwork. The fieldwork empirically tests these findings to contest or validate the usefulness of the research.

The chapter begins with a discussion of the physical QoUL indicators. The literature discussion highlights the various neighbourhood typologies found in Malawi. This is significant because the neighbourhoods have different characteristics which is important for the research, as the case studies must include a mixture of neighbourhood typologies to reflect the various conditions of Lilongwe. This is reflected in the case-study selection in Chapter Three. From reviewing the physical indicators, it is evident that three data collection methods effectively capture information on the condition of the urban environment. These include observational assessment by the researcher, objective neighbourhood profiles and surveys with local residents. Many of the physical elements of the neighbourhoods can be viewed from street level, therefore a structured observational assessment provides an objective picture of the physical aspects of urban life in the neighbourhoods. This observational assessment is strengthened by secondary data profiling using GIS maps and government documents to form a neighbourhood profile. This is further complemented by a photographic survey to present a pictorial representation of the neighbourhoods. Finally, it is imperative that residents' perception is gathered, thus a structured survey is used to gain the perspective of Lilongwe's residents on the physical conditions of their neighbourhood. The subsequent chapter provides the neighbourhood profiles, followed by chapter eight which delivers the residential attitude survey results.

The literature review on the social QoUL indicators discusses the important role that social support networks and sense of community play in the lives of urban residents. Being a member of a social group has positive implications for a person's QoUL. Attached to this concept is personal relationships which form the core of social structures. Neighbourhood residents are linked by a complex web of social relationships, which have positive implications of QoUL as they support all aspects of urban life, often through informal means. Many urban households feel their links with family remain at the heart of their household. This is often managed by informal norms which are known to the family. Social relationships are important, however, challenging to measure without survey methods with local people. Thus, it is imperative that the data collection use indigenous knowledge as a means to understand the culturally and socially specific factors of urban life in this context. There

are several different tools which can be utilised to gain this local knowledge, including survey methods and interviews. Conversations with local people and experts on Malawian culture allows the research to discover more about features which are embedded in urban life today and help to shape a fuller picture of urban life in this specific context. Similar to the physical domain, there are social aspects of urban life which can be viewed through direct observations. Public meeting places promote social interaction through numerous forms. Identified meeting places are investigated using an observational assessment, which provides in-depth knowledge of the spaces that are important in the neighbourhood. Finally, certain social aspects can be viewed in the objective data profiling, through acts of residents. This is apparent by features such as methods to enclose plots, indicating desire for privacy and evidence of place attachment through gardening and cultivation. This literature review thus shapes the methodological design as it highlights the significant and fundamental role that local people play in the QoUL in cities such as Lilongwe. Subsequently this points to the need for survey methods in the research fieldwork, and discussions with a group of key informants. The expert panel prioritised the indicators in Chapter Four and were invited to take part in the fieldwork. From this invitation, three members of the expert panel are involved in the fieldwork both formally and informally.

The economic literature has revealed that although Malawi has had FPE since 1994, there remain those who are illiterate. This is significant, as a written questionnaire with long questions or written response may be off-putting for many residents. As such, the survey is designed to be concise with a Likert scale style response. To engage with as many residents as possible, the survey is also translated into Chichewa. Finally, to increase participant numbers, fieldworkers are used, who discuss the answers with the participant as a structured interview. The economic condition of the neighbourhood can be initially perceived through neighbourhood profiling, as factors such as density and neighbourhood typology are determinants of the wealth of a neighbourhood. However, it remains significant to discuss residents' perception of their economic condition as many economic concerns are not isolated phenomena, rather they are affected by social, political and health situations. This is significant because to understand the economic condition felt by a resident, the researcher must survey their perception of their economic condition.

The final section of the literature review is the well-being domain. This again echoes the findings from the previous sections that discussions with residents are fundamental for understanding QoUL in areas such as Lilongwe. Using survey methods helps to actively engage with aspects of the neighbourhoods which are not always officially written. An interesting aspect here is the important role that social

groups provide for their neighbour with regards to their health. This important support for residents who suffer hardship and sickness can be essential for urban dwellers survival. This points to the need for local knowledge to understand the services available for each neighbourhood. The effect that safety plays in an urban environment is thoroughly discussed in this section. The urban layout can contribute to a perceived safety, as well as increased social spaces and mixed land-use in neighbourhoods. This can be investigated through several methods, including through observation of the land-use in the neighbourhood profiling. Due to the literature discussing that safety has a social realm, it is important to discuss the perception of safety with residents as they have varying social connections. As such, this domain is again investigated using survey methods to discuss how residents perceive their urban safety. By collecting this primary data, the fieldwork provides new knowledge on the QoUL in Lilongwe, and its various neighbourhoods. This is complemented by objective neighbourhood profiling to plot the location of numerous facilities such as health centres and clinics. This information is imperative in this form of study as it allows the researcher to compare the objective conditions of the neighbourhood with the subjective interpretation of the conditions.

The following chapter discusses the neighbourhood profiles and observations which are the first strand of the fieldwork. The findings of the research methods are applied and discussed across the following chapters: Chapter Six: Characterisation and systematic assessment of neighbourhoods and Chapter Seven: Residents' perspective of their QoUL. This is then brought together in Chapter Eight for the discussion of all strands of the research from the multi-layered methodological approach for investigating QoUL in Lilongwe.

Chapter Six: Characterisation and Systematic Assessment of Three Neighbourhoods in Lilongwe.

6.1 Introduction

This assessment focuses on stage Five to Seven of the multi-layered methodological approach for investigating QoUL in neighbourhoods of Lilongwe (See figure 3.3). The chapter thus utilises neighbourhood profiles, a walking tour assessment, and the behavioural snapshot of key urban open spaces. This investigation seeks to comprehend and react to the existing physical and social, economic and well-being environment of three neighbourhoods in Lilongwe. By utilising neighbourhood profiles and direct observations, this chapter provides an objective analysis of the lived-in conditions of three of Lilongwe's neighbourhoods.

The chapter comprises of two main sections, followed by a reflective conclusion. The first section provides profiles for each of the three neighbourhoods under investigation, which are complemented by GIS maps, fieldwork sketches and photography. The second part of the chapter explores how selected urban spaces of the neighbourhood are experienced. This relates to the direct observation tools that are implemented as part of the PhD fieldwork and is again complemented with photographs and fieldwork sketches. The research is using three distinct neighbourhoods in Lilongwe for investigation. This is discussed in Chapter Three: Section 4.6. The fieldwork in this investigation is supported by a colleague from a community group in Malawi who aided in selecting the neighbourhoods and their key urban open spaces. He is one of the expert panel members, who is actively involved throughout the research. He also recruited fieldwork assistants and assists throughout the full observational analysis. This examination is deliberately graphic to allow the reader to experience the neighbourhoods before gaining the residents' perspectives in Chapter Seven.

Lilongwe is divided into areas which are allocated a number. The numbers of the neighbourhoods are dispersed chronologically, not geographically, thus Area 1 is the oldest area of the city and Lilongwe city currently composes of Areas 1-58. The three neighbourhoods under investigation in this research are 'Area 18', 'Area 36' and 'Area 49'. They are discussed in numerical order for ease. Detailed neighbourhood profiles are found in Appendix 5, however, this section provides a succinct summary to introduce the objective conditions of the neighbourhood prior to their subjective assessment in Chapter Seven.

6.2. Objective Neighbourhood Profiles

Table 6.1 provides a summary of the three neighbourhoods classification, land area and population. It also includes a figure-gram map for a zoomed extent of the three neighbourhoods. Table 6.1 is introduced in Chapter Three, however, here the factors and characteristics are analysed to consider how they impact residents QoUL.

Area 18		Area 36		Area 49	
Zoning Classification	Permanent high and open space	Zoning Classification	Quasi density	Zoning Classification	Traditional high density
Area	214.466 HA	Area	926.438 HA	Area	964.496 HA
Population	8,718	Population	92,733	Population	52,915
Over age 18	72%	Over age 18	54.6%	Over age 18	60%
Density	4065 people/km ²	Density	10010 people/km ²	Density	5486 people/km ²
Male/Female	55.5%/44.5%	Male/Female	50%/50%	Male/Female	51%/49%



Table 6.1 Objective Neighbourhood Conditions

Table 6.1 illustrates that the three neighbourhoods have different zoning classifications. Area 18 is classified as 'permanent high and open space', Area 36 is a quasi-density area, classified as 'permanent high/traditional high/agriculture/institutional and Area 49 is classified as a 'traditional high density' neighbourhood (UN-Habitat, 2011). As such, the three neighbourhoods have different characteristics as they are classified into these zoning classifications. From their

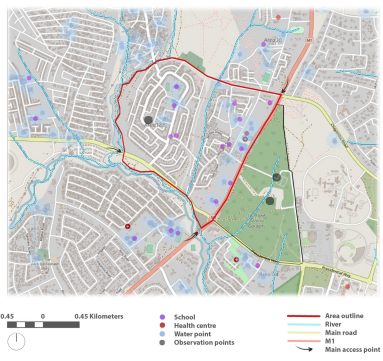
zoning classifications, it is expected that Area 18 will have the most permanent structures, while Area 36 is likely to have a significant variance of building typologies. The land area and population size are distinct across the three case-study neighbourhoods. Area 18 has a land area of 214.466 HA (UN-Habitat, 2011) with a population of 8,718 in the 2018 census (National-Statistics-Office, 2018). The land area of Area 36 and 49 are similar, with 36 being 926.348 HA, and Area 49 being 964.496 HA (UN-Habitat, 2011). However, despite a similar land area, Area 36 has a considerably larger population at 92,733 residents compared to 52,915 in Area 49 (National-Statistics-Office, 2018). By comparing the population with the land area, it shows that the density of the three neighbourhoods varies. Area 18 is least dense with a density of 4065 people per km^2 while Area 36 is the densest neighbourhood at 10010 people per km^2 and Area 49 is in the middle with 5486 people/ km^2 .

This density is further illustrated in the figure-ground maps in Table 6.1. Each figure-ground map represents a random selection of the neighbourhood. These were created by the researcher using Open Street Maps with Adobe Photoshop. Reviewing Area 18, it shows that it is relatively low density and that the street pattern uses a mixture of cul-de-sacs and connecting streets. The image presents that the neighbourhood is well organised and planned, the buildings are a similar scale and there is a generous amount of space between buildings. Evaluating the figure-ground map for Area 36 shows that the neighbourhood is of a higher density with an organic street layout. Buildings are again of a similar scale, however, in some parts, there is little space between buildings, and buildings are close to roads. The final figure-ground map is of Area 49. The neighbourhood appears reasonably low density, with a structured street pattern of straight roads and squares. This suggests that the streets are planned as there is suitable space between buildings and buildings are of a similar scale.

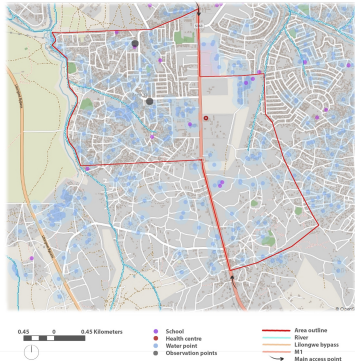
The distribution of the population in the three neighbourhoods again differ, Area 18 has the oldest population with 72% of residents over the age of 18, Area 36 has the youngest population seeing only 54.6% of residents over 18, and Area 49 is in between with 60% of residents over 18. The elder population in Area 18 suggests that residents move to this neighbourhood when they are a bit older, perhaps when they can afford to do so. The population of Area 36 are very young, and there are few residents over the age of 40. This high youth population suggests that residents are born here, and perhaps many residents have young families. In all three neighbourhoods, there is a drop in the age for over 50s. This suggests that older residents are retiring elsewhere, which is discussed in Chapter Five: Section 2.5.

6.2.1 Amenities and Proximity:

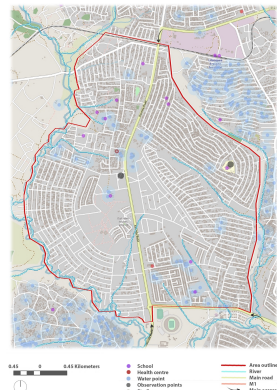
Area 18		Area 36		Area 49	
Proximity to Centre	3.5km	Proximity to Centre	9.6km	Proximity to Centre	7.2km
Schools	13	Schools	7	Schools	11
Health Facility	1	Health Facility	1	Health Facility	2
Police Station	1	Police Station	0	Police Station	0
Iconic Building		Iconic Building		Iconic Building	Bingu Stadium



A



B



C

Table 6.2 Amenities and Proximity of neighbourhoods

Table 6.2 displays further objective data for the three neighbourhoods. These include the provision of amenities and essential services. The maps in Table 6.2 A-C geographically display the location of these services. These are created using a mixture of ArcGIS, Open Street Maps, and Adobe Photoshop. Larger versions of the maps are located in Appendix 5. These maps provide the location of essential amenities such as schools, health centres, water points and access roads.

Map A shows that Area 18 is connected to transport links including the M1 via the north-south access and 'Presidential Way' via the south of the neighbourhood. This neighbourhood has the closest proximity to the city centre. Area 36 is also well connected to the main motorway which intersects the centre of the neighbourhood. Map B further displays that the Lilongwe bypass is close by, located to the west of Area 36. Area 36 is at the periphery of the city and is one of the most southern neighbourhoods. As such, it has a significant commute to the city centre of 9.6km.

This is likely to affect factors such as where residents work, as the commute is undesirable; thus, it is anticipated that residents in Area 36 work locally. Area 49 has a main road that intersects through the, namely 'Kaunda Road'; this forms the main link from Area 49 to the city centre.

Table 6.2 illustrates that there are excellent education facilities available in Area 18, with thirteen schools in the neighbourhood. Area 18 also hosts a health centre and a reasonable number of water points. Many residents in Area 18 are likely to have water piped into or near to their homes, therefore do not require a large number of neighbourhood water points. Area 18 also has a police station, namely 'Lingadzi' station (UN-Habitat, 2011). There are four police stations in Lilongwe which are in Areas 3, 25, 7 and 18. Area 18 also borders Area 30 which is a government area that houses many government staff, as well as the police headquarters. Provision of a police station is associated with safety as discussed in Chapter Five Section 4.3 Urban Safety.

Reviewing Table 6.2 shows that there are seven schools in Area 36, which is less than Areas 18 or 49, despite having a considerably larger population. Education facilities are thus lower in this neighbourhood. The map displays that there is one health point located towards the centre of Area 36; however, there are no police stations. The map displays that there are a large number of water points in Area 36. Residents are likely to use communal water points as opposed to having water piped into the home. In an article discussing access to water in Lilongwe, Alda-Vidal et al. (2018) state that over their study period and eight months previous, Area 36 had only received water at night. This situation is not uncommon for lower-income areas of Lilongwe (Alda-Vidal et al., 2018) however, it is likely to harm QoUL as residents may have to travel to access drinking water.

Finally, figure 6.2 discloses that there are suitable education facilities across Area 49, with 11 schools dispersed throughout the neighbourhood. There are also two central health facilities as illustrated on the map, and a reasonable number of water points are shown distributed across the neighbourhood. Similar to Area 18, it is likely that residents of Area 49 have water piped into or near to their plot, therefore, there is less requirement for neighbourhood waterpoints. Again, similarly to Area 18, Area 49 is within close proximity to the police headquarters which are located in Area 30 which helps to create a feeling of safety; however, there are no police stations in the neighbourhood. This objective profile displays that despite Area 36's large population, it does not receive the same amenities as the other case study neighbourhoods. It is anticipated that this negatively impacts residents perceived QoUL in this

neighbourhood, which is investigated through residential attitude surveys in Chapter Seven.

6.2.2 Walk-Through Technique

To complement the objective data, the research also conducted ‘walk-through analysis’ of each of the neighbourhoods. This involves an assessment of the urban quality by experiencing the environment while walking through it. The walk-through analysis is conducted by the PhD researcher and a colleague from a Malawian community group. The neighbourhoods are toured several times, both on a weekday and a weekend. This technique is semi-structured and involves fieldwork sketches and photographs. To ensure that each of the neighbourhoods is comparably observed, this is broken into four main headings: domestic buildings, street landscaping, streetscape and street life. Together, this provides an image of the neighbourhood. The commercial and recreational areas are analysed in-depth using structured observations in Sections 3-5.

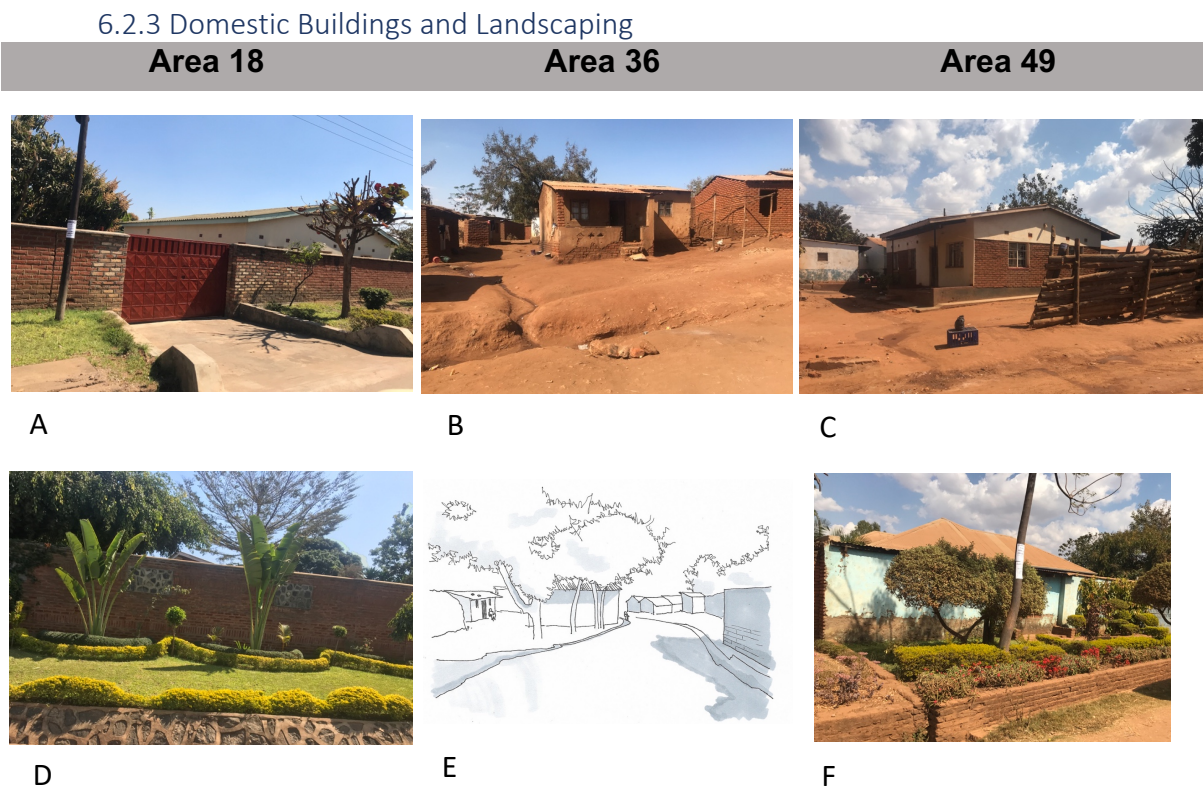


Figure 6.1 Domestic buildings and landscaping

The majority of houses in Area 18 are made from permanent materials, with a small number made from combination materials. Many houses are located behind walls and gates as displayed in Figure 6.1 A, however, there are those which are open to the street. Chapter Five, Section 1. 5 ‘Density’ discussed that often walls, fences and gated reflect a desire for privacy by enclosing a plot. There are many homes in Area

18 which have sidewalls, but are open to the street; this implies a desire for privacy as opposed to safety as residents are likely to build side garden walls first if they desire privacy, however, are likely to build front walls first if they are seeking a feeling of safety. This, therefore, suggests that Area 18 has a secure atmosphere as residents do not always feel the need for front walls. Chapter Five: Section 4.3 'urban safety' discusses that safe and supportive neighbourhoods are imperative for good QoUL as safety positively affects mental health and attachment to an urban area.

The houses in Area 36 are predominantly made from traditional materials and techniques such as mudbrick, an example of which is shown in Figure 6.1 B. There are homes in the neighbourhood which use 'combination' materials, where the walls are mudbrick while they also utilise concrete floor slabs and material sheet roofing. It is noted throughout Area 36 that there is a mixture of homes with or without verandas. Verandas are important structures as they provide a transitional space between the public street life and the private home life. While conducting the walk-through technique, a resident stated that the reason many homes in the city do not have verandas is due to the lack of space. There is less space between buildings in Area 36 than found in Areas 18 and 49. It displays that many homes do not have fences or walls to partition between themselves and their neighbours. Due to the lack of walls, fences or vegetation, residents in this neighbourhood likely feel their life is more public than is experienced in the other case study sites. The lack of clear boundaries between plots result in spaces between homes appearing communal; this is often associated with residents perceiving a lack of control over the space, which has negative implications for safety (Newman, 1996). It is also anticipated that the neighbourhood feel less safe due to the high density and lack of walls or fences. This is investigated in the residential attitude survey in the subsequent chapter.

Housing in Area 49 is predominantly modern building methods, however, there are also many combination dwellings. New homes are being erected in Area 49, which are semi-detached buildings. Across the three neighbourhoods, the common house typology is detached bungalows. In the Gerke & Viljoen (1968) masterplan, they state that bungalows with gardens are appropriate socially for three reasons: because Malawians have a secure attachment to the land they are likely to use gardens for cultivation, and that there is a resistance to semi-detached or multi-storey flats. The new semi-detached building typology suggests that the culture is changing and welcoming detached homes. The walk-through technique exposes that Area 49 has less gated dwellings than Area 18, however, many are behind walls and fences shown in Figure 6.1 C. This image also shows that residents in Area 49 have gardens which are important for a feeling of safety and privacy. Additionally, many homes in Area 49

have gardens which are seen to grow crops, suggesting they provide a functional as well as a recreational space for residents.

An appealing aesthetic feature in Area 18 is that it has large areas of green landscaping, as shown in Figure 6.1 D. These are found along the streets and are often outside houses. Much of the landscaping in Area 18 is formal, with deliberate and planned garden areas. This implies that the residents of these homes take pride in their dwelling and their surroundings, which suggests a secure feeling of place attachment. Chapter Five: Section 2.5 'Place Attachment', discusses that if a resident believes that they are temporary, they may be less likely to invest in their neighbourhood. Thus, it is anticipated that Area 18 hosts residents who are positively engaged in the social life of their community. Area 36 has less notable aesthetic landscaping than is found in Areas 18 and 49. However, there are areas with trees which provide shade for the neighbourhood as displayed in Figure 6.1 E.

Area 49 has some areas with beautiful landscaping, as illustrated in Figure 6.1 F. This again illustrates that the residents take pride in their home and garden, which suggests place attachment and that occupants have resided in the dwelling for a reasonable number of years. Furthermore, high-quality landscaping shows that residents choose to invest in their neighbourhood, therefore, are engaged in the community social life.

6.2. Street-life and Streetscape

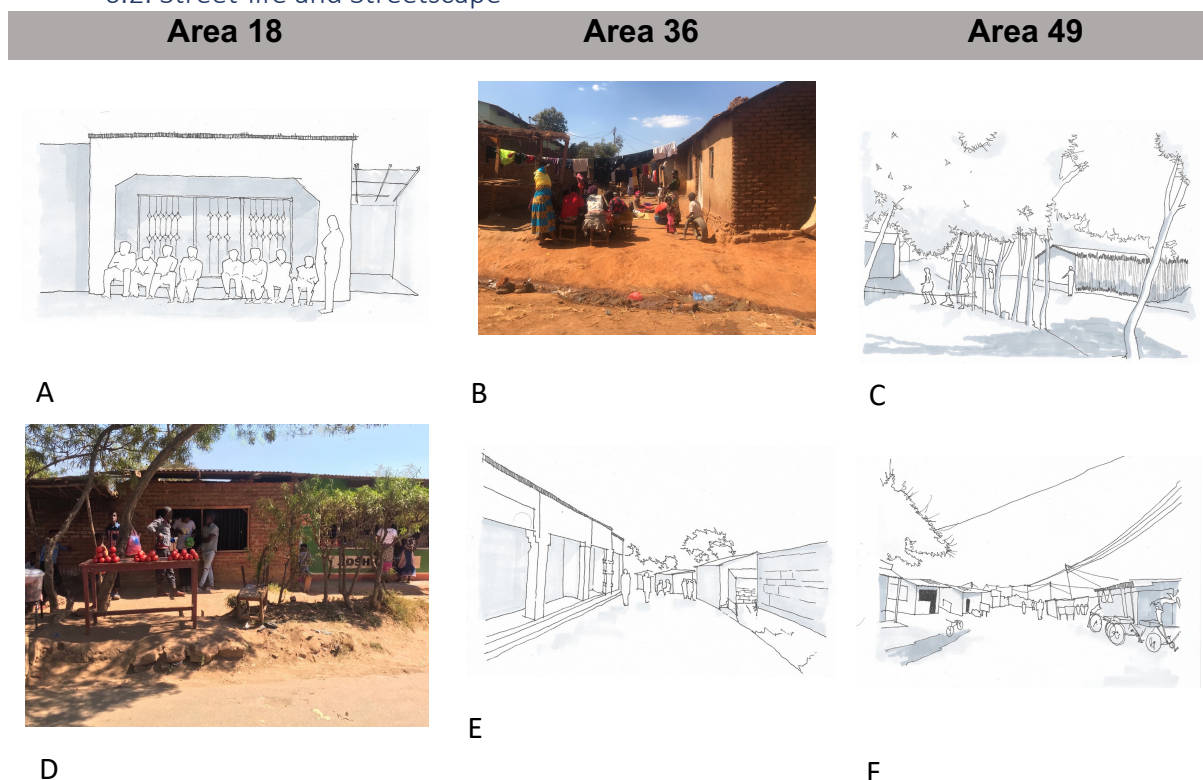


Figure 6.2 Street-life and Streetscape

Area 18 has a good sense of community found in the street life. The sketch in Figure 6.2 A is of a group of nine men who have stopped to dwell in a shaded area of the street. Here they gather, spending time sat on the concrete steps of the neighbourhood shop. Shaded shop fronts are seen as a collective space in the neighbourhood for communities to share, which positively promotes street life and neighbouring to provide a strong sense of community.

Area 36 has a vibrant street life and a strong sense of community. The streets are full of residents spending time together, as illustrated in Figure 6.2 B. The streets in Area 36 are active and engaging, with neighbours positively interacting with one another, stopping to converse and smiling as they pass. Figure 6.2 B is a group of women and children gathered in the space between domestic buildings. Here the women are braiding hair while the children play. The streets of Area 36 radiate warmth and collective enjoyment of neighbours and kin. Further images of the active street life are found in Appendix 5.

The street life in Area 49 is again active and positive. The fieldwork sketch in Figure 6.2 C is of a group of children who are using the trees in a garden to play with a skipping rope. The sense of community is strong in this neighbourhood where groups of various ages are seen meeting and spending time together. Chapter Five: Section 2.3 'Public Spaces' considers the fact that public spaces are not necessarily formal but are often informal spaces that are well known to residents of the neighbourhood. Whyte (1980) discusses that it is often assumed that children use the street to play because there is not a playground space, however, in fact, many children play in the street because they like to. The street often has all the elements of a successful play space; it has shade, friends and is close to the home for refreshments. This is investigated in detail in the subsequent chapter to understand if residents perceive these as suitable quality spaces that support their urban life. During the walk-through method, the colleague mentioned that Area 49 has an excellent community group who work together to raise funds for projects that they feel are needed in their neighbourhood. This reiterates the strong sense of community found in Area 49.

Figure 6.2 E is a fieldwork sketch which illustrates a typical commercial street in Area 36. Here it demonstrates that the streets typically have people on them during the day. All the buildings are similar heights, and the domestic structures on the left of the street have verandas which provide shade for those using the space. Figure 6.2F is a fieldwork-sketch of a commercial street in Area 49. The streets are busy and full of life. The majority of buildings are the same height despite being commercial or domestic. The commercial street has electricity lines which suggests that the

neighbourhood has access to power. The street life in all three neighbourhoods is strong and vibrant. It is anticipated that residents have propinquity relations with their neighbours across the full spectrum of residents that are surveyed in chapter Seven.

6.3 Experiencing Lilongwe's Urban Open Spaces:

Having established an understanding of the neighbourhoods through the walk-through analysis, this section now dwells on important commercial and recreational spaces in the neighbourhoods. This is conducted through an exploratory assessment of the selected urban open spaces in each of the neighbourhoods and focuses on how these spaces are experienced using two structured observational techniques. The techniques are detailed in Chapter Three: Research Methodology Sections 4.7-4.9. The study reveals significant findings that pertain to how users perceive urban open spaces and discusses aspects that could improve residential QoUL in the future. Both of the observational tools that are used focus on the physical and social indicators of QoUL, as these domains are best perceived through an observational assessment. The urban open spaces that are chosen for the systematic assessment are selected to cover a variety of activities and services in the case study neighbourhoods. Open spaces, in particular, are selected as they form the stage upon which people live their life. This impacts on residents' perception of, and engagement with, their neighbourhood. Attractive and functional public spaces are essential to the users feeling of well-being and comfort (Salama & Azzali, 2014; Tibbalds, 1992), which directly affect residential QoUL. As such, urban settings should invite and encourage public life both directly and symbolically by the use of their public spaces (Jacobs & Appleyard, 2003 [1987]).

The availability of accessible and attractive urban open spaces is a significant feature of a liveable, attractive urban environment for residents (Salama & Wiedmann, 2013). Urban planners understand the need and importance of public spaces. It is recognised that good quality, meaningful public spaces improve the experience of public life (Mehta, 2007) therefore make a neighbourhood more appealing and engaging for residents. Open spaces in neighbourhoods form the spaces where residents meet regularly and watch daily life unfold. As such, they play a critical role in residential QoUL. Many important social relations occur in public spaces, including politics, neighbouring and community exchange. The everyday spaces in neighbourhoods are often the stage upon which governance unfolds, thus open spaces are significant for a range of important social phenomena. Good quality public spaces are required for the social and psychological health of modern communities, thus are recognised as integral in enhancing QoUL. The following examination of the qualities and attributes

of urban open spaces determines if the selected settings fulfil the needs of residents and provide insight as to why some spaces are more valued than others.

6.3.1 Overview of the seven selected spaces in Lilongwe's neighbourhoods:

For each neighbourhood, a minimum of two urban open spaces are selected with the requirement that one is a recreational space, and the other an important commercial space. These urban open spaces were identified by a colleague in Malawi, who consulted with friends and relatives that live in the neighbourhoods, to conclude with a range of spaces that are important for an assortment of demographics.

The following section describes each of the identified spaces to develop an overview of each setting. This is followed by an analytical description of the qualities of the urban open spaces as identified by the walking-tour observation, to then conclude with the positive and negative aspects of each of the spaces and how this affects residential QoUL. For ease of comparison, this discusses the spaces in the themes of recreational spaces, then commercial spaces. Two recreational spaces are observed in Area 18 due to their particularly interesting urban characteristics.

6.3.1-1 Area 18: 'Monument Square' Recreational Space 1.



Figure 6.3 Area 18 Monument Square

The Monument Square, with its large tower, is an iconic space directly adjacent to Area 18. It provides a connection between Area 18 and Capital Hill, which houses Lilongwe's government offices. The setting is used by government employees on their lunch hour, as well as residents from surrounding neighbourhoods, including Area 18. The centre of the square is a sizeable recognisable tower Figure 6.3B, which pays tribute to the memory of those who fought in World War 1, which shown in Figure 6.3B. Towards the front of the square, there is a statue depicting the previous president of Malawi shown in Figure 6.3C. Both structures are made from good quality permanent materials and are landmarks which stand out from the surrounding context. The only other structure on the site is the tourist office, which is used by tour guides. The former president commissioned the square, and it feels unique for Malawi.

The researchers visited the square on three occasions; on the weekend, and twice on a weekday, both morning and afternoon. The square hosted a range of visitors over these time periods including: a group of five men filming a music video, an individual using the space to practice driving as part of a lesson, a boy and his father playing football, as well as commuters and general public use. The diverse mixture of activities that take place in the square demonstrates that it is an essential setting in the city, as there are no other similar spaces nearby.

6.3.1-2 Area 18: 'Botanical Gardens' Recreational Space 2



Figure 6.4 Area 18 Botanical Gardens

The botanical gardens are an ample green space that connect Area 18 to Capital Hill displayed in Figure 6.4. They sit directly adjacent to Monument Square. Government employees again use this space over their lunch hour, as well as residents from surrounding neighbourhoods such as Area 18. The botanical gardens are mostly grass, trees and vegetation. However, they also have a few notable structures throughout including a church, offices, shown in Figure 6.4 A, relaxation huts, shown in Figure 6.4 D, and toilet block. The offices and toilet blocks are made from good quality permanent materials, and the huts and church are made from high-quality traditional materials and techniques. Each building is a stand-alone object that sits like a jewel in the landscape. The main paths of the botanical gardens are good quality and appear to be swept often for leaves.

During the weekend observation, families and groups visited the gardens. On the weekday morning visit, the majority of users were individuals, who use the space independently for quiet and tranquillity, such as Figure 6.4 B. However, lunch hour sees a large influx of residents, many of whom visit in groups shown in Figure 6.4 C. This reflects the sense of community coming together to use the space. Many visitors use the gardens to pray and visit the church. On viewing the visitors' sign-in book, it presents that the majority of visitors state 'prayers' as their reason for the visit.

6.3.1-3 Area 36: The School Grounds. Recreational Space



Figure 6.5 Area 36 School Grounds

The school grounds are a setting in Area 36 that are used by youths as a sport and recreational space. This is an important aspect of the neighbourhood as it provides a haven for young people to get together and play sports. The overall site has the classroom blocks and a large playing field which can successfully function as two semi-detached sports fields due to the size. The classrooms have a good quality external finish and are made from permanent materials with a bespoke ring-beam, which brings colour and detail to the build, See Figure 6.5D. The layout of the classroom blocks creates small informal gathering spaces for youths to sit and watch their peers indulge in sports as shown in Figure 6.5 A. The grounds in Area 36 also has a large tree with benches surrounding it. This is a quiet, shaded gathering space for a group to congregate and pass the time, shown in the sketch in Figure 6.5 C. A large number of residents occupied the school grounds during the weekend and weekday morning observation, however, it becomes quiet over the lunch hour. It is likely that during the peak heat of the day, residents decide not to play sports, but to go somewhere else in the neighbourhood for their lunch. They return to the setting mid to late afternoon when the temperature drops again however, it is not an evening space due to the lack of lighting. A large number of youths use the space; there is nothing that would exclude others from using it, however, there is nothing to attract other demographics into the space.

6.3.1-4 Area 49: The School Grounds. Recreational Space



Figure 6.6 Area 49 School Grounds

Similar to Area 36, the recreational space selected for Area 49 is also a school ground. Again, the primary demographic using this space is the youth of the neighbourhood, for sports and relaxing with friends. The classroom blocks are mostly good quality buildings, which are made from permanent materials, shown in Figure 6.6 B and D. The setting is large, with flat natural ground. The classroom blocks have raised concrete verandas which provide seating for users. Due to the layout of the classroom blocks, there are nice shaded areas for youths to sit and watch the sports and interact with neighbours.

The timeframe of this setting is much like the recreational space in Area 36; it is vibrant and busy during the weekend and weekday morning visits, however, this drops off during the lunch hour. Again, the researchers felt that this is due to the heat of the day, which encourages visitors to go elsewhere for their lunch. An informant stated that the setting is likely to come to life again late afternoon and early evening before it gets dark, as there is no street lighting available for the later evening.

6.3.1-5 Area 18. The Shops, Commercial Space



Figure 6.7 Area 18 Commercial Setting

The commercial shopping and restaurant space in Area 18 is used by residents of the neighbourhood, and those who work nearby, such as government employees of Capital Hill. All the buildings in the setting are permanent concrete structures with a painted finish. They are visually compatible as they are terraced buildings, which use a similar colour scheme, materials and similar heights.

The observation highlights that the facilities are used by local people throughout the day, particularly during lunch hour and weekends. At lunch hour, the setting sees a large influx of visitors, especially to the restaurant spaces. This, therefore, illustrates that it is an essential space in the neighbourhood. Members of the public use this area to visit shops and restaurants, as well as to relax and communicate with friends. During the weekday afternoon observation, groups gathered in shaded areas, using the stairs under the verandas as seating. A group of men are seen using one space, and a group of women used the other as illustrated in Figures 6.7 B and C. Inside the restaurants, both men and women are gathered together to eat lunch. Although families are welcome to use this space, there are other areas in the neighbourhood that suit families better. As such, adults and teenagers commonly use the space.

6.3.1-6 Area 36. The Shops. Commercial Space



Figure 6.8 Area 36 Commercial Setting

The commercial space in Area 36 is a shopping and restaurant space. The buildings in the setting are all made from permanent materials including tiles, concrete and glass. During the observation, the researchers identified three primary types of users: those who work in the shops and restaurant, those who use the facilities, and those who are transiting through the space. Transit users are often in groups passing on their route through the neighbourhood, shown in in Figure 6.8 C. This category sees friends, family, couples as well as individuals passing through the space, however, they do not stop to use the facilities. The people stopping to use the space are a mixed demographic. The final category is the employees of the space. They work out-with the shops and restaurants, preparing food and are seen to occupy the largest area of shade at the time. They create life in the space, as they sit together conversing as they work, as shown in Figure 6.8 A.

There remains a constant stream of through traffic and a strong sense of community is felt. While the space is safe for all ages, children do not appear to use it for play, as observed in Area 18 commercial space, this is likely because other areas are more appropriate for play. There are diverse social activities available, including shopping, eating, walking or relaxing.

6.3.1-7 Area 49. The Carwash and Shops. Commercial Space



Figure 6.9 Area 49 Car Wash and Shops

The carwash and shops setting in Area 49 is an active, vibrant part of the neighbourhood. It is visited by a mixed demographic of men and women of all ages. It hosts a carwash, bus stop, shops, sellers as well as a snooker table shown in Figure 6.9.

The buildings in this setting are a mixture of permanent and traditional materials. There is currently a construction site down one side of the space, which looks like it will hold shops and perhaps a restaurant, when the construction is complete. The setting is active throughout the day. Residents gather both formally and informally to play snooker, converse with neighbours and friends as they pass, shopping at the stalls and waiting for public transport. Residents are seen passing through the space, greeting one another, smiling and enjoying the space as they go. The carwash area plays loud music, which adds to the lively experience of the setting. The street life here is active and positive. There is a bus stop and bike taxi stance at the edge of this setting, which create dense nodes as residents get on and off the various means of transport. The space is, therefore, well connected to the wider city and is often visited by commuters.

6.4. Analytical discussion of the outcomes of the walking tour assessment

6.4.1 Physical Indicators:

Each of the seven settings are investigated using a structured observation tool, termed the 'walking tour assessment tool'. This uses structured checklists to consider each of the settings in a comparable way to reveal interesting or important aspects of the urban open spaces. This is split across two checklists, one of which considers the physical domain, and one which reflects on the social characteristics of the settings.

The physical domain has five indicators, with a total of thirteen attributes distributed across them. Each attribute is scored on a 4-point scale, where scores are assigned next to each attribute in terms of the degree of appropriateness. Scores are then averaged to provide an overall score for each of the urban open spaces. Each of the thirteen attributes is promulgated in the literature in Chapters Four and Five and are phrased as questions. They aim to provide a comprehensive understanding of the physical quality of the urban space. A detailed breakdown of indicators and attributes is found in Appendix 9. The analysis discusses each of the five physical indicators to comprehend not only if a space is high or low quality, but further to understand what attributes make it high or low quality, to determine aspects which could be improved upon on future urban open spaces. Particularly low results are highlighted in red for ease of comparison in Table 6.3.

Physical Aspects of the Public Space (Weekend Visit)		Area 18- Monument Sq.	Area 18- Botanical Gdns	Area 36- School Ground	Area 49- School Ground	Area 18- Shops	Area 36- Shops	Area 49- Carwash and stalls
Architectural Quality	Are the majority of buildings in this public space made from good quality materials?	4	4	4	4	4	4	2
	Are there any iconic or landmark buildings/structures?	4	3	3	3	3	3	3
	Are the buildings in the space visually compatible? (think heights, materials, space between buildings)	4	4	4	4	4	4	3
Infrastructure	Is the ground in this space good quality? (think, materials, maintenance, age)	4	3.5	3	3	3	3	2
	Does the space feel safe despite vehicular traffic (Low levels of traffic, slow moving vehicles etc.)	4	4	4	4	3	3	4
Transport & Accessibility	Is the public space connected to public transport links?	4	4	4	4	4	4	4
	Is this public space essential to the surrounding urban context?	4	4	4	4	4	4	4
	Is the space accessible to all users (including disabled) in terms of topography and physical barriers?	4	4	4	4	2	2	2
Density & Privacy	Does the public space have private areas for those who want them?	3	4	4	3	3	3	3
	Is the space densely populated at peak times of the day?	2	2	2	2	4	4	4
Ecological Quality	Is there good quality landscape elements in the space? (such as street furniture or paths)	4	4	3	3	3	3	3
	Is there a good presence of shade in the public space?	1	4	3	3	4	4	3
	Is there a good presence of vegetation in the public space?	3	4	3	2	1	1	1
Total =sum/13		3.5	3.7	3.5	3.3	3.2	3.2	2.9

Table 6.3 Physical Walking Tour with results

6.4.1-1 Architectural Quality:

This set includes indicators such as building materials, landmark structures, and if the space is visually compatible. All of the recreational spaces are considered highly appropriate for this category scoring either 3.7 or 4 out of 4. This is attributed to the buildings being made from good quality permanent materials and appearing visually harmonious. The Monument Square, in particular, gains 4 out of 4 in this category, demonstrating that the architectural quality in this setting is excellent. This score is awarded due to the large iconic tower which makes the space perceptually unique and visible from a distance, and the materials used throughout the square are high quality. The majority of the commercial spaces gained high scores, with Areas 18 and 36 each recording 3.7 out of 4. However, the carwash and stalls in Area 49 scored a total of 2.7 out of 4 for this indicator. The main attribute that lowers the score is the building materials of the setting. It is noted in the observation that new structures are being built, so it is likely that the architectural quality of this setting will improve soon.

6.4.1-2 Infrastructure:

This set includes vital attributes related to ground materials, including roads and vehicular safety. Assessing factors related to infrastructure revealed that all the urban

open spaces are appropriate with all scoring 3 out of 4 or above. The recreational spaces, in particular, see the settings being regarded as highly appropriate, with Monument Square again gaining 4, closely followed by Botanical Gardens scoring 3.8 and both school grounds scoring 3.5 out of 4. With regards to vehicular safety, the only recreational space that cars can enter is the Monument Square, and due to the space being a dead-end, cars are infrequent and slow-moving. As such, all spaces feel safe from vehicles. The ground materials at each of the school grounds are reasonable, scoring 3 out of 4. Area 36, in particular, has well maintained ground materials; the residents who use the space sweep the grounds, illustrating their attachment to the setting and their ownership of the space.

The observation showed that the commercial spaces are also appropriate, with the shops at Area 36 gaining 4 out of 4, and the other two shopping areas scoring 3 out of 4. Within each of these spaces, cars can enter the spaces but do so only to park and access the facilities. In the case of Area 49s carwash and stalls setting, the cars enter the space slowly and park up to get washed, therefore, pose no risk to pedestrians. Thus, all commercial spaces feel safe despite vehicular traffic. The walking tour highlights the meagre quality ground materials of Area 49 carwash and stalls. The overall ground is natural materials, however, there are parts which have ditches as shown in Figure 6.9 A, this reduces the overall score for this indicator. Overall, however, the settings appropriately meet the infrastructure requirements.

6.4.1-3 Transport, Accessibility and Connectivity

This set of indicators encompass attributes that pertain to transport links, accessibility for all users, and if the setting is essential to the surrounding neighbourhood. The assessment of this indicator revealed that the recreational spaces are all highly appropriate, with the Botanical Gardens, and both School Grounds scoring 4 out of 4, and the Monument Square closely behind with 3.7 out of 4. Each of these spaces is accessible to all users, including the elderly or those with physical disabilities. The Monument Square, in particular, has landscaped ramps which connect the upper tower block to the lower ground of the square, illustrating that they had special users in mind when designing the square. Each of the recreational settings has transport links either directly in them, or adjacent to them, thus connecting them to the rest of the neighbourhood and the wider city.

The commercial spaces gained sound scores with regards to transport and accessibility, however, both Area 18 and Area 49 are let down slightly by their accessibility for special users. In the case of the shops and restaurants in Area 18, a number of them are elevated between 3 and 6 steps without a handrail. This is seen

in Figure 6.7 B and C. These steps make the space challenging for elderly and disabled users, thus lowering their overall score for this indicator. By the same token, the carwash and stalls setting in Area 49 is allocated a lower score for the accessibility of this space. Here, it is due to the bumpy and holey ground, which the disabled and elderly may find difficult to navigate. This is also highlighted in the previous indicator, thus illuminating it as an issue within that setting. Despite the lower scores for the accessibility of the settings, the overall score for the commercial areas are high due to the good quality transport links, and that they are all essential to their surrounding neighbourhoods.

6.4.1-4 Density and Privacy

The attributes that represent this indicator include if the setting is densely populated and if there are private areas for those who want them. The recreational spaces scores are lower than are noted in previous indicators. This is palpable, as the recreational spaces are all too large to become densely populated. Both of the school grounds become busy and vibrant during the weekends, and at parts of the weekdays. However, due to the scale of the settings, they remain lightly populated. The botanical gardens again see a peak influx of population during the lunch hour however, again due to the size of the space, it cannot be considered dense. A pleasant aspect of the Botanical Gardens, which is highlighted by the walking tour, is that there are intimate private settings for those who want to find them. Many residents are spotted, sat beneath a tree, gaining solitude and sanctuary from the busy city life. Each of the school grounds also has small informal settings where residents can gain privacy if they desire. Small groups of youths are seen sat between classroom blocks enjoying the shade they provide, while watching their peers play sports.

On the other hand, the commercial spaces in Areas 18 and 49 become densely populated, particularly during lunch hour, when a large influx of residents appear to enjoy their lunch in the settings restaurants. These two spaces also provide good quality informal gathering spaces including the shaded steps in Area 18, and the shaded pergola in Area 49. Nevertheless, the commercial space of Area 36 gained an inappropriate score of 2 out of 4 with regards to density and privacy. The space is not densely populated at any time of the day, despite constant through traffic of people. The lack of shade in the space also makes informal gathering spaces limited, as residents would not stop for long. This is discussed further in the following section. This indicator should be rephrased to ask if spaces become busy, as it is perhaps aiming to understand if spaces are popular as opposed to dense. Density is not necessarily a positive indicator. This has been exposed during the current Covid-19 pandemic as the increasing density of cities is thought to contribute to the rapid spread

of viruses (Salama, 2020). Thus, this question should be altered to ask, “Does the space become busy at peak times of the day/week?”

6.4.1-5 Ecological Quality

Attributes that represent the ecological quality of the urban spaces appear to be the least appropriate scoring an average of 2.8 out of 4 across the seven settings. First reviewing the recreational spaces, it is seen that, unsurprisingly, the Botanical Gardens scored highly with 4 out of 4. This is attributed to the setting hosting shade, vegetation and good quality landscape elements. One of the primary issues found at Area 18s Monument Square, is that there is a distinct lack of shade. The lack of shade makes it very difficult for members of the public to reside there for long durations of time, as it quickly becomes too hot. This is an essential ecological attribute that could contribute to an increase in residential use if it is resolved. Both of the school grounds are awarded 3 out of 4 for their landscape elements; this relates to their concrete verandas which surround the school classroom blocks as they are used as paths and informal gathering setting by the youth in the space. Here, the residents gather with a landscaped element to sit on, which are clean and well maintained.

Using the walking tour to review the commercial space again highlighted that the ecological quality is less resolved than other indicators in the settings. Across all three commercial spaces, there is minimal vegetation. This could be because, in this context, vegetation may not be considered a visual priority. When discussing this factor with an informant, he stated that the residents often like their gardens to be well swept, and the vegetation is generally crops. This relates to the discussion in Chapter Four; Section 3.33, where ecological quality gained a relatively low importance score by the experts. Nevertheless, each of the commercial spaces gained reasonable scores (3 out of 4) for their landscaping elements.

Similarly, to the discussion about the lack of shade in the Monument Square, it is felt that there is a lack of shade in the commercial setting in Area 36. It is noted that the employees of the setting are moving to wherever there is shade, and as such, there is minimal shade remaining for other users. The employees use a gazebo at the end of the space to provide more shade; however, as the sun moves round the setting, even this becomes swept with direct sunlight. It is the opinion of the researcher that shade is one of the most essential physical attributes of the urban open spaces as it directly affects the functionality and usability of the setting for the residents.

6.4.2 Social Indicators

Having reviewed the physical aspects of the settings, the second equally important aspect considered by the walking tour are the social attributes of the urban open spaces. By again using a structured checklist, certain interesting aspects of the urban open spaces are revealed. The tours are conducted on a weekend, and twice on a weekday. By conducting the tour at various times of the day and week, it reveals the temporal nature of the spaces as highlighted in Chapter Two: Section 3.3. The same spaces gain significantly different scores with regard to the social attributes of the space, depending on the time of the survey. This is unlike the physical attributes, which remain fundamentally the same. Below are two summary walking tours; these display that the indicators receive different scores depending on the time that the observation is carried out. The time of the tour is stated in the top left of the table.

Social Aspects of the Public Space (Weekday Morning Visit to Recreational Spaces)		Area 18- Monument Sq.	Area 18- Botanical Gdns	Area 36- School Ground	Area 49- School Ground	Area 18- Shops	Area 36- Shops	Area 49- Carwash and stalls
Personal Relationships	Do you see members of the public space interacting with one another? (greeting, smiling chatting etc.)	2	3	4	4	4	3	4
	Do you see many families? (children with parents, couples etc.)	2	3	3	3	3	3	3
	Are there spaces for children to play under supervision of adults?	4	4	4	4	3	2	3
Public Meeting Spaces	Is there food or drink available in the public space?	1	1	3	3	4	4	4
	Does the space accommodate diverse social activities?	4	4	4	4	4	3	4
	Is the space inclusive to all users? (different ages, genders etc.)	4	1	3	3	2.5	4	2.5
	Does the space include multiple gathering settings? (these could be both formal and informal)	3	4	4	4	4	3	4
Urban Safety	Does the space feel vibrant? (think active commercial properties, well populated etc.)	2	3	4	4	4	3	4
	Is the public space well-lit at night?	4	1	1	1	1	1	2
	Do you feel safe in this space?	4	4	4	4	4	4	4
Sense of Community & Place Attachment	Do you feel as though there is a strong sense of community in this neighbourhood? (This can be seen through active social contact, residents recognising one another, informal gathering, hearing nicknames etc.)	3	2.5	4	4	4	3	4
	Is the public space well-maintained? (This can be seen through lack of litter, lack of broken items etc.)	4	4	4	4	4	4	4
Total =sum/12		3.1	2.9	3.5	3.5	3.5	3.1	3.5

Table 6.4 Social Walking Tour Morning Visit with Results

Social Aspects of the Public Space (Weekday Afternoon Visit to Recreational Spaces)		Area 18- Monument Sq.	Area 18- Botanical Gdns	Area 36- School Ground	Area 49- School Ground	Area 18- Shops	Area 36- Shops	Area 49- Carwash and
Personal Relationships	Do you see members of the public space interacting with one another? (greeting, smiling chatting etc.)	3	4	1	1	4	3	4
	Do you see many families? (children with parents, couples etc.)	2	3	1	1	3	3	3
	Are there spaces for children to play under supervision of adults?	4	4	4	4	3	2	3
Public Meeting Spaces	Is there food or drink available in the public space?	1	2	3	3	4	4	4
	Does the space accommodate diverse social activities?	3	4	4	4	4	3	4
	Is the space inclusive to all users? (different ages, genders etc.)	4	1	3	4	2.5	4	3
	Does the space include multiple gathering settings? (these could be both formal and informal)	3	4	4	4	4	3	4
Urban Safety	Does the space feel vibrant? (think active commercial properties, well populated etc.)	2	4	1	1	4	3	4
	Is the public space well-lit at night?	4	1	1	1	1	1	2
	Do you feel safe in this space?	4	4	4	4	4	4	4
Sense of Community & Place Attachment	Do you feel as though there is a strong sense of community in this neighbourhood? (This can be seen through active social contact, residents recognising one another, informal gathering, hearing nicknames etc.)	3	4	1	1	4	3	4
	Is the public space well-maintained? (This can be seen through lack of litter, lack of broken items etc.)	4	4	4	4	3	4	3
Total =sum/12		3.1	3.3	2.6	2.7	3.4	3.1	3.5

Table 6.5 Social Walking Tour Afternoon Visit With Results

6.4.2-1 Personal Relationships:

The first social indicator assessed in the urban open spaces is personal relationships. Aspects evaluated for this indicator include attributes such as public interaction, families, and space for children. This is an indicator which varies dramatically depending on the time of day that the researchers conduct the observation. In the morning and weekend visits, both of the school grounds are busy and full of life. Youth are gathered and engaged in sports, with friends and neighbours sitting by the edge of the fields to watch their peers play. When the space is visited again during weekday lunch hour, the school grounds are both empty, thus the sense of interaction and likelihood to see families, dropped from high scores to low scores. This is likely to be due to the youth going somewhere else for lunch, perhaps back to their homes or elsewhere in the neighbourhood. The opposite can then be said about the recreational spaces in Area 18, both the Monument Square and the Botanical Gardens come much more to life during lunch hour than they do in the morning visits. The Botanical Gardens in particular sees a large influx of visitors, who use the church on site to pray over their lunch hour. This reiterates the importance of conducting the walking tours at numerous times of the day and week.

The overall impression for the school grounds in both Area 36 and Area 49 is that they successfully met the 'personal relationship' criteria scoring an average of 3.7 out of 4 in the morning visit. There are spaces for youth and children to gather, and a positive sense of interaction that is demonstrated through youth playing sports together, chatting and smiling at one another. The Botanical Gardens in Area 18 received a score of 3.3 out of 4 during the lunch hour visit. Although there is safe space for children to play, it appears more of a setting for workers on their lunch hour than one for families. The visitors who used the space are interacting with one another, walking together to the church and conversing as they go. The setting with the lowest score for this indicator is the Monument Square in Area 18 with its highest score at any point of observation being 3 out of 4 and dropping to 2.7 out of 4. During the observations, the setting is relatively quiet; the hypothesis for its quiet nature is discussed in detail through subsequent indicators.

Looking at the commercial spaces, Area 18's shop setting scores high for this indicator, scoring a total of 3.3 out of 4. It is displayed that members of the public use this space to shop and relax. Throughout the observation duration, men, women and children do use the space. However, there are ones which suit families better elsewhere in the neighbourhood, so generally families are passing through rather than stopping to spend time. Area 49 scores particularly high with regards to sense of interaction; here neighbours and friends are seen positively interacting with one another, and the vibrant sense of community is clear. It is observed that neighbours know one another, which presents a strong sense of community and personal relationships in this space.

6.4.2-2 Public Meeting Spaces:

The second indicator assessed within the social domain is public meeting spaces. This indicator places emphasis on the diversity of activities taking place, if it has refreshments available, the inclusivity of the space, and if there are multiple gathering settings. This indicator again receives dramatically different scores depending on the time of the observation.

The school grounds settings score high during the morning visits, with Area 36 and Area 49 each gaining 3.5 out of 4. Both of the school grounds successfully host a range of activities including football and netball, in addition they also have informal gathering settings for others to sit and relax whilst watching the sports, or just spending time with friends. The school grounds in Area 36 also has a small setting, which is a concrete bench under a tree. During the morning observation this space hosted a group of six women sat in the shade. The women sparked up a conversation with the

researchers, and through this exchange, it revealed that they are teachers for the school who use the space to meet to work on lesson plans. This brings an extra demographic to this space as it is not exclusively for youth. While each of the school grounds are primarily used by youth, there is nothing that excludes others from using the space. During lunch hour, the observation sees a dramatic drop in the score as they are left essentially vacant as the users go elsewhere for their lunch. In his book, Whyte (1980) discusses that food vendors know where successful busy urban areas are, and that they are likely to congregate near to these spaces. Directly out with each of the school grounds, there are food vendors, thus while there are not refreshments available within the grounds, they are within a moment of the setting. This illustrates that the vendors have scouted the areas out as ones that have high people traffic, thus are important for the neighbourhoods.

Reviewing the same indicators in Area 18, both the botanical gardens and monument square gain underwhelming scores of 2.5 and 2.75 respectively. Each of the settings score well for their diversity of activities and multiple gathering settings, however, neither space has food or refreshments available. This requires users to bring their own refreshments, which reduces the appeal and functionality of both spaces. Through a conversation with the tour guide who works in the monument square, he discussed that this is felt to be an issue with the space, which they aim to rectify as a means to encourage more footfall into the space. A predominant issue with the botanical gardens is that there is a small fee to enter the space. Due to this fee, this cannot be considered an inclusive space, as it is inaccessible to those who do not have the means to pay. This is likely to exclude neighbourhood youth or low-income families from regularly using the space.

Turning the attention to the commercial spaces in the neighbourhoods, all three spaces score relatively high for this indicator at any time of the day. Refreshments are a predominant feature of these spaces through stalls, shops and restaurants. Each of the commercial spaces are able to host diverse activities, including shopping, eating, drinking and relaxing with friends. Areas 18 and 49 successfully host multiple gathering settings, seen in images such as Figure 6.7 C where there are groups of men and women informally using the stairs as seating in Area 18. The only attribute that lets this indicator down in Areas 18 and 49 is the concept of inclusivity; this is discussed in the physical walking-tour that the physical urban design makes some of the spaces less accessible for all users. It is felt that socially, the space reaches out to a range of demographics, however the physical issues require attention to increase this indicator for be inclusive to all residents.

6.4.2-3 Urban Safety:

Sense of security and sense of safety are fundamental elements of urban design. There are a number of elements which feed into a sense of safety and security. This indicator therefore includes attributes such as feeling of safety, lighting and vibrancy. The main indicator which is undesirable in all spaces, except monument square, is the availability of lighting. The lack of street lighting negatively affects the use of the spaces after dark. Due to Malawi's close proximity to the equator, it experiences roughly 12 hours of daylight to 12 hours of darkness, therefore there is a large portion of the day where the spaces become redundant. Having well-lit areas with spaces for residents to sit and socialise reduces crime.

Vibrancy relates to several factors including the number of people in the space, and if it has facilities that make it feel lively. This contributes to a feeling of safety, as having other residents in a setting reduces crime through impartial jurors who keep one another safe. Both of the school spaces felt vibrant during their morning and weekend visits with large numbers of youth playing sports. The least vibrant space is the botanical gardens, which scores of 2.7 out of 4. The lack of lighting combined with the low density and calm nature of the space did not make it feel vibrant, however, the researchers agreed that they felt safe at any time in the gardens. The commercial spaces also lack street lighting, which again reduces the functionality of the settings. The carwash and stalls in Area 49 feels vibrant due to the carwash playing music that can be heard throughout the space. This music makes the space feel active and engaging which increases the vibrancy of the setting. Overall, the observations highlight that there is an overall sense of safety throughout the settings. However, it should be noted that the researchers did not visit the spaces after dark, so this aspect was not assessed during this study.

6.4.2-4 Sense of Community and Place Attachment:

Sense of community and place attachment are the final social indicators that are assessed. The focus for this factor is on the maintenance of spaces, and the overall sense of community. Sense of community is observed through active social contact, residents recognising one another and informal gathering. Each of the spaces scored high for this indicator at one time of the observation, however received opposing scores during the quieter visits.

Chapter Five, Section 2.4, Sense of community, discusses the fact that if residents see themselves as permanent and attached to the area, this can affect their residential behaviours. Residents are more likely to invest in the neighbourhood, take pride in their urban realm, and also engage positively in the social stage of the community if

they feel they are permanent dwellers. This is translated into a question regarding the maintenance of the settings, as residents who feel attached to the area are likely to maintain the space. This is seen through a lack of broken items or litter, as well as through actions such as upholding the ground and buildings. All of the selected recreational and commercial spaces score highly for this indicator, gaining 4 out of 4 in all spaces. There is minimal litter or broken items, and the ground in the areas is frequently swept illustrating that residents take the time to maintain the landscape of their settings.

6.4.3 Discussion of the key findings from Walking Tour:

Having conducted the walking tour across the seven settings at various points in the day, the primary factors that contribute to the physical and social quality of settings in this context can now be discussed. This allows interrogation into the qualities of the settings, thus making sound judgements about the built environment backed with reasoning. The walking-tour highlights the fact that the spaces are generally well-built, mostly using permanent construction techniques. All seven spaces are found to appropriately meet indicators such as infrastructure and are all safe despite any vehicular traffic. Each of the spaces are highly connected to transport links, which makes them well connected to the city as a whole. Concerning the accessibility indicator, two of the spaces are let down by their lack of accessibility for special users. This includes the commercial space in Areas 18 and 49. A number of the commercial units in Area 18's setting are elevated, therefore, require steps to access them. This possibly excludes elderly or disabled users from accessing the shops and restaurant in this space. In Area 49's car wash and stall setting, the ground is lower quality with many potholes and bumps, which makes the space difficult for elderly or disabled users. Excluding certain users from a space through physical design can have negative impact on the functionality and number of users in a setting. It can also negatively affect the QoUL of those who are unable to access the facilities.

The main negative element that the walking tour highlights is the lack of shade in a number of the settings. Lack of shade makes it difficult for residents to use a setting for any duration of time before becoming uncomfortably hot. This is a simple attribute, which has large effects on the use and quality of urban open spaces. It is noted throughout Area 36 that attempts are being made to address the issue, such as providing a gazebo structure, however depending on the sun path, this space also experiences direct sunlight throughout. The space most notably affected by the lack of shade is Area 18's Monument Square. This is an architecturally high-quality space, however, the lack of shade results in it being relatively unused for long durations by residents. As such, this reveals that providing shade to these settings could directly

improve the quality and usability of the spaces. Overall, the walking tour exposes that recreational spaces score higher in terms of appropriateness than the commercial spaces. This is tangible as the recreational spaces provide shade for residents, and are appropriate for special users, which are two of the main practical requirements to allow the space to function properly.

The social quality of the urban open spaces is high at least at some point in the week. However, due to the temporal characteristic of the space, these often drop to lower quality at other times. This is seen by comparing the two combined walking tours in Tables 6.4 and 6.5. One of the main indicators which varies in time is the idea of personal relationships; while the school grounds are lively and active throughout parts of the day where the relationships between residents appear strong and significant, this space then lies empty over lunch hour. This therefore results in the social quality being mis-reflected during this timeframe.

One of the main social indicators that reflects a lively and important space, is if it has refreshments available. The literature promulgates that food vendors know where important, active urban settings are, and they naturally target these spaces. As such, this is an important indicator as it not only illuminates where the important areas are within the neighbourhood, but also improves the functional requirement of a setting. Visitors tend to spend less time in a setting where refreshments are not available. The only two spaces where refreshments are not either directly in the setting, or directly adjacent, is the recreational spaces in Area 18. This therefore means that dwellers must bring their own food and water if they want to spend much time in these spaces, which reduces the overall performance of the settings.

Social inclusion is a further significant factor when considering QoUL; if residents feel they are not welcome in certain settings, this may make them feel excluded which can have negative connotations for their attachment to a space, and neighbourhood as a whole. A number of the settings face exclusion issues including the fee to enter the Botanical gardens, which may exclude those without the means to pay, and physical boundaries which may exclude disabled and elderly users. This is also discussed in the physical walking-tour findings. Finally, the walking tour also highlights that each of the selected spaces are well-maintained, which suggests that users take pride in their surroundings. In many of the settings, the grounds are swept regularly and there is minimal notable rubbish or vandalism. This emphasises that the selected spaces are important within the neighbourhood and play a vital role in the overall quality of the neighbourhoods.

Having conducted this walking tour assessment, the results reveal that four factors would positively contribute to improving urban open spaces in Lilongwe. These are: providing shade, offering refreshments, ensuring spaces are accessible to all users, and improving inclusivity of the setting. The results display that the commercial spaces gained lower scores overall. As such, a second layer of observational analysis is conducted only in the commercial settings to further interrogate their urban qualities and see how users of the space react to their settings. The next step of analysis focuses on residents' behaviour in the commercial settings.

6.5 Analytical discussion of the outcomes of the Behaviour Snapshot:

The behavioural snapshot is a systematic method for describing what users of a setting do while they are there. This involves observing people to comprehend detailed experiences of visitors over a specific timeframe. This data collection approach views people as 'objects' by recording their periodic behaviour. The method provides a map, which illustrates a moment in time of a given place. This is like an aerial photograph that freezes a period of time to allow researchers to analyse the behaviours taking place in the setting.

Different demographics may experience the city and urban open spaces in different ways. Various demographics have different spheres of experience in spaces, and their motivation for visiting a space may vary. This is linked to the concept that residents each have a different perception of a setting based on their past experiences and assessment criteria, which is discussed throughout this research. As such, it is likely that residents perceive urban environments differently, thus it is significant to understand who is using the settings. By utilising the behavioural snapshot tool, the researcher can assess and interpret who is using the settings, their movement and experiences in the settings and the way in which residents interact with the spaces they have available to them. This method can reveal important information on what people do in a setting, and for how long.

This tool is tested in the same commercial spaces that are used in the walking tour. The commercial spaces are selected due to them gaining lower scores on the walking tour, thus the researcher decided it is appropriate to investigate them further. This provides a further investigation to contemplate the use and functionality of these spaces to better understand who is using the space and what they are doing there. This follows the same order as previous sections, discussing Area 18, then Area 36, followed by Area 49.

6.5.1 Area 18 Commercial Space: The Shops

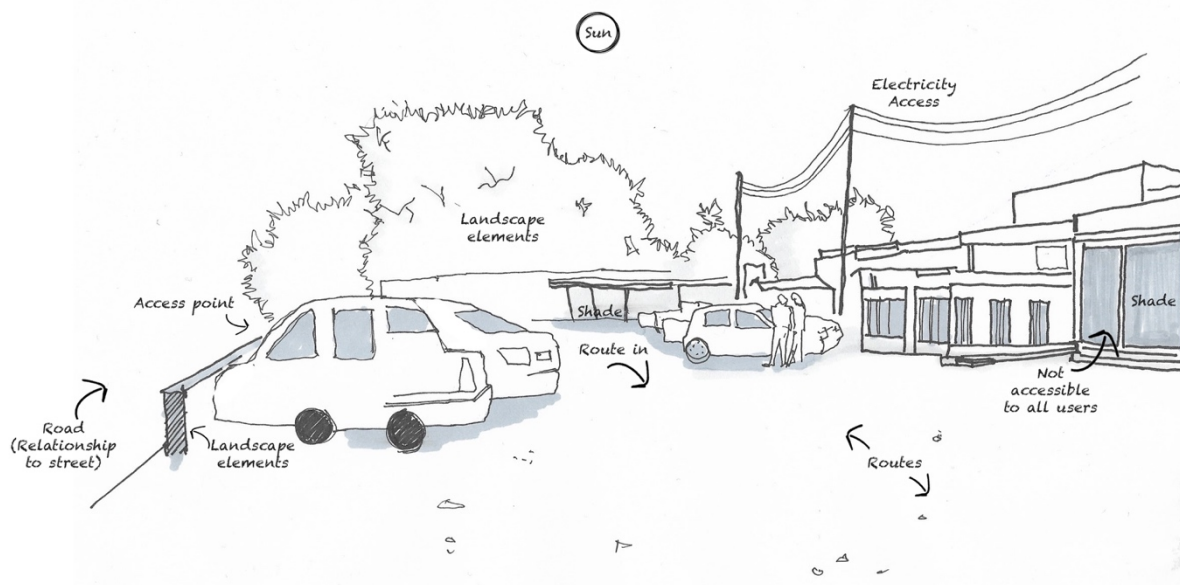


Figure 6.10 Area 18 Commercial Space Annotated Fieldwork Sketch

Area 18: Commercial Space. The Shops								
Temporal and Perceptual Attributes:								
Date: 29 th July 2019			Day: Monday			Time: 12:00- 12:30PM		
Weather: 22° and sunny with 0% precipitation			Smells: none			Sounds: none		
Demographics:					Behaviours & Activities:			
Male		Female			Walking	Running	Cycling	Working
38 (69%)		17 (31%)			14 (13%)			
0-4 (Toddler)	5-14 (Child)	15-24 (Youth)	25-64 (Adult)	65+ (Senior)	Shopping or dining	Standing relaxing	Playing	Sitting for relaxation
			55 (100%)		22 (23%)			19 (63%)

Table 6.6 Demographics in Area 18 Commercial Space

The behaviour snapshot is used to investigate what visitors and users of a space actually do there. This direct approach seeks information and understanding of the geographical urban movement. Valuable information is obtained when information is systematically recorded. Figure 6.10 is an annotated fieldwork sketch which notes some of the main elements of the setting. This is complemented by Figure 6.11 which is a fieldwork behavioural map drawing that illustrates the movements of the space during a lunchtime visit on a typical weekday. This provides information about a representative group of individuals whose activities are distributed throughout a specific period. Figure 6.10 is complemented by a breakdown of the demographics using the space and categorisation of their activities whilst in the space in Table 6.6.

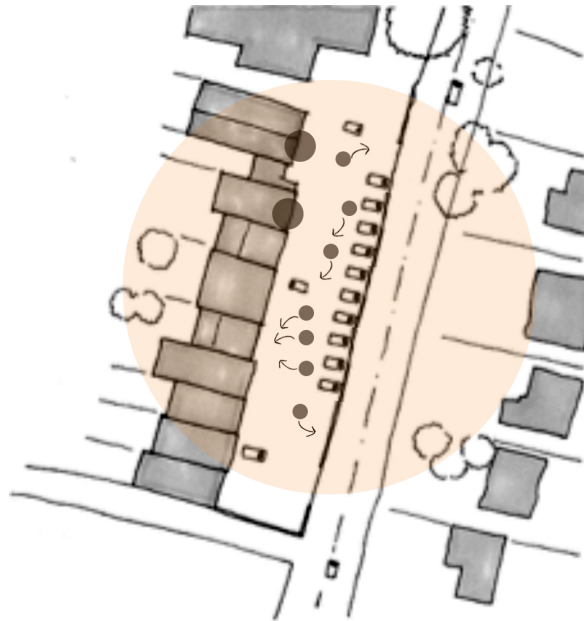


Figure 6.11 Behaviour map of Area 18 commercial space on weekday lunch hour

By viewing the fieldwork map, it shows that the urban space has a strong relationship with the street. This promotes a good two-way traffic back and forth between the setting and the street. Sightlines between a setting and the street are important, as if residents do not see a space, they may not know it is there to use. Transit visitors choose to walk through this setting as it is calmer than the busy street, and the cars are slower moving, thus the setting is safer than roadside. Figure 6.14 illustrates the high number of cars that use the setting. Many visitors visit the space by car, which suggests there is a high proportion of workers who are on their lunch hour, including those who work in the neighbouring government offices who use the car for convenience.

From viewing Table 6.6, it shows that the majority of users in this period are men, however women are also welcome. There are three distinct groups using the public space, one is a group of six women sitting on the steps, and the second is a group of seven men illustrated in Figures 6.12 A and B. High proportions of groups using a space is an index of selectivity (Whyte, 1980). If couples or groups use a space, it suggests that they have chosen to rendezvous there. This active choice is commonly due to the group agreeing that the space is desirable and thus selecting to spend time there. This, therefore, suggests that residents choose to visit the setting, which implies they think it is a good quality space.

It is significant to note that all users who are visiting for an extended period are doing so in the shade. Both groups are sitting on the steps, which are easy and inviting. The shade cast over the steps makes them practical and eminently sittable. Both groups

use the space for a long duration of time. They create an element of community within the space through active social interaction. As discussed in the walking-tour, this shaded space is not accessible to those with special requirements, which is one of the main physical downfalls of the space. However, the steps are functionally beneficial to those who are using them.



Figure 6.12 Area 18 Commercial Space Groups

The third main demographic using the space, are those walking towards, or eating in the restaurant. As this is an observation of the urban open space, inside the restaurant are not included, but those sitting on the restaurant deck are. Food is one of the main attractions for residents in any urban open space. Whyte (1980) states that if you want to see activity in a space, put out food. This is therefore an important draw for users. It is noted that both men and women use the restaurant, thus it is not a gender exclusive space. Table 6.3 displays that only adults choose to use this setting. While there is nothing stopping younger demographic entering the space, they appear not to. This is perhaps because there is no significant draw for young people to this setting. Principally this analysis reveals that the majority of users are adults who are using the space for relaxation and dining. The space appears to be sociable due to the number of groups and is used primarily for optional and social activities. Optional activities

typically occur only when the conditions are optimal thus optional activities are a result of high environmental quality (Gehl, 1987). By reviewing what the users of the space do whilst they are there, the behavioural snapshot has revealed that the setting is functional for the particular demographic which use the space. One aspect that could be improved in future is accessibility for special users, which then may entice an older demographic into the setting.

6.5.2 Area 36 Commercial Space: The Shops.

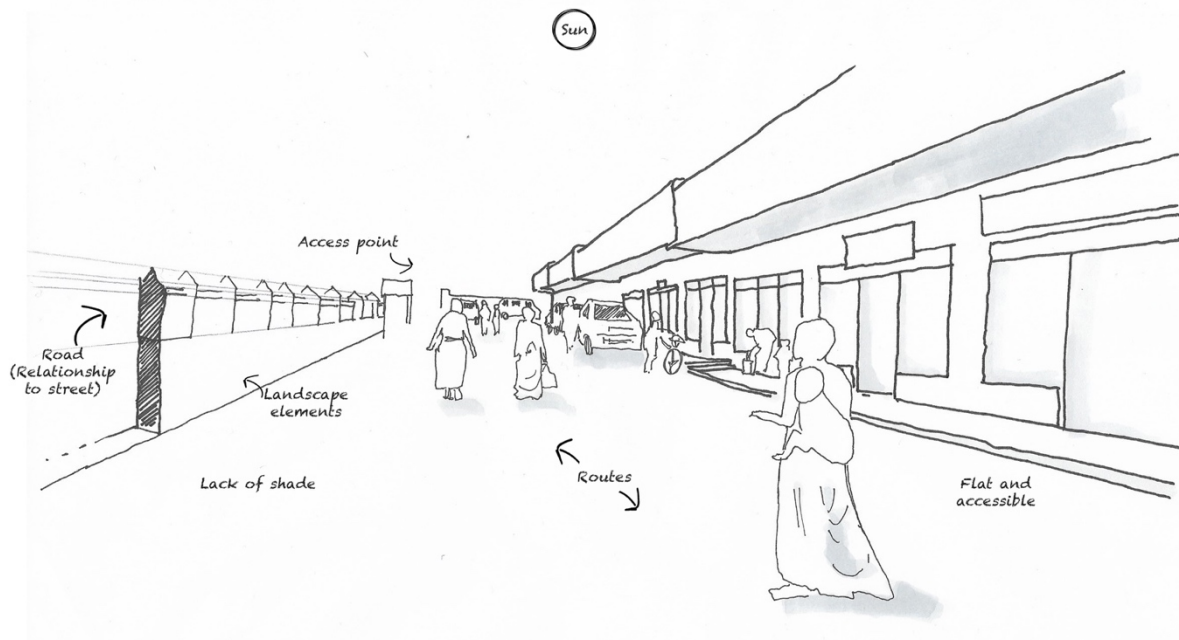


Figure 6.13 Area 36 Commercial Space Annotated Fieldwork Sketch

Area 36: Recreational Space: The School								
Temporal and Perceptual Attributes:								
Date: 30th July 2019			Day: Tuesday			Time: 12:00-12:30 PM		
Weather: 22° and sunny with 0% precipitation			Smells: BBQ cooking			Sounds: Users chatting; cars passing on main road		
Demographics:					Behaviours & Activities:			
Male		Female			Walking	Running	Cycling	Driving
20 (54%)		17 (46%)			11 (30%)			
0-4 (Toddler)	5-14 (Child)	15-24 (Youth)	25-64 (Adult)	65+ (Senior)	Shopping or dining	Standing	Working	Relaxing or sitting
1			37		13 (35%)		8 (21%)	5 (14%)

Table 6.7 Area 36 Demographics

Using the same method as Area 18, three elements of the behaviour snapshot are produced. Figure 6.13 is the annotated fieldwork sketch, Figure 6.17 is the behavioural map drawing which displays the movements of the space during a lunchtime visit on a typical weekday. Finally, Table 6.4 complements the illustrations with a breakdown

of the demographics that are using the space, and provides categorisation of their activities while they are using the setting.

The shops at Area 36 are located directly off the street therefore have a strong connection to the urban realm. As such, a high proportion of the users transit the space as a through connection to the rest of the neighbourhood. By performing the behavioural snapshot exercise in this setting, it is clear that there are three distinct users of the space. These include: employees, transit users, and those shopping or dining. Of these activities, it is significant to consider if they are optional or necessary activities. Necessary activities are thought to occur almost regardless of the quality of a setting, whereas optional activities typically occur when the environmental conditions are ideal (Mehta, 2013; Gehl & Svarre, 2013) As such, when there is a high proportion of optional activity occurring, it is attributed to a high-quality urban setting.

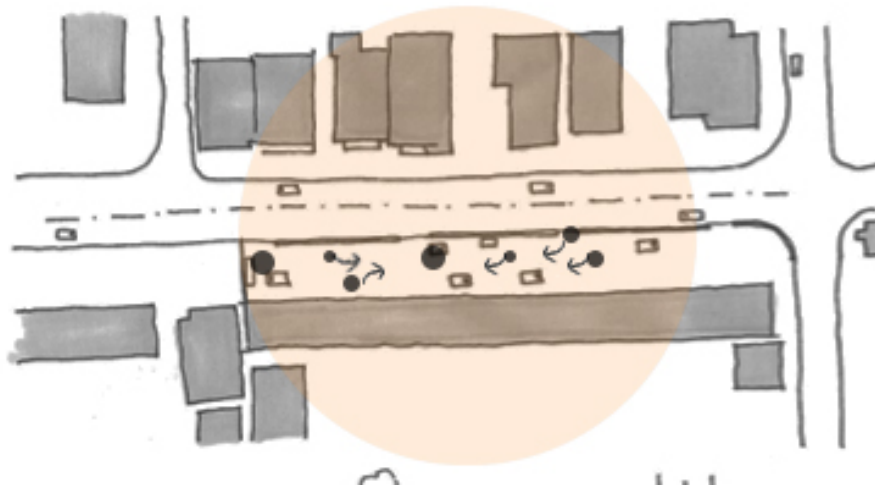


Figure 6.14 Behaviour map of Area 36 commercial space on weekday lunch hour

Of the types of users in this space, employees and transit users are performing necessary activities. The third category, those shopping or dining, are a mid-classification, however again more necessary than optional. The users are meandering through the setting, stopping in at shops to run errands. This is considered a necessary activity that would take place regardless of the environmental condition of the space. However, if residents are seen to stop and dwell, or stop to converse with a neighbour that they run into, then their necessary journey has taken an optional detour. The majority of users of this setting are therefore necessary, however it retains a social element through users that stop to exchange in conversation.

Within this setting, there are various sub-settings, which are revealed over the course of the observation. These are shown on the behavioural map in Figure 6.17. The two main settings are under the pergola, and in the shade of the small side structure. Both of these settings are where the highest shade cover occurs, therefore exposing that

shade plays a vital role in their functional performance. Users of the setting seek shade traps as they provide enclosure and comfort from the heat of the day. In this setting, the areas of peak microclimate are a consequence of synthetic structures, which are brought to the setting to alter the natural climate. The pergola, in particular, is erected to support the workday of the restaurant employees. While there are these attempts made to provide shade, additional shade would further increase the functional usability of this setting which may encourage more optional behaviour visitors.

Table 6.7 shows that there are a variety of ages and genders who use the space. Children transit the space with parents, which suggests that the space is safe and welcoming to all demographics. Both men and women are perceived strolling through the space at leisure, dotting in and out of the shops as they pass. The employees of the restaurant are one of the dominant groups using the space; they are sat together preparing food, which positively adds to the atmosphere of the setting. Employees are both men and women, who appear to be enjoying one another's company as they work.

Through this investigation, it is evident that the urban open space requires more shade to function more efficiently as it would provide space for residents to stop and dwell. Alongside the lack of shade, there is also a lack of seating. Areas for residents to stop and sit could increase the foot-flow to the setting, which would be beneficial to the commercial retailers. Residents may be more attracted to the setting if they know there is an option to break their journey with a seat in the shade.

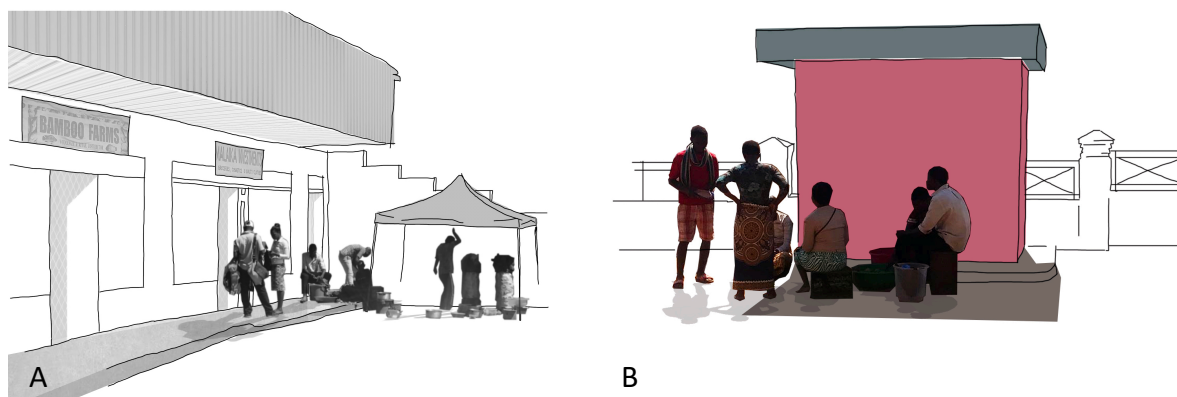


Figure 6.15 Area 36 Commercial Setting Sketches

6.5.3 Area 49: Commercial Space: The Carwash and Stalls

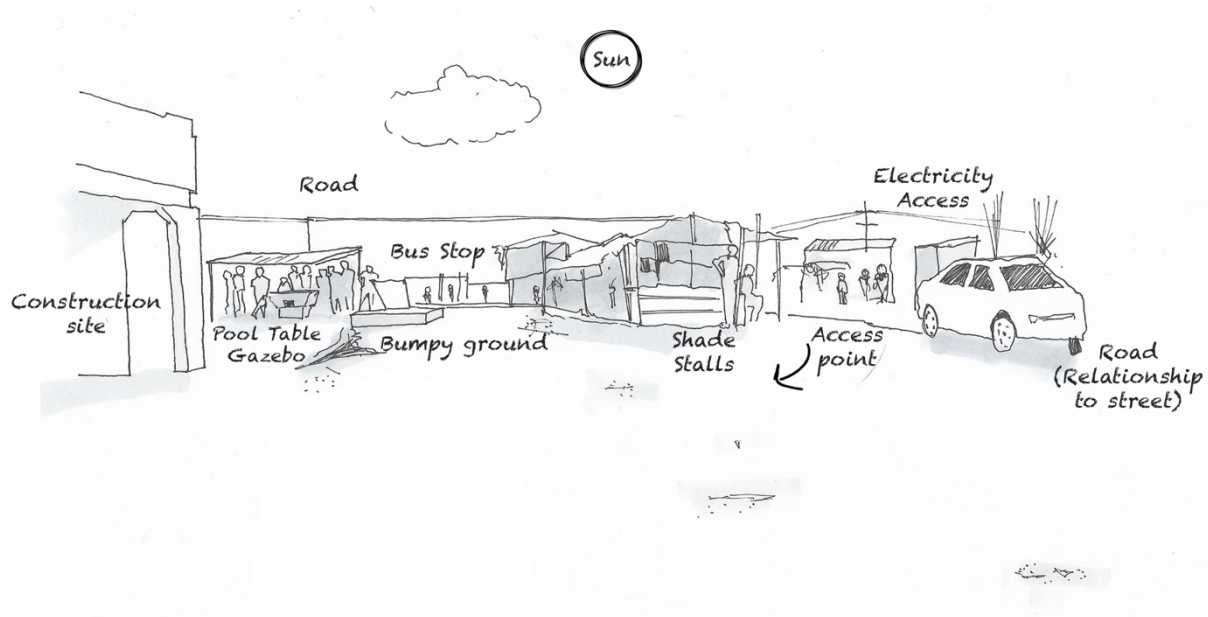


Figure 6.16 Area 49 Commercial Space Annotated Fieldwork Sketch

Area 49: Commercial Space. The Carwash and Stalls								
Temporal and Perceptual Attributes:								
Date: 31st July 2019			Day: Wednesday			Time: 12:00-12:30 PM		
Weather: 22° and sunny with 0% precipitation			Smells: none			Sounds: Carwash Music Playing, Cars on main road passing		
Demographics:					Behaviours & Activities:			
Male		Female			Walking	Running	Cycling	Working
48 (69%)		22 (31%)			8		2	26 (37%)
0-4 (Toddler)	5-14 (Child)	15-24 (Youth)	25-64 (Adult)	65+ (Senior)	Shopping or dining	Standing for transport	Playing	Sitting for relation
	4	9	52	5	10	12		12 (17%)

Table 6.8 Demographics in Area 49 Commercial Setting



Figure 6.17 Area 49 Behaviour Map on typical weekday lunch hour

The carwash and stall space in Area 49 is the busiest space investigated. It has a variety of sub-settings as illustrated in the map in Figure 6.17. This displays that the space has a bus and taxi rank, two rows of stalls, a pergola with snooker table, and a carwash. A significant feature of this urban open space is that the carwash has large speakers that play music. This music makes the space feel lively and animated, whilst helping to numb the sound of cars passing on the busy adjacent road. Table 6.8 shows that there is a high number of users in the space at peak hours with 70 residents noted. Three main user groups are identified who use the space for a variety of optional and necessary activities. The main user groups are workers, those transiting the space, and those relaxing in the space.

The table shows that 37% of the users work in the setting. These vary between those working at the stalls, the carwash and at the transport rank. This is a necessary activity as the users are here to work as opposed to enjoying leisure or relaxation. The second group are the transit users, which are split across three distinct categories namely walkers, cyclists and those waiting at the transport rank. The transit users are a dominant feature of this urban space. They create movement and activity that brings the setting to life. In this instance, transit users also include those meandering through the space, passing the stalls and sellers as they go. These residents are walking to run errands, which, according to Gehl's (2013) classification, is considered a necessary activity that would take place regardless of the environmental condition of the space. Residents who dip into the various stalls, as they stroll through the setting but do not stop to dwell, are running necessary errands.

Consequently, this suggests that only 17% of residents are using this space for optional activities, which are those sitting for relaxation. One of the main groups using the space for recreation is the group in the pergola. This is the most enjoyable space for relaxation as the pergola supports outdoor activities in the public space, illustrated in Figure 6.18 B. The snooker table under the pergola provides an entertainment and a node around which residents gather. Good microclimate conditions are indispensable for quality urban areas. This is discussed in the walking tour concerning shade. Here, the pergola provides enclosure for users, they feel protected from the sun and immersed in the space. As such, the users of the pergola are seen to dwell for a long period, enjoying the safe space cuddled within the busy urban environment. Through this contemplated detailed investigation of the space, it highlights the lack of recreational seating in the space. Although there is the pergola, there is minimal seating beside that. While it may appear obvious, people tend to sit where there are places to sit (Whyte, 1980). Therefore, if there is nowhere to sit, then residents do not stay long. Small numbers of residents are spotted sitting in couples or small groups

for shorter periods, however the setting would benefit from shaded seating for more regular use.



Figure 6.18 Area 49 Commercial Setting Sketch + Photograph

Studies such as the Behavioural Snapshot help to draw attention to the importance of urban furniture and shade in public open spaces. From an initial glance at the space, this setting feels vibrant and active. However, by stopping to consider what each user is doing in the space, it becomes clear that the majority of residents use the space for necessary behaviours as opposed to optional recreational behaviours. This is then important for future projects, as providing shade and seating would make this space more functional, thus positively influence the social stage of the neighbourhood.

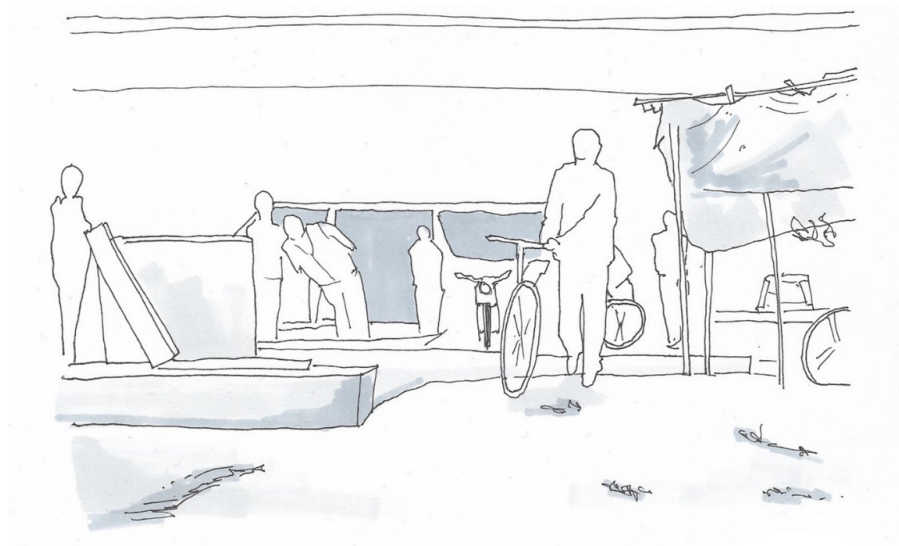


Figure 6.19 Area 49 Commercial Setting Sketch

6.5.4 Discussion of key findings from the Behaviour Snapshot

The behaviour snapshot tool displays that the quality of urban environments varies across the three neighbourhoods. This analysis investigates what users of a space do while they are there. This is a further layer of analysis additional to the walking tour, which reveals additional results. The behaviour snapshot provides an annotated fieldwork sketch noting some of the primary elements of the setting. This is complemented by a behavioural map drawing which illustrates the movements of the space and a table which breaks down the demographics and activities of the space.

This analysis exposed interesting physical and social aspects of the urban setting which complement the walking-tour discussion. A finding from this observation is the importance of contemplating if users are performing optional or necessary activities. This provides insight into if a space is high quality to its users. Spaces which are high quality see optional activities, as these occur when settings are optimal. If the setting is low quality, users do not choose to dwell long, thus are likely to be performing necessary activities. A concept which connects to the quality of space, is if there are groups in a setting. Groups are signifiers of selectivity, thus suggest that the groups of users have selected this setting to rendezvous instead of a different setting. This analysis is careful to consider if residents are visiting in groups to understand the quality of the space to those who use them. By reviewing the various users, it is evident that the commercial space in Area 18 is the highest quality as it sees numerous groups who are dwelling for a long period of time, thus signifying selectivity and optional activities.

A predominant reason that users are likely to engage positively with the commercial space in Area 18 is the areas of shade. The behaviour snapshot reiterates the importance of shade, as advocated in the walking tour analysis. Through observing the space over time periods, it is apparent that all users who dwell for extended periods of time, are doing so in the shade. This is evident in all three settings. Thus, providing shade is a prerequisite for good quality urban spaces in Lilongwe. These can be provided formally or informally; however, it is clear that shade makes the environmental characteristics of the space more functional and thus improves the quality of the setting. A significant aspect of the urban open spaces, which is also identified by the walking tour analysis, is the importance of refreshments in a setting. Refreshments provide an important draw for users, and without them, again limits the duration that users stop to dwell. By observing the users in the space, it highlights those who are entering the settings to visit the restaurants. This confirms the literature which discusses that refreshments provide a draw to urban open spaces. All three of the commercial settings have some form of food available. However, the refreshments

should also be complemented by a space to stop and enjoy them. This is somewhat lacking in Area 49, as there is not a great deal of sitting space or shade.

The final aspect of the urban settings which this analysis highlights is the relationship to the street. Having sightlines between urban settings and the neighbourhood is important as they promote a good two-way traffic back and forth between the setting and the street. Providing sightlines increases the number of transit users that use the setting. Transit users are important because they provide liveliness and activity in a setting, and may stop to dwell if the conditions are good. All of the settings examined have a border which separates them from the street, however, they all retain their sightlines which promotes through traffic and movement in the setting.

The behaviour snapshot displays that the commercial spaces in Area 36 and 49 both require better shade and more seating for function as well-used settings in their neighbourhoods. Providing good quality spaces in the neighbourhood is important for enhancing QoUL as they promote social contact with neighbours and positive community engagement. This tool effectively allows the researcher to stop and contemplate the actions of residents in a space, and through this deliberate examination, understand if residents perceive their spaces as high or low quality.

6.6 Conclusion:

This chapter has discussed and reported the findings from stages Five to Seven of the multi-layered methodological approach for investigating QoUL of neighbourhoods in Lilongwe (see Figure 3.18). These steps are conducted to react to the existing physical, social, economic and well-being environments of the case study neighbourhoods using objective neighbourhood profiling and an impressionistic observational assessment of the urban realm. Each of the questions used in the observational assessment stem from the indicators derived in Chapter Four and contextualised in Chapter Five. This investigation facilitates a deeper comprehension of the case study neighbourhoods and their urban open spaces, which develops an understanding about the spatial environment. This step is essential before analysing residents' perception of their QoUL because it allows the researcher to compare the questionnaire data to the profiles to comprehend the objective condition that residents are reacting to. The profiling is deliberately graphic to allow the reader to experience the neighbourhoods.

From the neighbourhood profiling combined with the observational assessments, it is concluded that Area 18 is home to many high-quality buildings, excellent recreational facilities and sufficient amenities. From reviewing the demographics of the residents

combined with the proximity to government buildings, it is anticipated that Area 18 is home to many professionals. The neighbourhood has beautiful landscaping, which suggests residents have strong place attachment, therefore likely to feel positively about the social domain of urban life. The walking tour and behavioural snapshot exposed the particularly high quality social spaces which are available for residents in Area 18. Successful urban open spaces improve the experience of public life, which makes the neighbourhood more appealing and engaging for the residents. As such, these settings improve the quality of the neighbourhood, thus, it is expected that residents be satisfied with the quality of this neighbourhood, which is investigated in Chapter Seven.

Reviewing the neighbourhood profile and observational assessment in Area 36 it is apparent that this is a young population, which are likely to be many families with children. It is therefore expected that residents feel particularly positive about the social domain of their neighbourhood as they are likely to have family nearby. Nevertheless, the profile illuminated that many of the domestic buildings are lower quality than the other case study neighbourhoods, and the neighbourhood is densely populated. As such, it is anticipated that residents feel negatively regarding the physical domain of their neighbourhood, particularly with regards to density and privacy. The profile further exposed that despite Area 36's large population, it has fewer amenities than are found in the other case study neighbourhoods. This is likely to have negative implications for QoUL. Nevertheless, the direct observations display that the urban open spaces are good quality, the school grounds provide a suitable space for youth to gather, and the commercial setting appropriately hosts the anticipated activities. Good quality public spaces are required for the social and psychological health of modern communities, thus, it is anticipated that the social domain is perceived as satisfactory to residents in Area 36.

The profile for the final neighbourhood, Area 49, portrays a good quality neighbourhood with decent social amenities and infrastructure. Area 49 is within neighbouring proximity of the city centre and government offices and has good roads to link with the wider city. The southern edge of the neighbourhood hosts the national football stadium, which is a large iconic building that is a desirable amenity for many residents. The figure-ground map displays that the roads are planned, and the layout includes many cul-de-sacs and connecting streets which are useful in reducing the speed of vehicles, thus making streets feel safer for pedestrians. The domestic buildings in Area 49 are a mixture of traditional and modern, however, the majority are modern dwellings. There are new homes being built in Area 49, which are high quality and include access to electricity. The streets are busy and lively which indicates

positive social domain with strong sense of community. Nevertheless, the observational assessment reveals that the urban open spaces in the neighbourhood have room for improvement; therefore, it is predicted that residents may feel negatively regarding their public spaces. The commercial setting with the car wash and stalls requires attention to improve the social realm of the neighbourhood. However, due to good quality houses and planned streets, residents are expected to feel positive about their overall QoUL in Area 49.

Although this objective profiling is an excellent tool for an initial understanding of the neighbourhoods, it doesn't report or explain how residents perceive their urban environments. It is also not possible to assess all of the indicators of QoUL as prioritised by experts through objective profiling, as many economic and well-being characteristics are challenging to profile. The findings of this chapter are used in the discussions of chapters Seven and Eight to fully evaluate the QoUL in three neighbourhoods in Lilongwe. The following chapter discusses and analyses the findings from the residential questionnaire to gain their subjective perspective of their neighbourhood. This is compared with the neighbourhood profiles to better understand the residents' rationale and together, this provides comprehensive analysis that can be delivered to policymakers and planners in Lilongwe. They are able to use this data to decide on the best method to allocate their resources to improve residential QoUL in Lilongwe based on both the objective and subjective information.

Chapter Seven: Residents Assessment of Quality of Urban Life in Lilongwe's Neighbourhoods.

7.1 Introduction:

The previous chapter analysed and reported the neighbourhood profiles, including observations of key public spaces of the case study neighbourhoods, to provide a first indication of their urban quality. The focus of the current chapter is to gain the subjective interpretation of the city's residents. This analysis focuses on stage Eight of the multi-layered methodological approach for investigating QoUL in neighbourhoods in Lilongwe (See figure 3.3). The chapter, therefore, utilises a structured residential attitude survey to gain this information from residents. The results of the attitude survey are reported across the four domains of urban life as extracted from the literature discussion in Chapter Two, namely the physical, social, economic and well-being domains to provide a comprehensive discussion of the quality of the neighbourhoods. This analysis intends to link the dialogues of objective and subjective research. By so doing, this forms a more reliable and valid inference of the conditions of QoUL in Lilongwe than if one strand of research is used.

The three case-study neighbourhoods are selected to be distinct from one another. This allows a multi-faceted discussion, comparing the residents' satisfaction and perceived meanings of what is important to urban life in these diverse neighbourhoods. This analysis clarifies the relationship among a complex set of real-world variables to understand how the indicators affect the perceived QoUL of residents in Lilongwe. Through this discussion, the indicators derived by the thesis are tested with local residents to comprehend if they provide a balanced representation of the QoUL in the case study neighbourhoods. This information is meaningful for policymakers and planners as they see which indicators of the neighbourhood residents feel satisfied or dissatisfied by.

The results of the survey demonstrate that there are differences in QoUL between the three case-study neighbourhoods, and point to indicators which require attention. This is discussed further in Chapter Eight, where the data from the residential attitude survey is compared and contrasted with the data gathered in stages one through seven of the multi-layered methodological approach. The results from the discussion are then formed into recommendations for policy and planning in Chapter Nine to aid in allocating resources to best improve the QoUL of the city's residents.

7.1.1 Survey Instrument: Residential Attitude Surveys

The survey is conducted by a team of trained local fieldwork assistants in three neighbourhoods in Lilongwe. Residents are approached at random and asked if they wish to participate in the residential survey. Each survey takes around 1-hour to complete as the fieldwork assistants administer the surveys as face-to-face interviews at residents' homes. This results in a sample of 165 households taking part in the survey. This is distributed as Area 18: 45 surveys, Area 36: 75 surveys and Area 49: 45 surveys. Due to the neighbourhood profile indicating that Area 36 is the most heterogeneous of the three neighbourhoods, a larger sample is gathered to capture the variance in the neighbourhood.

Chapter Three: 'Research Design', discusses the strategy and steps which are taken to design the residential attitude survey in detail and explains that the survey instrument uses a range of question types including subjective ranking, subjective reasoning and objective questions. As such, it not only provides a ranking, but offers the reasoning to follow this up. This allows the researcher to assess not only what is good or poor, but further, to understand why an attribute is good or poor from the perspective of the resident. As such, the information gathered from the survey provides insight into indicators that affect residential QoUL in these neighbourhoods. Participatory methods are essential to gain knowledge about the lived-in conditions of the neighbourhoods in the view of the residents.

The survey instrument uses a 4-point ordinal Likert scale to gather the subjective evaluations of the QoUL indicators. This is the same ranking-scale as is used for the expert assessment. The midpoint is deliberately removed, as the neutral score does not support nor criticise an indicator, thus it does not bring valuable information to the study. The residential attitude survey is an appropriate method for gaining the perspective of residents in a neighbourhood. The survey gathers qualitative information on the perspectives and feelings of residents, that are analysed quantitatively.

7.1.2 Topics included in the survey:

Physical Indicators	Social Indicators	Economic Indicators	Well-Being Indicators
<ul style="list-style-type: none"> -Building and House Quality -Physical Urban Infrastructure -Urban Transport & Accessibility -Density -Ecological Quality 	<ul style="list-style-type: none"> -Local Governance -Personal Relationships -Public Meeting Spaces -Sense of Community -Place Attachment 	<ul style="list-style-type: none"> -Household Income & Expenditure -Work Status -Tenure & Home Ownership -Education Status -Poverty Rates 	<ul style="list-style-type: none"> -Health Services -Physical Well-Being (Health) -Environmental Services & Basic Infrastructure -Urban Safety

Table 7.1 Topics included in residential attitude survey (Source-The Author)

Respondents are asked to provide their subjective assessment of specific QoUL indicators concerning their local neighbourhood. The indicators are extensively derived, validated and contextualised over Chapters Four and Five. Each of these indicators are translated into questions, which are used in the residential attitude survey. Respondents are asked questions regarding their assessment of their home, accessibility, amenities, privacy, density, transport, environmental issues, neighbouring, inclusivity, public meeting spaces, leadership, voice, tenure, material possessions, employment, infrastructure, services, health, safety and overall satisfaction with their quality of urban life. Indicators are provided in Table 7.1, and the full survey instrument is found in Appendix 8.

7.1.3 Methods of Analysis

The research involves a range of univariate, multifactor, regression and descriptive analysis. The analysis in this chapter is conducted using a combination of SPSS and Microsoft Excel. The research begins by using the univariate analysis and descriptive statistics to discuss and compare the demographics with the most recent census. This is conducted to comprehend if the sample is representative of the demographic of the city to determine if the sample is illustrative of the majority of residents in Lilongwe. This is an essential step due to the relatively small sample size gained in the residential attitude survey. It is thus important to compare the survey data to a comprehensive data source, to ensure it is representative.

This is followed by univariate, multifactor and regression analysis to test and compare the relationships between various indicators within the four domains of urban life. The multifactor analysis compares the effects that indicators have on one another. The comparisons relate to the literary discussions where indicators are promulgated to have certain relationships, which are tested through the quantitative data analysis.

Finally, the research uses regression analysis to assess the statistical relationship between two attributes using a Spearman's correlation. This is a nonparametric measure of rank correlation. It is used to assess how well the relationship between two variables is described using a monotonic function. The Spearman correlation between two indicators is high when observations are similar, up to a correlation of 1. The correlation is low when observations are dissimilar, down to -1. This form of analysis is appropriate for ordinal and continuous variables. The methods of analysis are detailed in Table 7.2.

Analysis Type	Purpose	Results Generated
Univariate analysis	To summarise and describe data	Explores the indicators separately to describe the variable on its own. This describes the indicator data as a first step in the analysis accompanied by descriptive statistics
Multifactor analysis	To compare and analyse two or more factors	Comparative analysis of the association of two indicators to understand the connection between indicators and their impact on one another
Regression analysis	To assess the statistical relationship between two attributes	This produces a regression equation which explains the relationship between the independent and dependent variable.

Table 7.2 Method of Analysis (Source: The Author)

The Results:

7.2. Demographics:

Collecting demographic information in a survey is significant to the analysis for several reasons. One is that it is common to find variations between demographics and socio-economic groups with regards to their subjective assessments of their satisfaction with overall QoUL (Low et al., 2018). Personal characteristics of respondents' backgrounds are useful for making policy recommendations for different sectors of the population (Møller & Schlemmer, 1983). By gaining the demographic and socio-economic information, the analysis can compare between groups to understand if particular sets are affected differently by the factors of their city. A second important reason to gather demographic information is that it can be compared with secondary data sources to determine how representative the sample is. This is useful to understand if particular demographics are missing from the survey, which can be reflected on for future

studies. Here, the demographics are compared to the 'Malawi 2018 Population and Housing Census' to understand if the sample is representative.

7.2.1 Age and Gender of respondents:

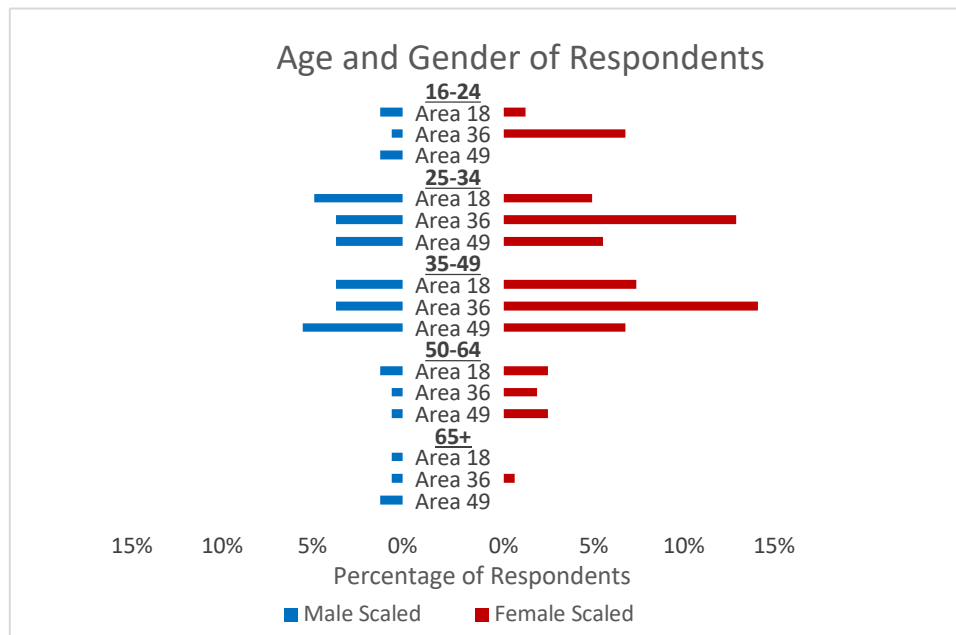


Figure 7.1 Population pyramid of respondents (Source-The Author)

Figure 7.1 displays the age and gender of the respondents, which is aggregated by neighbourhood. This displays that there are more female participants than male. Areas 18 and 49 both see relatively even male to female distribution with 42% male and 58% female in Area 18, and 45% male to 55% female in Area 49. However, Area 36 has a predominantly female sample with 82% female respondents. Residents are approached at random by the three trained fieldwork assistants, therefore this is not deliberate.

While there is a good sample of residents between 25-50 years old, there is a small number of under 24s that engaged in the survey. This is an oversight by the research, as it would be desirable to understand the quality of the city from the perspective of this younger community. 51% of Malawians are under the age of 18, thus it would be desirable to ensure their insight is captured in future projects.

7.2.2 Relationship Status

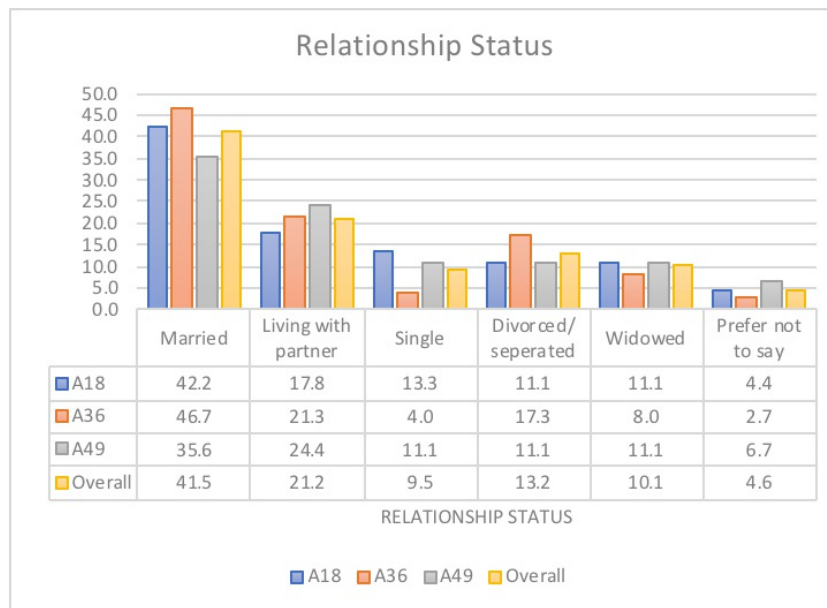


Figure 7.2 Relationship status of respondents (Source-The Author)

	Lilongwe (2018 Census)	Residential attitude survey
Total Sample	1,057,543	165
Never Married*	34.9%	30.7%
Married	56.6%	41.5%
Divorced	5.1%	13.2%
Widowed	3.4%	10.1%
*Never married to include both living with partner and single from the 2019 QoUL survey.		

Table 7.3 Comparison of relationship status results with census data (Source-The Author)

Table 7.3 includes the data from the residential attitude survey and data from the 'Malawi 2018 Population and Housing Census'. This indicates the degree to which the characteristics of the respondents vary from the secondary data source. Reviewing the results of the residential attitude survey, 62.7% of the residents surveyed are either married or living with their partner. This suggests that almost two-thirds of respondents are in stable relationships. Comparing this demographic between neighbourhoods, Areas 18 and 49 both have 60%, while Area 36 has 68% of respondents within this stratified category, presenting the highest sample of respondents that are in a stable relationship. Viewing Figure 7.2, it is interesting to discover that the results for those who are either divorced or widowed are the same in Areas 18 and 49, at 11.1%. Area 36 has a high representation of divorced respondents at 17.3%, however a slightly lower representation of widowed respondents at 8%. This analysis establishes that

the sample is representative of the population from the secondary data source, particularly concerning those who have never been married.

7.2.3 Religion

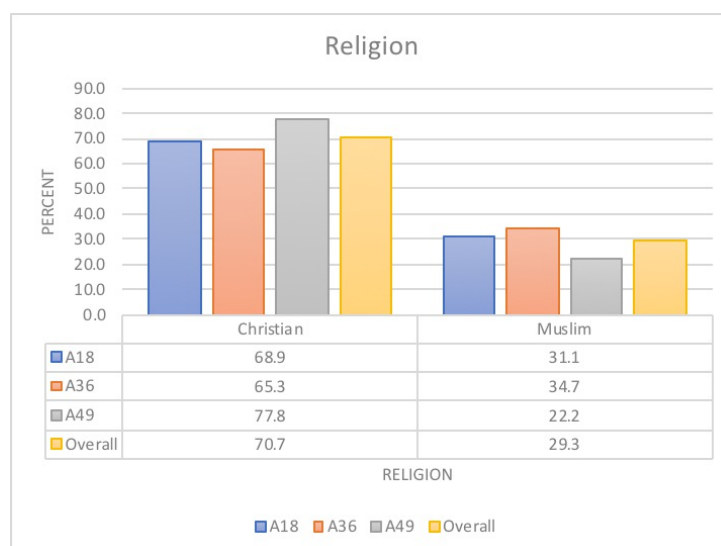


Figure 7.3 Religion of respondents (Source-The Author)

	Malawi (2018 Census)	2019 QoUL Survey
Total sample	17,563,749 100.0	165
Christian*	75.3%	70.7%
Muslim	13.8%	29.3%
Other*	10.9*%	0%
Christian including: Roman Catholic; Church of Central African Presbyterian; SDA/Baptist/Apostolic; Anglican; Pentecostal and Other Christians. Other including: Buddhism; Hinduism; Traditional; Other non-Christian Denomination and No Religion.		

Table 7.4 Comparison of religion results to census data (Source-The Author)

Using the same methodology again, Table 7.4 compares the residential attitude survey with information from the 'Malawi 2018 Population and Housing Census'. This displays that the respondents do not vary dramatically from the population of Lilongwe city, particularly concerning the Christian population. None of the 2019 QoUL Survey respondents selected 'other' which comprises 10.9% of those surveyed in the 2018 Census.

Figure 7.3 visually displays that the religious representation varies marginally between the three surveyed neighbourhoods. This demographic ranges from 65.3% Christian in Area 36 to 77.8% Christian in Area 49, providing a range of 12.5%. Thus, it is considered that the overall distribution is comparatively similar across the neighbourhoods. Reviewing the demographics confirms that the results from the residential attitude survey are generally representative of the residents in Lilongwe. It would be desirable to engage younger residents in future work, however, overall the

demographics demonstrate that the survey captures the view of the majority of the city's population. The demographics are returned to in Chapter Eight and analysed in-depth using multi-variate analysis to comprehend how the various groups perceive their city. The following four sections focus on the residents' assessment of the physical, social, economic and well-being domains of QoUL. This begins by describing the results using univariate descriptive statistics. This is followed by a multi-factor analysis by comparing various indicators importance with one another. The multi-factor analysis is complemented by regression analysis to determine the statistical relationship between the indicators. The analysis reviews the three neighbourhoods to assess and examine the similarities or differences between different areas of the city.

7.3. Physical Quality of Urban Life

As derived and validated in Chapters Four and Five, the physical domain includes indicators relating to: building and house quality, physical urban infrastructure, urban transport and accessibility, density, urban form and ecological quality. This section assesses the indicators through both objective and subjective questions in the residential attitude survey, to determine how residents of different areas of the city perceive the quality of their neighbourhoods. Subjective reasoning questions are asked to not only understand what aspects of the neighbourhood are good or poor but also to further understand why residents perceive them this way. This information can be used to contribute to resolving physical urban issues in the future.

7.3.1 Building and House Quality

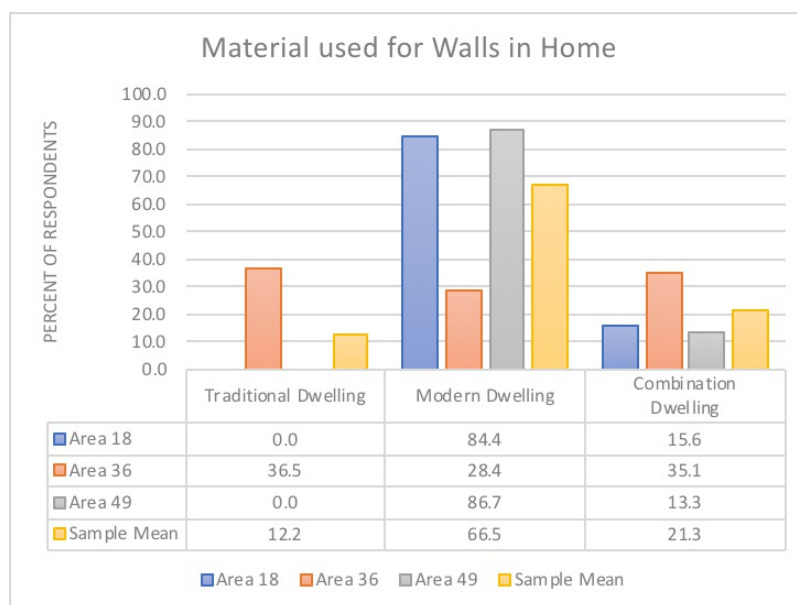


Figure 7.4 Material used for walls in home (Source-The Author)

Assessing which materials and techniques are used to build the homes in the three neighbourhoods reveals noteworthy results. Figure 7.4 displays that Area 36 is the only neighbourhood that uses traditional materials and techniques. Area 36 has a relatively even distribution between the three housing typologies, showing that there is a mixture of housing styles in the neighbourhood. Figure 7.4 further displays that Areas 18 and 49 have similar housing typologies. Both neighbourhoods have 84.4% and 86.7% respectively, of respondents selecting modern dwelling.

This distribution of dwelling typology reflects the neighbourhood profiles discussed in Chapter 6. The objective data profiles describe Area 18 as ‘permanent high and open space’ and describe Area 36 as ‘quasi-density’, which refers to a neighbourhood that has ‘permanent high/traditional high/agricultural/institutional’ buildings. Based on their classifications, it is expected that Area 18 be home to mostly permanent modern dwellings, while Area 36 hosts a range of different house styles. As such, the residential surveys are representative of the objective data profile.

7.3.2 Internal Rooms, External Rooms and Number of Residents (Density)

Figure 7.5 presents plans and elevations of typical house typologies in Malawi. This illustrates the layout of the different house sizes, displaying the arrangement of small medium and large house styles.

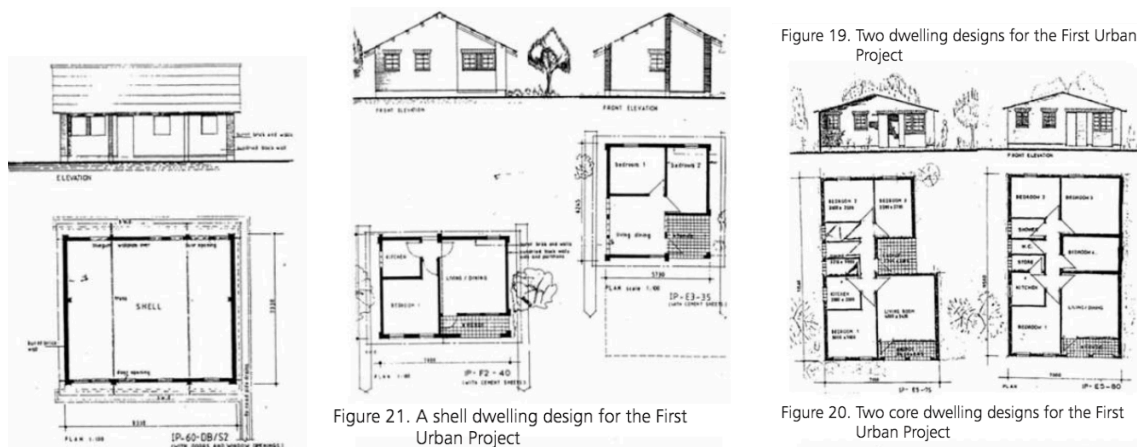


Figure 7.5 Malawian House typologies-

Residents are asked three objective questions. First, if they reside in a small (1-room), medium (2-3 room), large (4-5 room), or extra-large (6+ room) house. Then, how many external rooms using the same classifications. External rooms refers to any annex including pit latrines that are located on the residents land. Following this, residents

are asked how many people live and eat from the household. Again, this is classified into four groups ranging from small families up to extra-large family sizes. The results of the full sample are displayed in Figure 7.6.

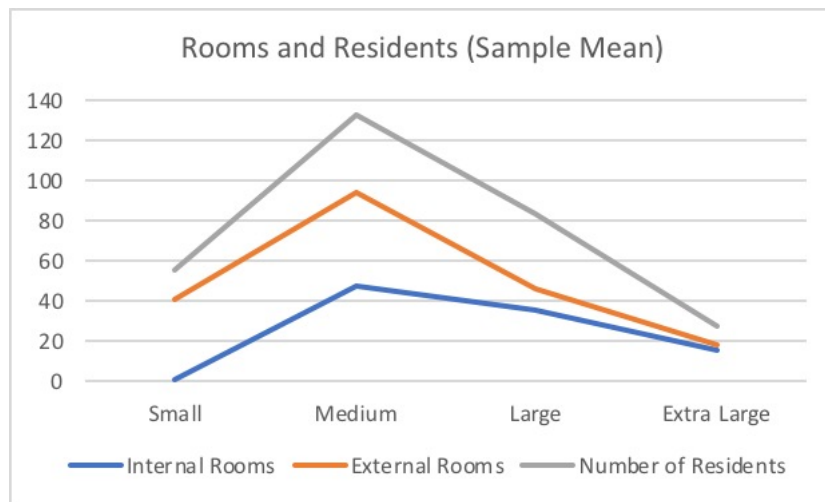


Figure 7.6 Number of rooms in home and number of residents using sample mean (Source- The Author)

Figure 7.6 displays that there is a direct correlation between the number of rooms at a plot, both internal and external, to the number of residents that live and eat from that plot. The majority of plots are medium in size, and they host a 'medium' number of residents. When viewing the full data set, it appears that extra-large plots are also home to extra-large families and small plots are home to small families. However, when this is aggregated to the three neighbourhoods, the relationship between the number of rooms and number of residents shifts, which is the focus of the following section.

Area 18 House and Family Size:

None of the residents surveyed in Area 18 reside in a 1-room house. As such, this option is removed from Figure 7.7. The most common house typology in Area 18 is a 2-3 room house (42%) followed by a 4-5 room house (40%) and least common is a 6+ room house (18%). Residents of Area 18 commonly have one external room (67%) on their plot. However, 13% state that they have more than one external room and 20% state they have no external rooms. Figure 7.7 displays the number of residents that reside in each of the house typologies. This shows that large houses of 6+ rooms host five or more residents. The smaller homes of 2-3 rooms are typically home to 1-2 person or 3-4 person families, however, are known to house 5-6 person families 6.7% of the time.

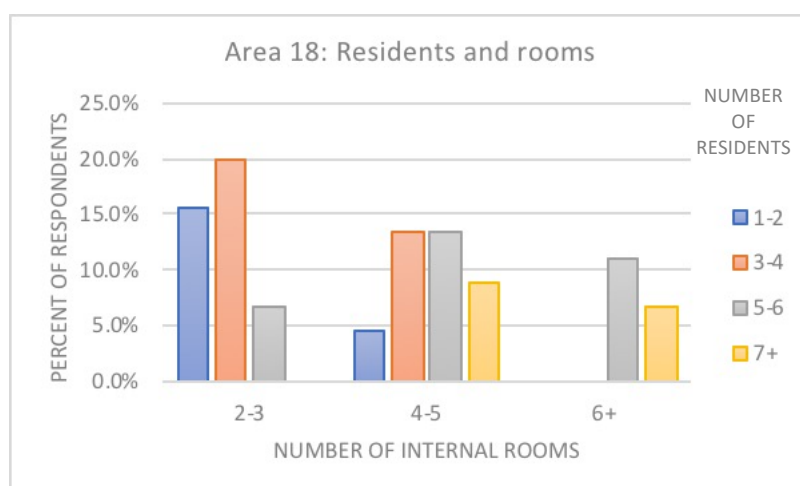


Figure 7.7 Residents and rooms in Area 18 (Source-The Author)

Area 36 House and family Size:

Area 36 is the only neighbourhood surveyed that has residents that live in a 1-room house, with 3% of respondents stating that they live in this housing typology. There is an even distribution between 1-2 person families and 3-4 family members staying in the 1-room homes. 2-3 room homes are the most common house style for Area 36 (76%). Figure 7.8 displays that they are usually home to 5-6 and 3-4 person families, however, they are seen to host over seven family members in a 2-3 room house. This displays that Area 36 does not follow the same distribution of residents to rooms as is found in the sample mean, as large family sizes are found in small and medium size dwellings.

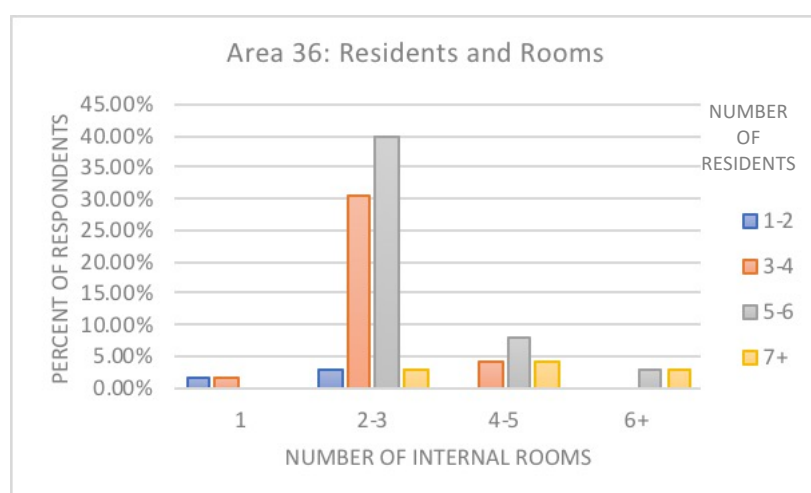


Figure 7.8 Residents and rooms in Area 36 (Source-The Author)

Area 49 House and Family size:

Similar to Area 18, none of the residents of Area 49 state that they reside in a 1-room house, thus this is removed from Figure 7.9. Only 24% of those surveyed in Area 49

stay in a 2-3 room house. The majority of Area 49s residents (51%), live in a 4-5 room house. These are most commonly home to 3-4 person families (26.7%), followed by 5-6 residents (17.8%). Having over six rooms in a home is the second most common dwelling size in Area 49 (24%). The number of residents that reside in a home this size ranges from 3-4 (6.7%), to over seven persons (6.7%). This is the only neighbourhood where medium-size families (3-4 persons) reside in the largest houses.

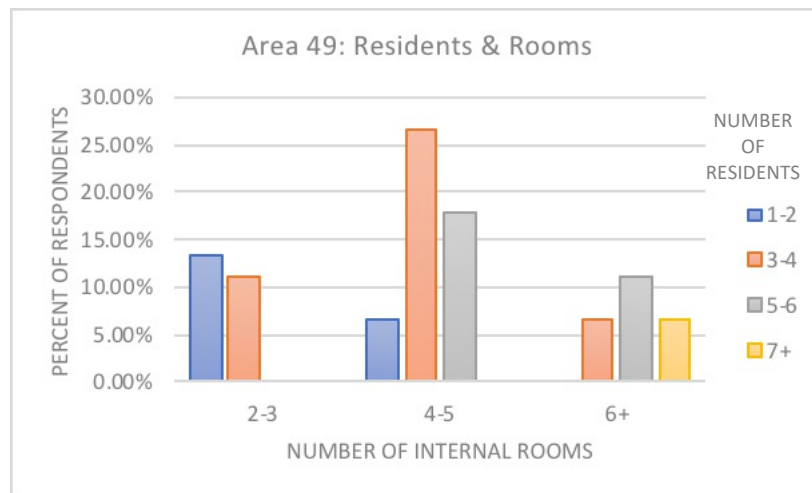


Figure 7.9 Residents and rooms in Area 49 (Source-The Author)

Using multi-factor analysis to compare the number of residents with the size of their home, it is concluded that Area 36 is the densest neighbourhood. The most common house size is 2-3 rooms (76%), of which 40% are home to 5-6 persons. As such, Area 36 does not follow the same distribution of residents to rooms as the other two neighbourhoods, but instead is considerably denser. This confirms the neighbourhood profiles, particularly Table 6.1, which confirms the objective residential density of all three neighbourhoods, and the figure-ground maps, which visually display Area 36 as denser than the other case study neighbourhoods.

7.3.3 Subjective Responses

Having obtained this objective data, the next step is to understand the residents' subjective interpretation of the various indicators. This is significant information to gain as urban life is concerned with personal experience. As such, understanding which aspects of an individual's neighbourhood they are satisfied with provides powerful information that can be used by policymakers and planners to resolve urban issues. The residents are asked to rank indicators on a scale from '1-Definitely not' to '4-Definitely yes'. Certain questions are deliberately reversed so that it is not clear that 4 should always be a positive number and 1 be a negative number. This reduces the likelihood that residents repeat the same number with a general feeling that their neighbourhood suits one set number. However, for the analysis, these questions are

reversed back, to visually compare with 3 and 4 regarded as positive marks, and 1 and 2 considered negative marks. This subjective analysis reveals noteworthy perspectives of the residents of the three neighbourhoods, which are discussed below.

7.3.4 House Quality

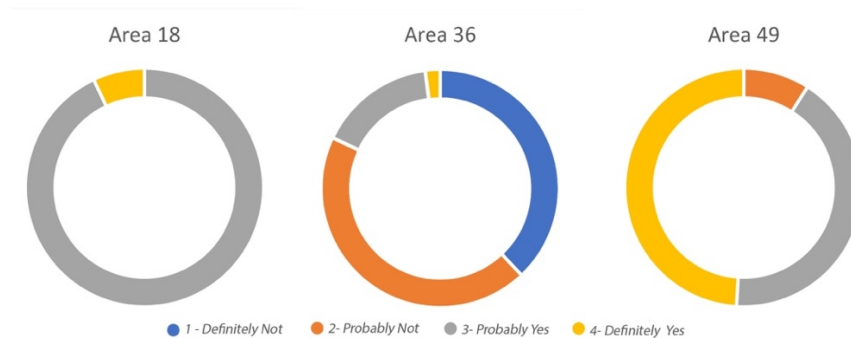


Figure 7.10 Subjective perception of house quality (Source-The Author)

The first subjective question regards house quality. Visually, Figure 7.10 displays that Areas 18 and 49 are mostly positive about their house quality, with 100% of Area 18's residents and 91% of Area 49s residents giving a score of 3 or 4 out of 4. Contrary to this, only 18% of residents in Area 36 awarded positive scores to this question, leaving 82% of residents stating that their home is not a good quality building. As such, it is essential to investigate why the sample population feel this way.

Figure 7.11 compares the subjective ranking question with the materials and techniques of the home. The analysis revealed that residents of Lilongwe are most positive about their home when it is a modern dwelling, with modern dwellings being the only house typology to gain a score of 4 out of 4 by any resident. Traditional dwellings on the other hand, are seen to gain negative results 100% of the time.

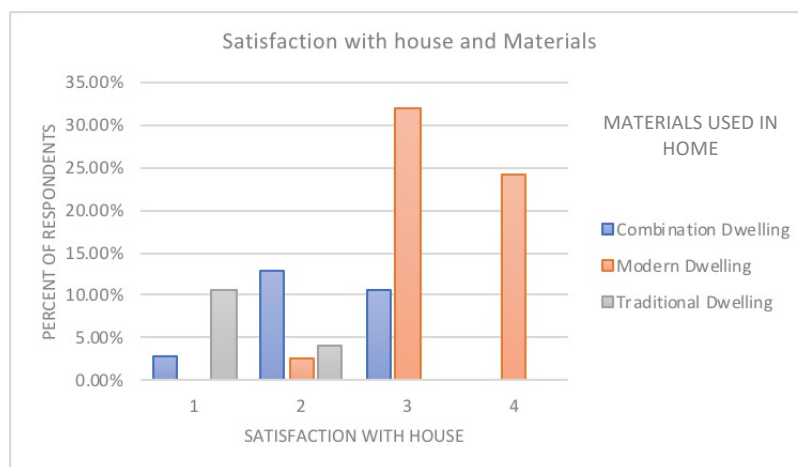


Figure 7.11 Satisfaction with house and materiality (Source- The Author)

This, therefore, suggests that residents are most satisfied with their home when it is made from permanent modern materials and techniques as displayed in Figure 7.11. This is a significant finding as policymakers and planners can see that there is a direct correlation between residents' satisfaction with their home, and the materials their homes are made from. A Spearman's correlation is run to determine the relationship between house quality and overall physical quality of the neighbourhood. There is a strong positive monotonic correlation between these two indicators ($r_s=0.73$, $n=165$, $p<0.01$). This suggests that house quality has a significant role in the residents' perception of the physical quality of their neighbourhood.

This is an attribute that is not assessed in all QoUL surveys globally. QoUL surveys in America and Europe do not ask residents what materials their homes are made from, as perhaps this is not an important indicator within such contexts. As such, this is a finding which would be overlooked if the survey was not tailored to the context under investigation.

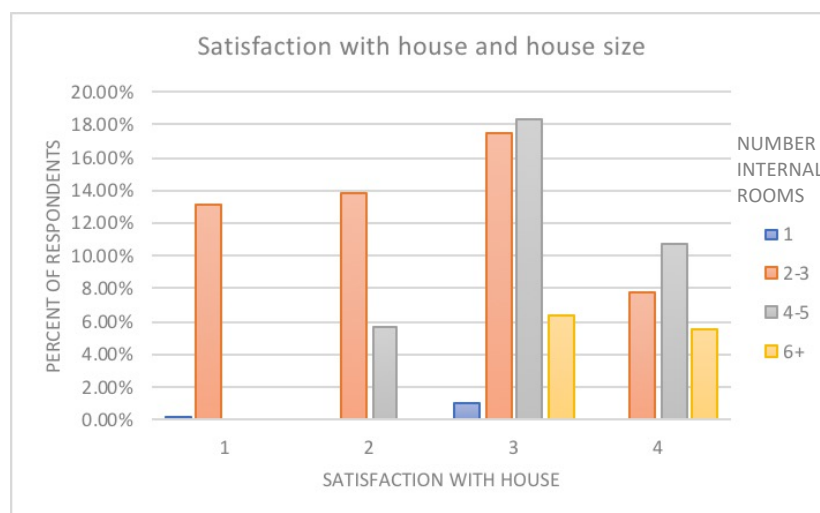


Figure 7.12 Satisfaction with house and dwelling size (Source- The Author)

Following on from this, Figure 7.12 compares the size of the house with the residents' satisfaction with their home. Figure 7.12 visually displays that residents with extra-large houses of 6+ rooms are satisfied with their home 100% of the time, however, it is significant to discover that residents with the smallest house, a 1-room house, are also satisfied with their home 90% of the time. The residents with large homes of 4-5 rooms and medium homes of 2-3 rooms report a mixture of satisfaction and dissatisfaction. This therefore displays that there is not a strong correlation between house size and satisfaction with home. This is significant, because this data indicates that satisfaction with one's home is more directly linked to the building materials than

the size of the house. This therefore reveals that improving the quality of a house, or building smaller high-quality buildings, would be better perceived by residents than larger low-quality buildings.

7.3.5 Density

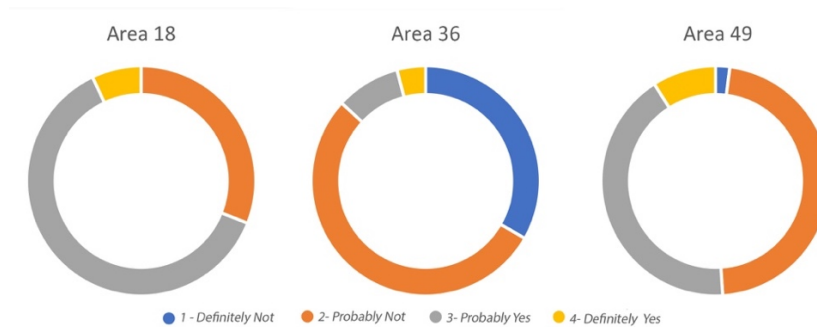


Figure 7.13 Subjective perception of density (Source-The Author)

The second subjective ranking question relates to density. This questions if there is enough space between the residents and their neighbours' homes. Figure 7.13 displays that Area 18 is the most positive neighbourhood as residents are optimistic about this indicator 69% of the time. This is followed by Area 49, which awards positive scores 51% of the time. Looking now at Area 36, it can be seen that the residents feel more negatively regarding the density of their neighbourhood, as only 13% of respondents provided positive scores.

This negative score from Area 36 is expected as it relates to the discussion in section 3.03, which stated that Area 36 is objectively the densest neighbourhood with the highest number of families in smaller house sizes. The literature suggests that density is related to privacy, as such, a Spearman's correlation is run to establish if there is a relationship between density and privacy. This revealed that there is a moderate monotonic correlation between these two indicators ($r_s=0.57$, $n=165$, $p<0.01$). This is interesting because it suggests that less dense neighbourhoods feel more private to the residents.

7.3.6 Privacy

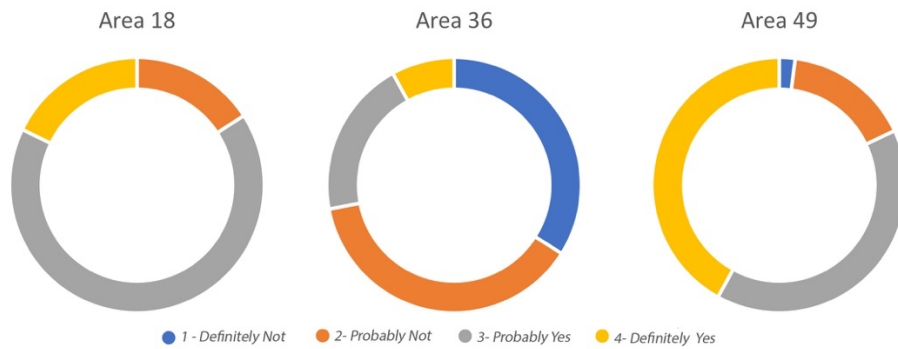


Figure 7.14 Subjective perception of privacy (Source-The Author)

The next subjective question asked in this section regards the feeling of privacy. Residents are asked if they feel they enjoy spending time in their gardens without being overlooked. Comparing Figure 7.14 for each neighbourhood, it shows that Area 18 and 49 are both positive about the level of privacy they feel, while Area 36 feels more cynical about this indicator.

Chapter Five, Section 1.5 discusses that privacy is a desirable quality in the urban realm of Malawi. Urban life is often highly public as many activities commonly take place in the gardens or verandas, which puts residents in the view of their communities. From the neighbourhood profiles in Chapter Six, it is evident that Areas 18 and 49 have more enclosed plots with walls, fences or vegetation, thus is it expected that the residents feel their plots are somewhat private. Area 36's neighbourhood profile however, displayed that there are much fewer plots enclosed, as such, it is probable that residents feel their neighbourhood is less private. A Spearman's correlation is run to ascertain if there is a relationship between house quality and privacy. The null hypothesis here is that the higher quality houses are likely to have walls or fences, thus feel more private with enclosed plots. This analysis exposed that there is a strong monotonic correlation between house quality and privacy ($r_s=0.71$, $n=165$, $p<0.01$), which confirms the null hypothesis.

7.3.7 Ecological Quality

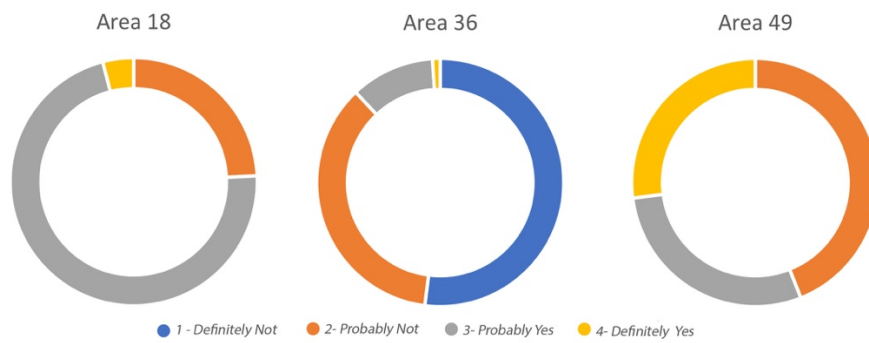


Figure 7.15 Subjective perception of ecological quality (Source-The Author)

The final question in this section regards the ecological quality of the neighbourhood. Residents are asked if they believe there is enough green space, such as parks or fields, in their neighbourhood. As previously mentioned in Chapter One, Lilongwe was a planned garden city. As such, there are green areas and trees integrated into the original city design, including two natural forests.

The neighbourhood profiles display that Area 18 has suitable areas of open and green space including the botanical gardens and monument square. Consequently, it is not surprising that 75% of respondents awarded positive scores for this indicator.

Area 49 is predominantly contented regarding this question, with 66% of residents providing positive scores. From the neighbourhood profile, it is apparent that Area 49 has some good-quality open and green spaces. Nonetheless, the neighbourhood is not in as close proximity to excellent facilities, such as the recreational spaces in Area 18. This perhaps explains why it gained a lower percentage of positive scores than Area 18. Area 36 provided the lowest score for this indicator, with 86% of respondents scoring either 1 or 2 out of 4. This tells that residents of Area 36 are unsatisfied with the availability of green and open spaces within their neighbourhood. It is established throughout this physical domain section that Area 36 experiences high residential density, thus there is not a great deal of open space in the neighbourhood. This appears to have adverse effects on the QoUL of residents.

A Spearman's correlation is run to comprehend the relationship between ecological quality and privacy. This revealed that there is a moderate monotonic correlation between the two indicators ($r_s=0.57$, $n=165$, $p<0.01$). This confirms the discussion that areas that have less green or open space feel less private and thus, denser to residents. This section has reviewed the physical home space, the focus of the following section is now to look wider in the physical realm of the neighbourhood to discover how residents perceive the accessibility and transport of their neighbourhood.

7.3.8 Urban Transport and Accessibility:

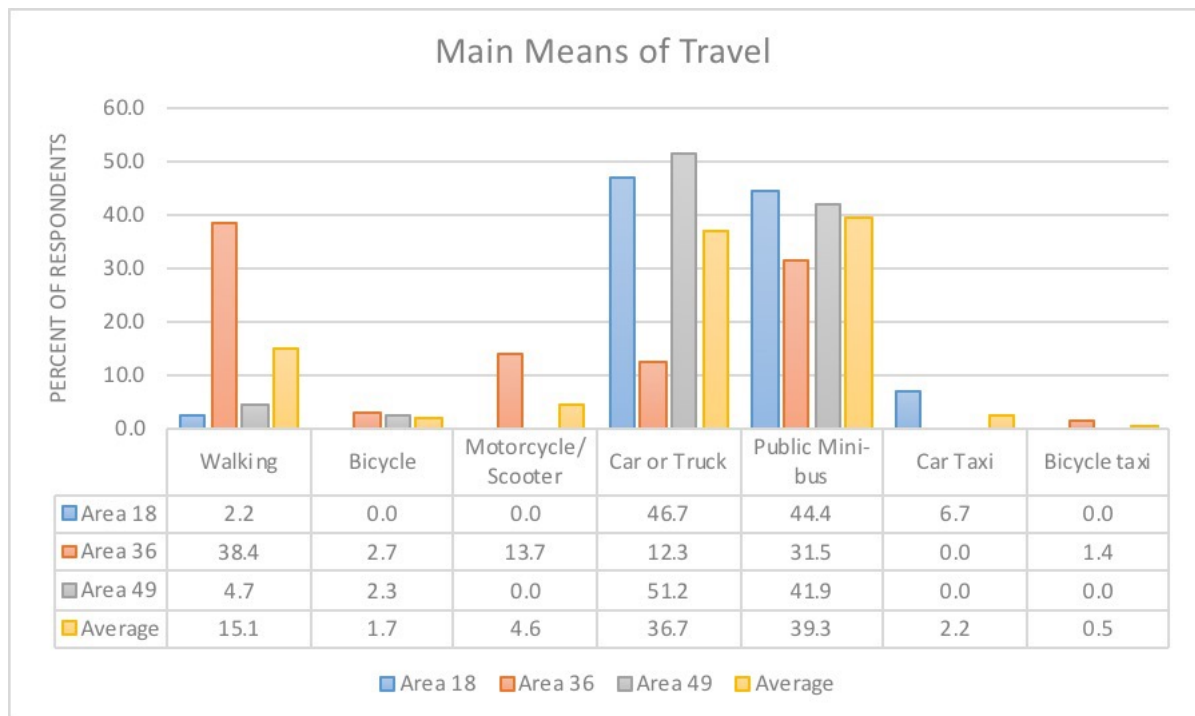


Figure 7.16 Main means of travel (Source- The Author)

The second half of the physical domain looks at the wider neighbourhood, its accessibility and its urban transport. Urban transport and accessibility of work and services are essential aspects of residential QoUL. This affects the resident's ability to reach social and economic amenities. Transport increases a person's urban mobility which opens many opportunities, including employment and access to healthcare. As such, the survey examines a set of criteria to understand how accessible amenities are across the three neighbourhoods. This begins by asking the residents what their primary means of travel is, followed by their average time to travel to their place of work, nearest school and closest healthcare facility. Following this objective information, the survey then follows up on these with subjective ranking questions that seek to understand the residents' satisfaction with their transport quality and the proximity from their home to the city centre or CBD.

Viewing the main means of travel across the three neighbourhoods in Figure 7.16, shows that the three most common forms of transport are public mini-bus (39.3%), car or truck (36.7%) and walking (15.1%). Separating that information across the three neighbourhoods, it is visible that the majority of residents in Areas 18 and 49 use either a car/truck or public mini-bus, while the majority of Area 36's residents are pedestrians or use the public mini-bus.

Multi-factor analysis is employed to understand the relationship between travel type and travel time by neighbourhood. This helps to comprehend how accessible a resident's workplace is, based on where they work, their primary means of travel, and the time it takes to get to work. Viewing the results of Area 18 (Figure 7.17), it is clear that there are five core employment locations namely: working from home, the city centre, being in education, working at the marketplace, or working from the roadside. The majority of Area 18s residents (67%) state that it takes between 11-30 minutes to get to work. Of that category, 26.7% use a car or truck to get to the city centre, 17.8% use a minibus to get to the centre, and 11.1% use a minibus to reach the marketplace. None of Area 18s residents believe it takes over an hour to reach their workplace. This is significant as the objective data from chapter six illustrated that Area 18 is in an excellent central position within Lilongwe, as it is in close proximity to the government buildings and the city centre. This is a positive aspect for the QoUL in Area 18 as the neighbourhood is reachable and accessible.

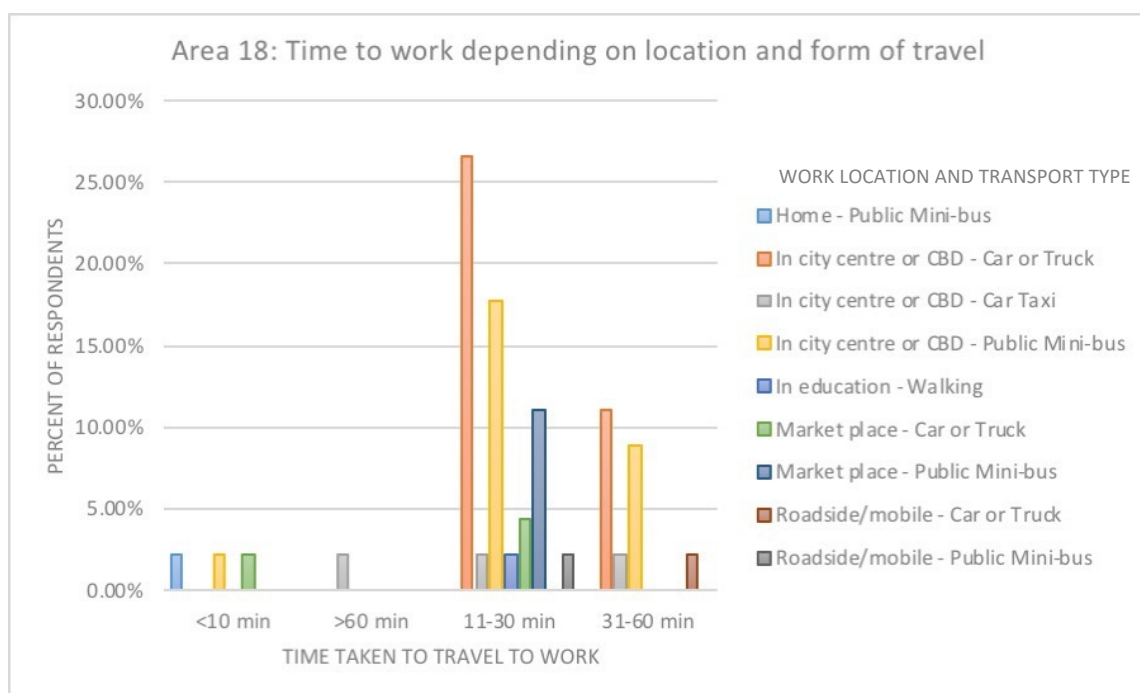


Figure 7.17 Accessibility and transport type Area 18 (Source- The Author)

Turning attention to Area 36, Figure 7.18 demonstrates that there is a broad range of workplaces and means of travel. The majority of residents work at either the marketplace (38%) or the city centre (38%). Many residents work from home (8%) and others who work from the roadside, agricultural fields or state that they are not in employment. Area 36 also has a variety of means of travel, the majority of residents are pedestrians (38%) followed by those who use the minibus (32%). A reasonable number of resident use scooters or motorbikes (14%) or use a car or truck (12%). A

small proportion of the neighbourhood cycle as their primary means of travel (3%) and 1% stated that they use bike taxis.

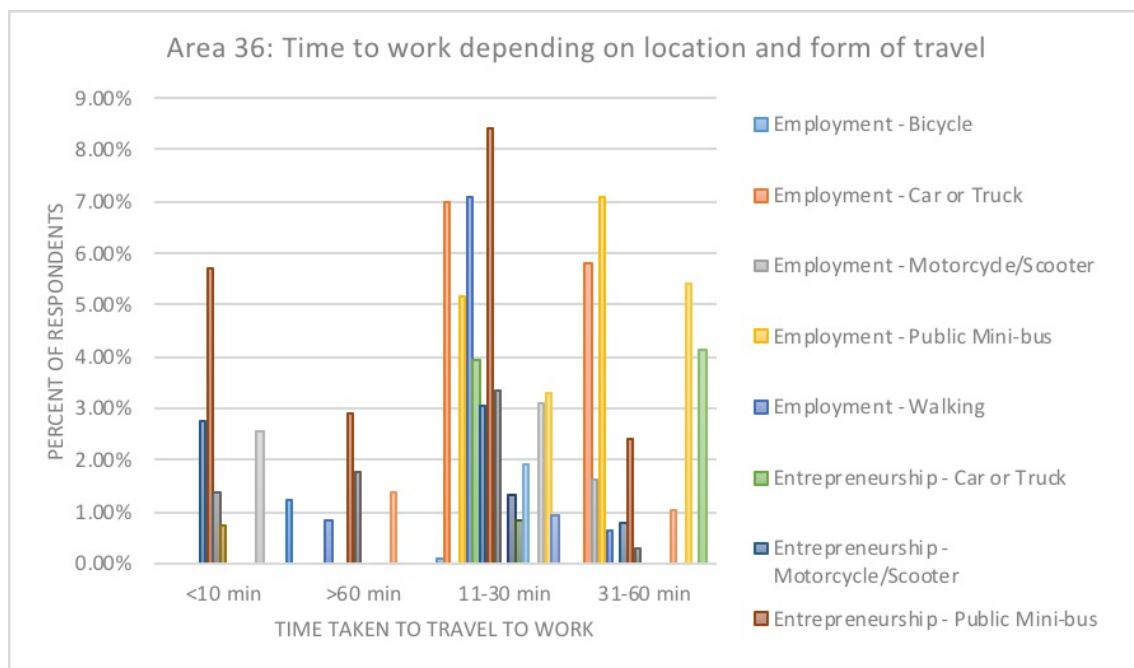


Figure 7.18 Area 36 Accessibility and transport type (Source- The Author)

Looking at the objective data profiles, Area 36 is a peripheral neighbourhood, approximately 8.5km from the city centre. It is therefore initially surprising that the majority of residents, (46%), state that it takes only between 11-30 minutes to get to work. However, by analysing Figure 7.18, it can then be understood where the residents work if they have this shorter commute. Many of the persons with a short commute appear to work within the neighbourhood, either from their own home, from the marketplace, roadside, or agricultural fields. Those who work in the city centre or CBD look to have the longest commutes. This links to the discussion in Chapter Five, Section 1.2, 'Urban Transport and Accessibility' states that often peripheral urban residents work in their neighbourhoods due to the high commuter costs. Urban transport is a significant expenditure for city residents, therefore, working close to home becomes more appealing to peripheral residents.

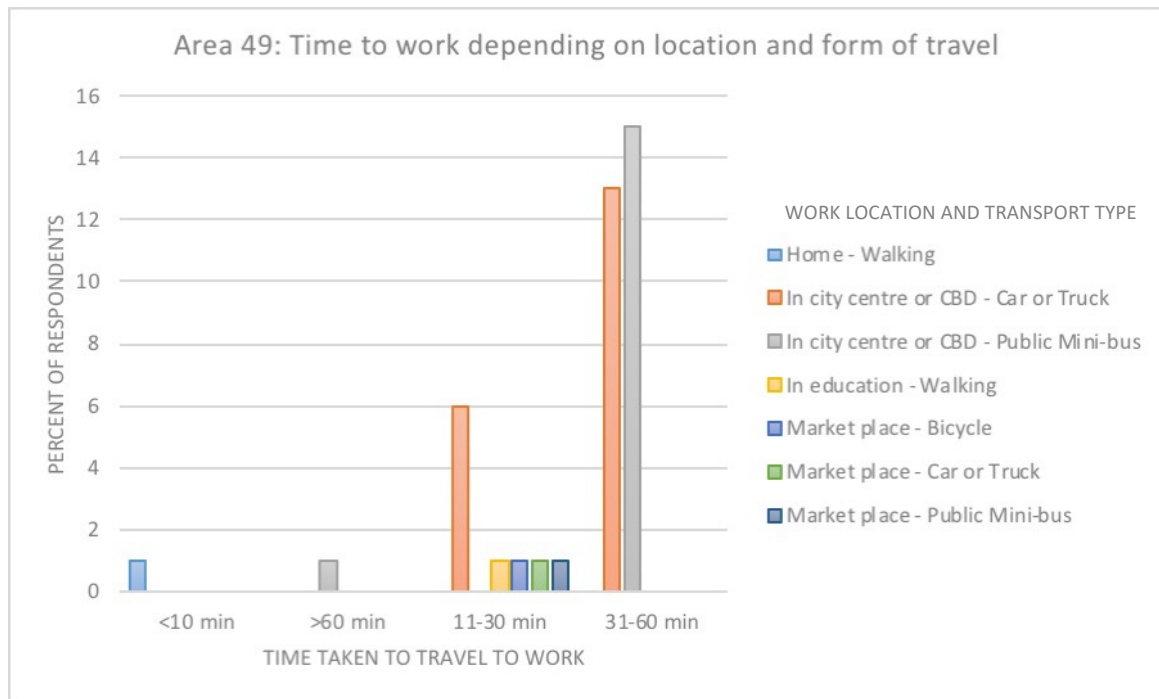


Figure 7.19 Accessibility and transport type Area 49 (Source- The Author)

Area 49 has the smallest range of workplaces as residents typically work in the city centre (84%), at the marketplace (7%), work from home or are in education (2% each). As the majority of residents work in the city centre, their commute is typically between 31-60 minutes. Area 49 is therefore reasonably accessible to the city centre. While it is in the northern region of the city, the neighbourhood profiles display that it is still relatively close to the city centre.

7.3.9 Physical Domain Subjective Responses

Following the same methodology as the previous section, the residents are asked subjective questions about the objective conditions of their neighbourhood. Residents are asked to rank indicators on a scale from '1-Definitely not' to '4-Definitely yes'. The subjective analysis discloses significant subjective perspectives of residents which are the focus of the subsequent section. The following questions are related to infrastructure, transport and accessibility of the neighbourhood.

7.3.10 Infrastructure

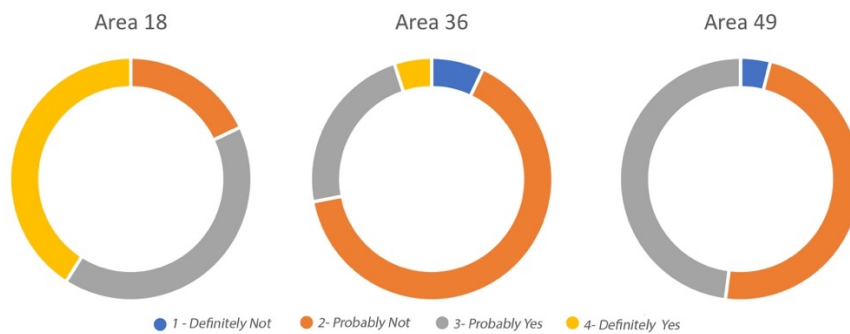


Figure 7.20 Subjective perception of infrastructure (Source-The Author)

Closely related to the topic of transport and accessibility is the quality of the streets and roads that residents use to commute. This is significant to residential QoUL because streets outline traffic and transport conditions for both vehicles and pedestrians. As such, residents are asked if the streets and roads in their neighbourhood are well-built. Reviewing Figure 7.20 it is visible that Area 18 is substantially more positive than the other neighbourhoods, with 82% of residents scoring this indicator 3 or 4 out of 4. Residents of Area 49 provided a more mixed opinion for this indicator, 48% of residents scored the quality of streets and roads 3 out of 4. However, the remaining 52% deemed the streets and roads inadequate.

As such, it felt necessary to review why residents allocated the scores that they did as the neighbourhood profile indicates that the infrastructure is good quality. From reviewing the subjective reasoning from the questionnaire, there is a mixture of reasons why residents in Area 49 perceive their roads as low-quality. 57% of the negative population state that it is due to the materials the roads are made from. Following this, 52% of the negative sample attribute the low-quality to their maintenance. Residents of Area 36 have provided the lowest scores of all the neighbourhoods for this indicator with 72% of residents deeming the streets and roads insufficient. From the photography in the neighbourhood profile, it is evident that the streets and roads often had potholes and uneven surfaces, therefore the subjective opinion of the residents confirms the neighbourhood profiles.

A Spearman's correlation is run to determine if there is a relationship between physical urban infrastructure and transport quality. This revealed that there is a moderate monotonic correlation between the two indicators ($r_s=0.42$, $n=165$, $p<0.01$). This suggests that the quality of the roads affects the quality of commuter transport, thus improving the roads is likely to improve the residents' commute.

7.3.11 Transport Quality

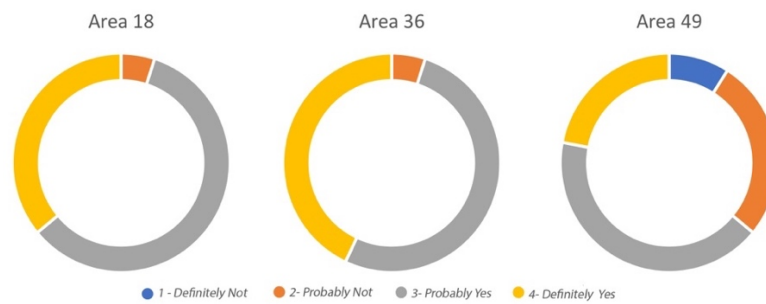


Figure 7.21 Subjective perception of transport (Source-The Author)

Residents are asked if they felt there is adequate public transport available in their neighbourhood. This is the first indicator where Area 49 is dramatically lower than the other two neighbourhoods. Both Areas 18 and 36 residents provided positive scores 95% of the time, while only 64% of Area 49s respondents provided a positive score of either 3 or 4 for this indicator as shown in Figure 7.21.

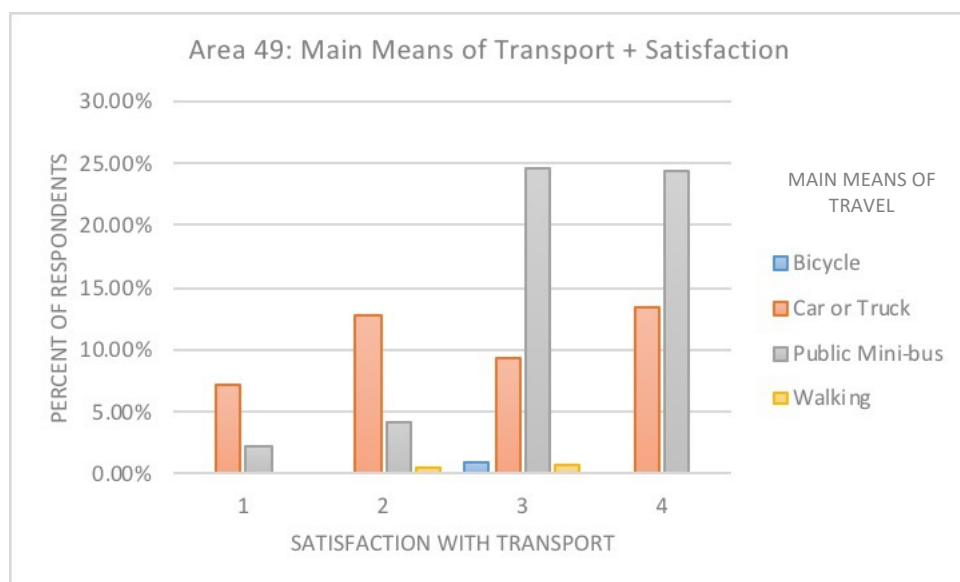


Figure 7.22 Satisfaction with transport typology Area 49. Source- The Author

It is curious to then compare the residents ranking of the public transport by their primary means of travel in Area 49. Interestingly, those who use the public minibuses appear to be the same residents that provided positive scores for this form of transport. This suggests that the public minibuses are appropriate to those who use them. It is mostly the residents that use a car or truck that provided lower scores, as displayed in Figure 7.22. Residents that travel by car or truck likely prefer using their private means of travel as opposed to using the public minibuses, hence their lower score. This connects to the discussion in Chapter Two: Section 3.4, 'The Personal Dimension'. The minibus appears to be satisfactory to people who use them regularly, however, the residents who commonly commute by car perceive minibuses as

unsatisfactory. This is conceivably because they are comparing minibuses to their cars, thus using different judging criteria to assess the indicator than those who regularly commute by minibus. Personal reflection and standards of comparison often affect how residents perceive and evaluate indicators of their neighbourhoods. This reiterates the concept that aspects of urban life are subjective, and personal to each individual.

Following on from this discussion, Figure 7.23 compares the residents' main means of travel, and their satisfaction with travel across the full sample. Here, it can be seen that residents are mostly happy with their public minibus service and appear very satisfied if they travel by motorcycle or scooter. Residents who walk as their main means of travel appear to be satisfied with this, as are cyclists. On the whole, across the full sample residents appear satisfied with their transport. This is significant for policymakers and planners as residents appear content with the cities transport, therefore this is not an area which requires immediate attention. Instead, their attention could be focused on aspects of urban life which residents perceive as less satisfactory.

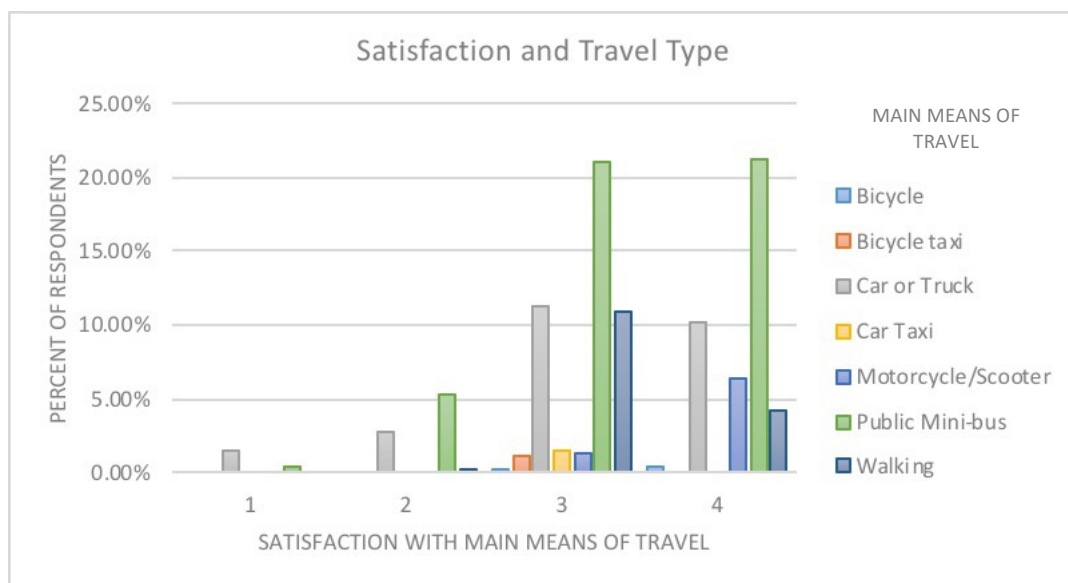


Figure 7.23 Satisfaction with transport typology. Source- The Author

7.3.12 Overall Physical QoUL

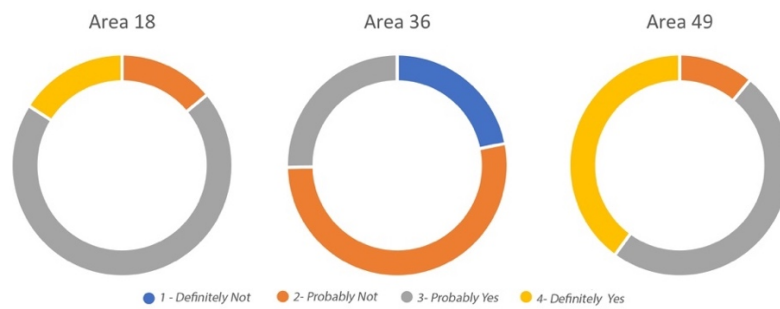


Figure 7.24 Subjective perception of physical quality of neighbourhood (Source-The Author)

The final question in this section asked residents “all things considered; how would you rate the overall physical quality of your neighbourhood?” the results are displayed in Figure 7.24. This is a validating question that is used to establish the dependability of the indicators assessed. This is due to the concept of quality of urban life being vast, therefore, it is challenging to cover every aspect. The validating question allows the researcher to check the survey data and ensure the questions are acceptable.

To check this, the researcher sums the mean score of the various subjective physical questions and divides this by the number of questions. This allows the researcher to predict a mean, based on the means of all the previous questions. The predicted mean is compared to the mean answer that the residents provided. Table 7.4 offers the means to each question, the predicted mean, and the residents stated mean to this question.

	Area 18	Area 36	Area 49
House Quality	3.1	2.1	3.4
Density	2.8	1.8	2.6
Privacy	3.0	2.0	3.2
Ecological quality	2.8	1.6	2.8
Infrastructure	3.2	2.3	2.4
Transport	3.3	3.4	2.8
Predicted mean	3.0	2.2	2.9
Residents Mean	3.0	1.9	3.3

Table 7.5 Physical QoUL Indicators (Source- The Author)

Table 7.5 illustrates that the predicted means for all three neighbourhoods are within 10% of the mean provided by the residents. The predicted means and resident mean are thus considered very similar. This displays that the indicators used in this section are well balanced and all contribute to the overall physical QoUL in Lilongwe. This suggests that the various indicators have similar importance weightings thus, all

similarly contribute towards the mean. As such, the questions and indicators in this section are considered validated.

7.4. Social Quality of Urban Life

This section is reviewing the social QoUL across the three neighbourhoods. The literature discusses the fact that urban societies are heterogeneous spaces that are continuously influenced by social indicators. Modern cities are formed through a plurality of indicators which constantly manipulate the social stage of the neighbourhood. This includes indicators such as: place attachment, sense of community, personal relationships, public meeting spaces, and local governance. Each of the aforementioned indicators are derived and validated in Chapter Four. A further indicator, which is removed from the study by the expert panel, is identity, which may be significant in studies in different contexts.

This section evaluates the social indicators of each of the three case study neighbourhoods to determine if there are similarities and differences between the three communities. This aids to the understanding of the importance of social indicators in contributing to the overall QoUL of residents of Lilongwe.

7.4.1 Place Attachment.

Residents are asked the primary reason that they moved to their neighbourhood. Understanding the reason that residents decided to relocate to a neighbourhood is thought-provoking, because it has implications for what residents feel is desirable about that neighbourhood and has further inferences about place attachment.

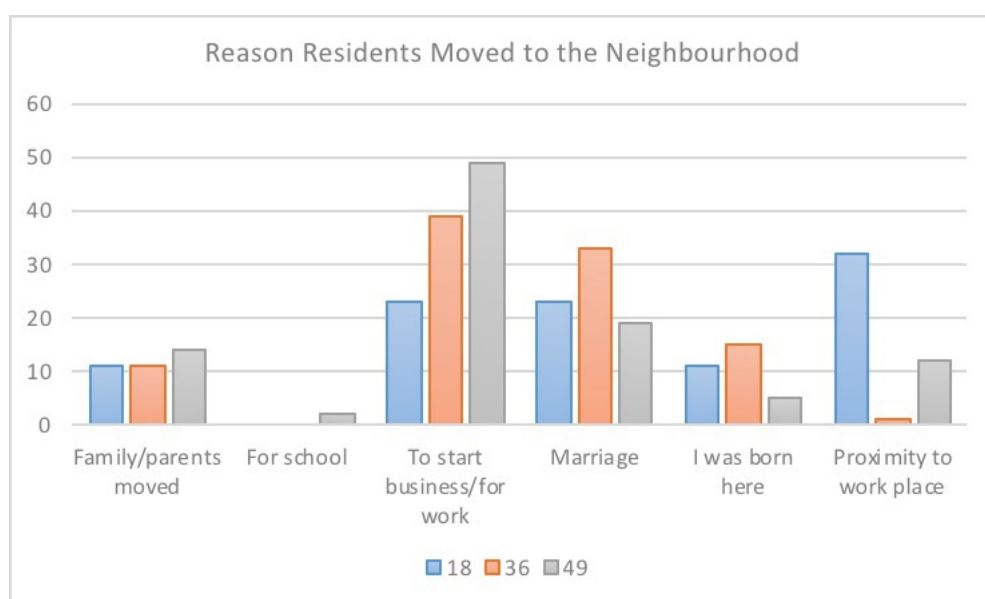


Figure 7.25 Place attachment (Source- The Author)

Reviewing Figure 7.25, it demonstrates that there are two main categories for selecting a neighbourhood, one is economic concerns such as: starting a business or for work, to be close to a workplace, or for schooling. The other concerns are primarily social, such as for marriage, family moving to the neighbourhood, or that the resident was born there. Looking at the neighbourhoods side by side on Figure 7.25, it exhibits that there is a range of reasons that residents state as the primary reason they live in their neighbourhood. Residents that reside in Area 49 have chosen that neighbourhood primarily for economic reasons, with 63% selecting from the economic categories. Opposite to that, residents of Area 36 have selected the neighbourhood for predominantly social concerns, with 60% selecting social indicators. In the middle, between both economic and social concerns is Area 18, whose residents selected economic attributes 55% and social attributes 45%.

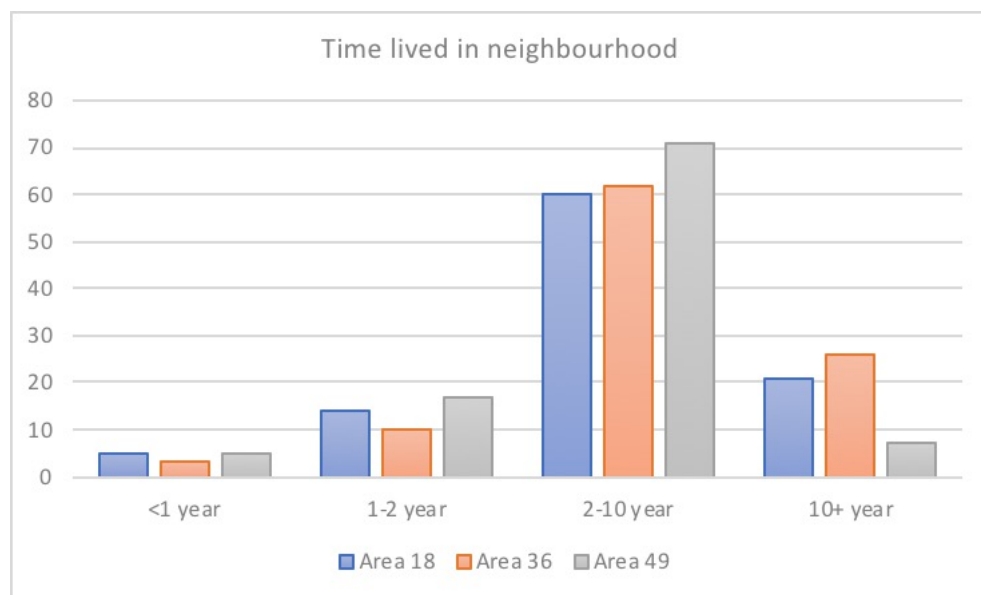


Figure 7.26 Place attachment 2 (Source- The Author)

Following this, residents are then asked how long they have resided in their neighbourhood. The duration for which a resident has resided in their neighbourhood is linked to place attachment. If a resident sees their home as permanent, they are often more inclined to invest in their neighbourhood, both in terms of the physical fabric and in the social realm. From reviewing the survey data in Figure 7.26 it appears that the majority of residents in all three areas have resided in their neighbourhoods for more than 2 years, with 87% of Area 36 having resided for over 2 years, 81% in Area 18, and 78% in Area 49. This suggests that a large proportion of the residents consider this a permanent home.

7.4.2 Personal Relationships

Related to the concept of place attachment, it is also significant to establish if a resident lives close to family. Links with extended family remains at the heart of most urban households in Malawi. Living close to family is beneficial to urban residents because secure social networks are significant for many reasons, including that family may share resources, that there is a mutual exchange and trust, and is beneficial to a sense of belonging.

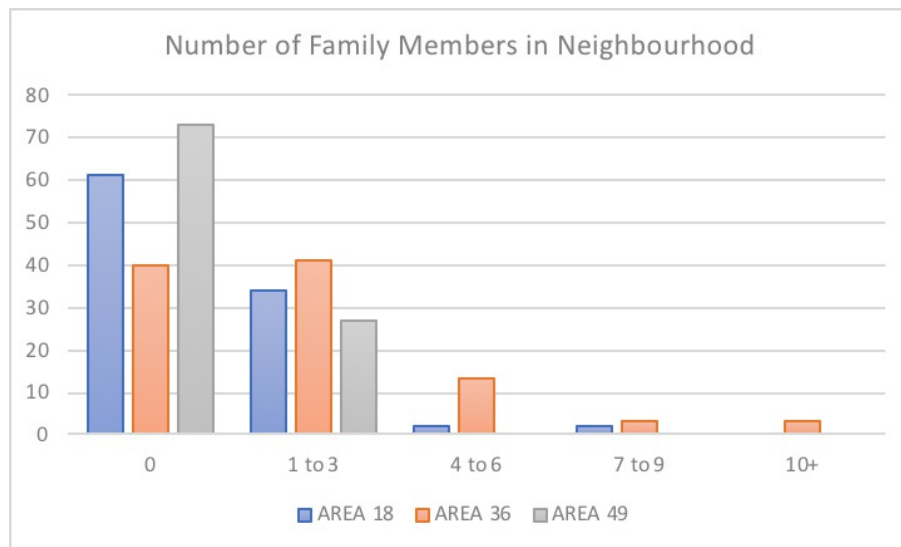


Figure 7.27 Family relations (Source- The Author)

Figure 7.27 displays that a large proportion of residents in Area 49 and Area 18 do not have family in the neighbourhood. Area 36 shows the largest number with family in the neighbourhood with 60% stating they have at least one family member nearby. For future work, this question might be changed to discover if residents have family within the city, as neighbourhoods such as Area 18 are quite small, therefore, they might have family members in close proximity if they are in an adjacent neighbourhood.

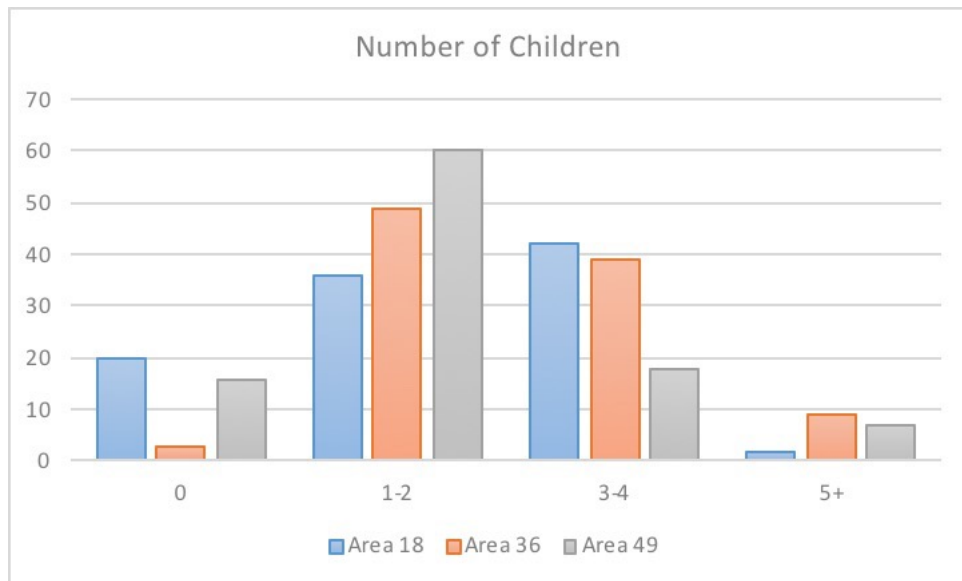


Figure 7.28 Personal relationships (Source-The Author)

Continuing the concept of personal relations, residents are then asked if they have any children. Strong personal relations are an important factor in urban life, as this affects residential identity and sense of belonging. Reviewing the full sample in Figure 7.28, it is concluded that 87% of respondents have at least one child. The majority of those surveyed, (48%), have either 1 or 2 children. 33% of respondents stated that they have either 3 or 4 children, and 6% have five or more children. Area 18 has the highest number of residents that do not have children (20%), followed by Area 49 (16%), with Area 36 displaying the least residents without children at only 3%.

7.4.3 Social Domain Subjective Responses

Using the same methodology and format as the physical domain, the social section of the questionnaire again follows the objective questions with subjective questions to understand the residents' interpretation of the various indicators. The questions have used the same 4-point Likert scale which asks on a scale from '1-Definitely not' to '4-Definitely yes' regarding how certain indicators rank in the view of the resident. This subjective analysis reveals noteworthy perspectives of the residents of the three neighbourhoods, which are the focus of the succeeding discussion.

7.4.4 Neighbouring

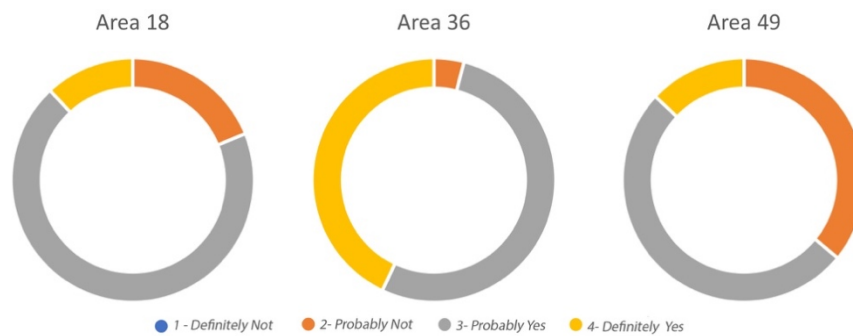


Figure 7.29 Subjective perception of neighbours (Source-The Author)

In Malawi, urban residents are linked in a web of social relationships. These include relationships such as to family members or friends and neighbours in the community. Strong reciprocity community ties are often formed between neighbours who help one another with a range of welfare hardships and help to foster positive social wellbeing. As such, good relations with neighbours are thought to be one of the key issues to urban survival. Reviewing the responses from the survey data in Figure 7.29, it is evident that all three neighbourhoods consider that they have positive relations with their neighbours. The most positive for this indicator is Area 36, where 96% of residents state that they do have good relationships with their neighbours. Area 18 is also very positive, with 82% of residents stating they have strong neighbourhood relationships. The lowest for this indicator is Area 49, where 64% have positive neighbourly relations.

To comprehend why Area 49 provided lower scores than the other case study neighbourhoods, the results of this question are analysed against the subjective ranking question. Residents are asked to select from a multiple-choice list of reasons why they believe the quality of their neighbouring is high or low. They are provided four options and allowed to select as many as they believe to be true. If residents wished to add extra reasoning, they are welcome to do so. Of the negative sample in Area 49, 63% of them attribute their negative relationship with their neighbour to the quality of interaction that they share, and 38% of the negative population state that they are dissatisfied because of the amount of neighbour interaction they share. None of the sample attribute their negativity to the friendliness of their neighbours or believe that it is because their neighbours are dissimilar to themselves.

7.4.5 Public Social Spaces

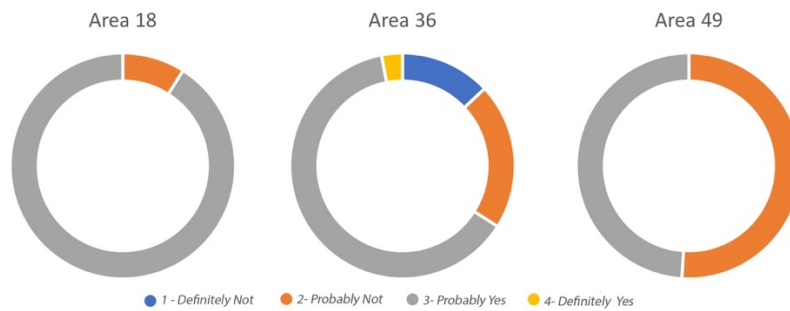


Figure 7.30 Subjective perception of public social spaces (Source-The Author)

Public social spaces are crucial for the social stage of any community. Chapter Six assessed a commercial and recreational social space in each of the case study neighbourhoods, evaluating and considering their strengths and weaknesses. This question takes the opportunity to understand if the residents perceive their urban open spaces with similar regard to the research. The results in Figure 7.30 present that residents are most satisfied with their public social spaces in Area 18, where 91% of residents gave either 3 or 4 out of 4. This confirms the discussion in Chapter Six, as the social spaces that are examined during the observational assessment are high-quality spaces, particularly concerning the recreational spaces such as the Monument Square and Botanical Gardens. These are high-quality spaces for residents to enjoy spending free time, which contribute positively to social QoUL.

65% of the residents surveyed in Area 36 felt that their neighbourhood has good quality spaces to meet socially. This, therefore, implies that the public open spaces are mostly appropriate; however, there is space for improvement to enhance the residential satisfaction with regards to this indicator. The observational assessment of the public spaces in Area 36 confirms the feelings of the residents, that available spaces are adequate, however, Chapter Six outlines some of the areas that could be considered for improvement.

Residents of Area 49 provided the lowest scores for this indicator with only 49% offering positive results. This confirms the results of the walking tour, particularly with regards to the commercial space in Area 49, which is the carwash and stall. While this is a lively and active space, through the observational assessment, it is revealed that the majority of those using the space are there for necessary, as opposed to optional, activities. This discloses that the users of the space are not there due to the spatial quality, but rather due to necessity such as work or to gain access to transport. Improving the social spaces in Area 49 may contribute to an improvement in QoUL. This links to the question in the previous section regarding ecological quality such as

green and open space, however taking a more social perspective of the need for the spaces. From reviewing the residential reasoning provided in the questionnaire for the negative sample in Area 49, it is significant to note that 72% of residents that are negative attribute their dissatisfaction to the quality of the spaces available, while only 31% believe it is due to the number of spaces. This suggests improving the existing spaces as opposed to erecting new spaces. This is discussed further in Chapters Eight and Nine.

7.4.6 Inclusivity

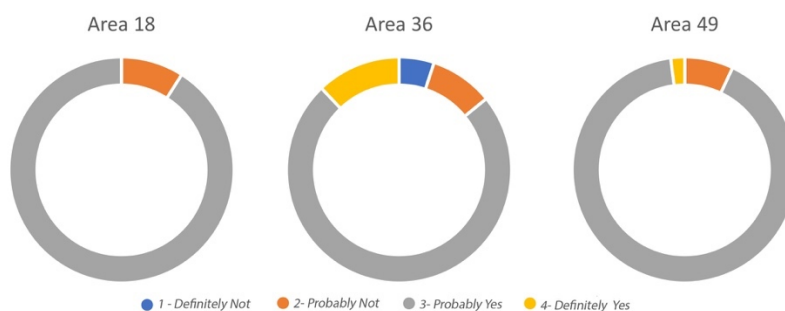


Figure 7.31 Subjective perception of inclusivity (Source-The Author)

Following on from the concept of public space is to understand if residents believe the social spaces within their neighbourhood are inclusive to all. This attribute gained highly positive scores from the majority of residents with 91% providing either 3 or 4 out of 4 in Area 18, 87% providing the same scores in Area 36, and highest of all, 93% awarding positive scores in Area 49 as shown in Figure 7.31. There are very few instances when residents are not satisfied with the inclusivity of their neighbourhood. Using multi-factor analysis to compare feeling of inclusivity with gender, it is concluded that gender does not play a role in the residential perception of inclusivity in the three neighbourhoods.

Malawi is a matrilineal country where women are important members of their community. This is reflected in their perception of the inclusivity of their neighbourhoods' public spaces. It is further assessed if residents age affected their perception of inclusivity. This also proved inconclusive; thus, age does not appear to affect residents feeling of inclusivity in these neighbourhoods. The sample does not include many residents under the age of 18. As such, their perception is not included in the findings.

7.4.7 Youth Space

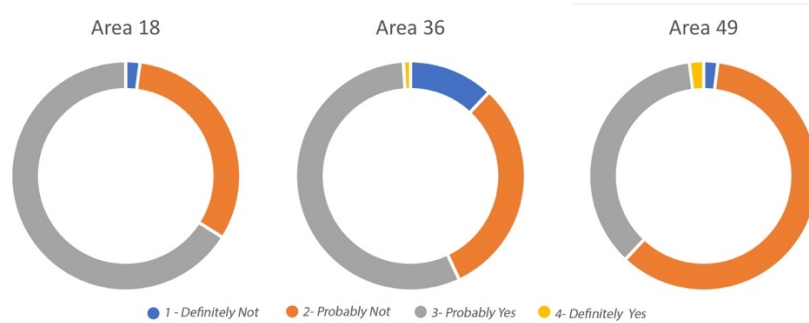


Figure 7.32 Subjective perception of youth spaces (Source-The Author)

The absolute youth population of sub-Saharan Africa is growing faster than anywhere else in the world. In Malawi, 51% of the country is under the age of 18 (Census, 2018). An issue with this study, is that under 15's did not participate; thus, a large proportion of the population is not included. This question allows the research to understand how other members of the population perceive the space available to the youth of the neighbourhood.

The results of this question postulate interesting results displayed in Figure 7.32. The percentage of residents that gave negative scores in Area 49 is 62%. This insinuates that Area 49 does not have spaces that are appropriate for the youth community. The neighbourhood profile in Chapter Six provides a population distribution for Area 49, which displays that 40% of the population is under the age of 18. As such, there is a large portion of the population that do not have appropriate space to meet. This links to the question regarding public social spaces as Area 49 is mostly negative about this too. This suggests that Area 49 has an issue with public open spaces for all ages.

A Spearman's correlation is run to determine the relationship between youth space and if there are areas to meet socially for the full sample. This revealed that there is a strong positive monotonic correlation between these indicators ($r_s=0.68$, $n=165$, $p<0.01$). As such, it appears that the two factors are connected. This suggests that neighbourhoods that lack public space, additionally lack appropriate spaces for youth. Directing attention to Area 36, the results are slightly more positive than in Area 49, with 58% of those surveyed providing positive scores for the question. This again connects to the observations from Chapter Six, as the observations suggest that Area 36 has reasonable spaces for youth, such as the school grounds which had a large number of residents using them at peak times of the day. Area 18 is the most positive of all the case studies, with 66% reporting positively regarding space for youth to meet. The facilities and spaces available in Area 18 displayed in the neighbourhood profile are indeed high quality, thus appear to be positively valued by residents.

7.4.8 Children Space

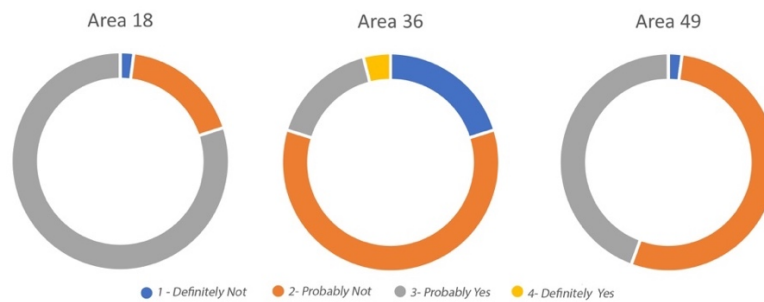


Figure 7.33 Subjective perception of children's spaces (Source-The Author)

Having spaces that are appropriate for children to play is important for QoUL because a large portion of a child's day is spent in their home and their neighbourhood. Chapter Five: Section 2.2, 'Personal Relationships', discusses the fact that children often play in neighbours' homes and garden and the spaces in which children play is often informal. The discussion in Chapter Six states that children often play in the street because they like to do so. Streets often have many elements of prosperous play areas as they have shade, friends and are close to home for refreshments. The results of this question are interesting because there is a broad range of responses between the three neighbourhoods. 80% of those surveyed in Area 18 are positive regarding space for children to play however, opposite to this, only 20% are positive in Area 36. In between the two results, 60% of those surveyed in Area 49 are positive about this indicator shown in Figure 7.33.

It is also significant to determine the relationship between children space and youth space. As such, a Spearman's correlation is run on these two indicators. This revealed that there is a moderate positive monotonic correlation between youth space and space for children to play ($r_s = .57$, $n = 165$, $p < 0.01$). This displays that there is a relationship between these two indicators; thus, if a neighbourhood is lacking youth space, they also lack appropriate space for children. Due to youth and children forming a significant proportion of the population, their experience in the neighbourhood is fundamental for successful and positive QoUL. Methods to improve youth and children's spaces are presented in Chapter Nine.

7.4.9 Access to Amenities

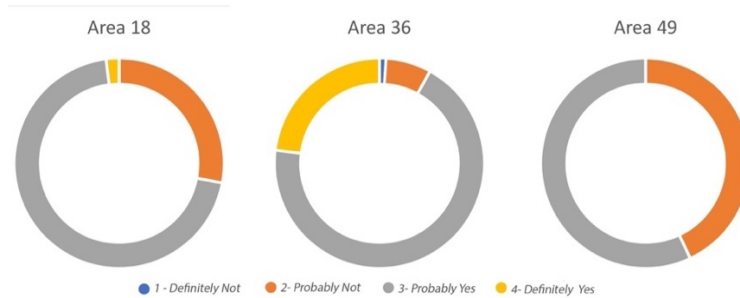


Figure 7.34 Subjective perception of amenities (Source-The Author)

Shops, sellers and stalls are necessary public amenities for a neighbourhood. They are not only functional spaces that are important for accessing items, but they also contribute to the liveliness of a neighbourhood. Shops and stalls are visited by members of the community who drop by, adding to the social stage of the neighbourhood. Area 36 had the highest number of positive responses regarding this indicator, with 92% scoring either 3 or 4 out of 4, thus showing they are happy with their access to amenities shown in Figure 7.34. Due to Area 36's peripheral location, it is desirable that there is access to facilities in the neighbourhood to prevent residents from travelling far to source items. As such, it is positive to see that 92% of those surveyed in Area 36 state that they have access to shops, sellers and stalls.

Area 49 delivers the lowest score for this indicator with only 57% of residents feeling they have access to shops, sellers and stalls. This is undesirable for residents, as it can mean having to travel for basic amenities, which takes up their free time. This is a negative aspect of quality of urban life in Area 49, which could be amended. Consequently, it would be desirable for more shops to open in Area 49, as it appears residents are not satisfied with the number of shops they currently have. From the neighbourhood profile, there is construction work taking place in Area 49's carwash and stalls setting. This should address the issue to positively improve the resident's perception of the shops in their neighbourhood.

7.4.10 Local Governance

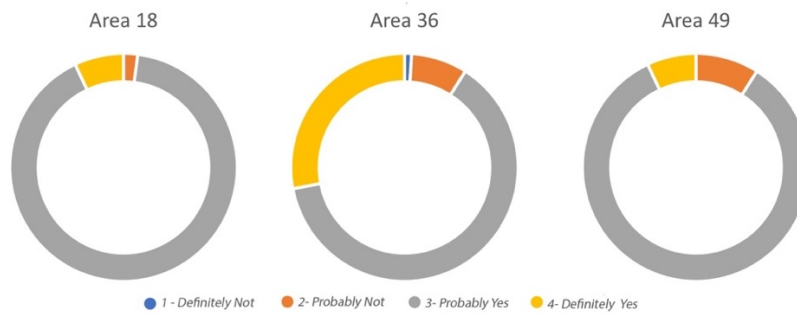


Figure 7.35 Subjective perception of local governance (Source-The Author)

The questions regarding local governance are split into two: first residents are asked if they believe that they have good leaders, this is followed up by asking if they feel they have a voice in their community and are listened too. Malawian communities are under the authority of their local chief, who reports to their Traditional Authority (TA). Both positions are thought to have a strong knowledge of the land and social interaction within their communities. Chiefs play a direct role in allocating land, thus retain respect and authority in many modern settlements.

Of those interviewed as part of the residential attitude survey, the majority provided positive scores for their local leaders with 98% in Area 18, 91% in Area 36, and 91% in Area 49 as displayed in Figure 7.35. This is encouraging, as it is clear that residents are positive and satisfied with the leadership in their neighbourhoods. This indicator is considered the highest importance out of the social indicators by the expert panel. As such, it is deemed a crucial social indicator for QoUL in Lilongwe. Due to its importance rating, it is excellent to note that residents are satisfied with their local leaders.

7.4.11 Voice

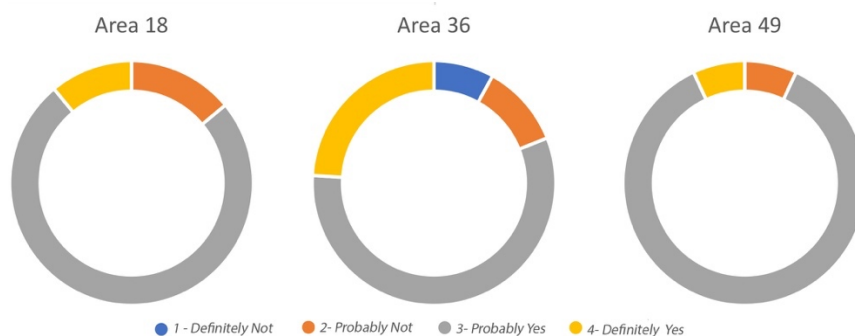


Figure 7.36 Subjective perception of having a voice (Source-The Author)

Having a voice is important because it allows residents to feel they have a say in the running of their community. This is an important social indicator which gained mostly positive scores, with 86% in Area 18, 81% in Area 36 and 93% in Area 49 reporting

positive scores for having a say in the running of their community as displayed in Figure 7.36.

Using a Spearman's correlation, it appears that there is a moderate positive monotonic correlation between having a voice in the community and there being areas to meet socially ($r_s=0.48$, $n=165$, $p<0.01$). This postulates that if a resident has space to meet in their neighbourhood, it increases a resident's perception of being heard in their community. This is because if residents positively engage in the social stage of their community by visiting the public places, they are likely to have strong social connections, and thus contribute to the politics of their neighbourhood. Overall, local governance appears positive in all three neighbourhoods, which is constructive for social QoUL. This confirms the literature discussion in Chapter Five section 2.1, 'Local Governance', which discusses that politics unfolds in space, including everyday urban open spaces.

7.4.12 Overall Social QoUL

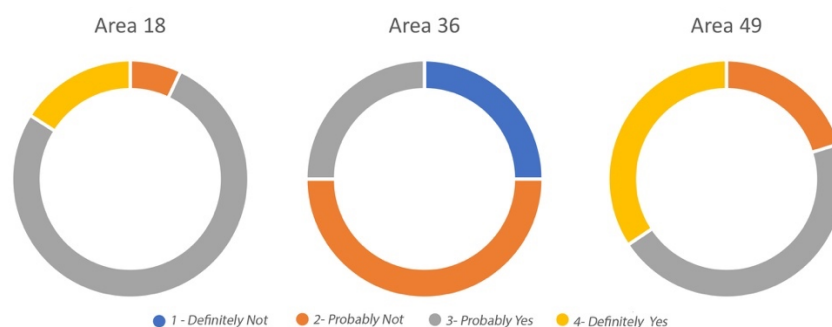


Figure 7.37 Subjective perception of social quality of neighbourhood (Source-The Author)

Using the same method as the physical domain, residents are again asked a validating question stating: "all things considered, how would you rate the overall social quality of your neighbourhood?", the results of which are shown in Figure 7.37. The social domain is perhaps one of the hardest domains to fully conceptualise, as aspects are less tangible, and thus the validating question is vital to check the responses and ensure questions are valid.

Again, this is checked by summing the mean scores of each subjective social question and dividing by the number of questions. This allows the researcher to predict a mean, based on the means of the previous questions. The predicted mean is then compared to the mean answer provided for the validating question. Table 7.6 provides the means to each question, the predicted mean and the residents stated mean to this question.

	Area 18	Area 36	Area 49
Neighbouring	2.9	3.4	2.8
Social Space	2.9	2.6	2.5
Inclusivity	2.9	3	3
Youth Space	2.6	2.5	2.4
Children Space	2.8	2.1	2.4
Access Amenities	2.8	3.2	2.6
Leaders	3.1	3.2	3
Voice	3	3	3
Predicted mean	2.9	2.9	2.7
Residents Mean	3.1	2	3.1

Table 7.6 Social QoUL Indicators

Table 7.6 illustrates that while the predicted means are within 10% of the residents mean in Areas 18 and 49, there is a discrepancy in Area 36. From the range of questions, it is expected that residents in Area 36 have a good social quality of urban life as the predicted mean is 2.9 out of 4. This is joint highest predicted mean, as Area 18 also expected at 2.9 out of 4. Area 49 is close behind with a predicted mean of 2.7 out of 4. This shows that all the neighbourhoods have good social realms and that residents have meaningful relationships which support their quality of life. However, it is noted that their mean score for this question is lower than expected based on answers to previous questions.

Due to the discrepancy in Area 36, it may be worth reviewing the indicators and potentially adding in extra subjective questions in a future study. It is reassuring to see that Areas 49 and 18 are similar to their predicted scores. It is possible that gaining a larger sample would rectify the issue in Area 36. Having reviewed the social domain of QoUL, the following section will focus on the economic indicators of urban life.

7.5. Economic Quality of Urban Life

Economic indicators play a fundamental role in a resident's QoUL. A person's financial situation affects where they live, their material possessions and their lifestyle. This section analyses six indicators that are validated as necessary for a resident's urban life in this context, namely, tenure, household income, education, work status, expenditure and poverty rates. Each of these indicators are converted into a question for the survey.

7.5.1 Source of Income

Figure 7.38 displays the various sources of income as selected by respondents. There are other options available on the survey, however, if not selected, then they are not included in the graph. By reviewing the results across the three neighbourhoods, it shows that Areas 18 and 49 have high levels of formal employment at 73.3% and 81.8% respectively. Area 36 presents a lower proportion of the population in formal employment at 29.3%. However, Area 36 exhibits the highest level of entrepreneurship in the three neighbourhoods with 34.7% of those surveyed stating they are entrepreneurs. Area 18 again has a high number of entrepreneurs at 17.8%, and Area 49 has the lowest representation of entrepreneurs at 9.1%.

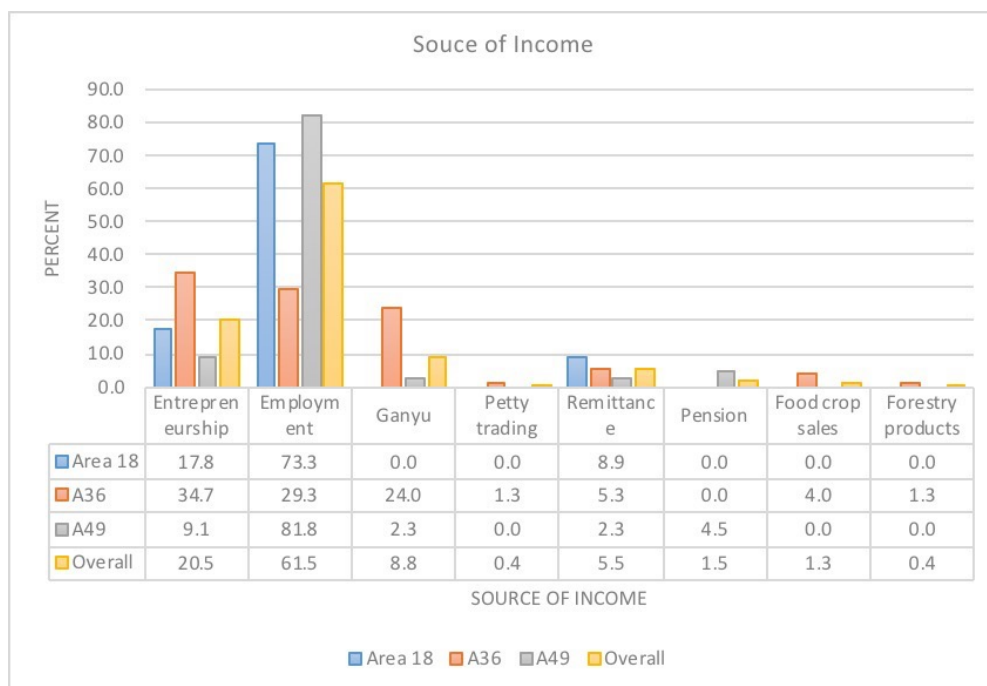


Figure 7.38 Source of income

The growth of the informal sector and entrepreneurship is often thought to be attributed to rapid urbanisation, without substantial growth in formal sector jobs. It is thus expected that there are a large number of entrepreneurs in Area 36, as Chapter Three: section 6.3 discussed that the neighbourhood has undergone rapid expansion in recent years without physical expansion to match. Ganyu is the third-largest source of income which makes up 8.8% of the overall income source, however it is 24% of the income source for Area 36. Ganyu is a term used in Malawi that describes a range of short-term rural labour jobs, which are piece work, such as weeding, or ridging on the fields of smallholders or agricultural estates (Whiteside, 2000).

7.5.2 Tenure

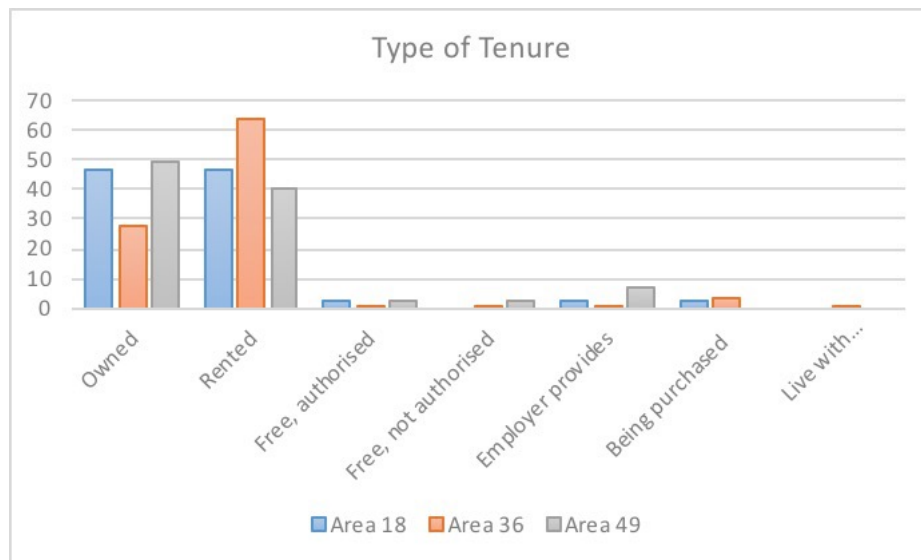


Figure 7.39 Tenure Typology (Source- The Author)

The only non-physical slum characteristic put forward by the UN is ‘security of tenure’. As discussed in Chapter Five, section 3.3: ‘Tenure and Ownership’ renters are seen as powerless and invisible members of society. Lacking secure tenure can cause anxiety and stress for residents, thus negatively affect their QoUL. Reviewing the three neighbourhoods, it is evident that a large percentage of the population in Areas 18 and 49 own their properties with 48% and 49% respectively, however, only 28% of residents in Area 36 own their plots, which is displayed in Figure 7.39. Renting is the most common form of tenure in Area 36, with 64% of residents stating they rent their property. There remains a high proportion of Area 18 who rent their properties with 48% of respondents selecting this form of tenure. Area 49 has the lowest number of renters at 40%, however, this remains a significant proportion of the population.

7.5.3 Material Possessions

Residents are asked if they own a range of eight material possessions, namely: car/truck, bed, radio, TV, bicycle, computer, mobile phone and refrigerator. This is a method to understand the income and expenditure of a person, without asking people to state how much they earn. This is often considered a more sensitive approach to understanding prosperity. Figure 7.40 illustrates the material possessions of each neighbourhood.

Table 7.7 displays that there is a considerable difference between Area 36 and the other two case study neighbourhoods. This displays that the resident surveyed in Area 36 own considerably fewer material possessions than the other neighbourhoods. This suggests that Area 36 is less affluent than the other case study sites.

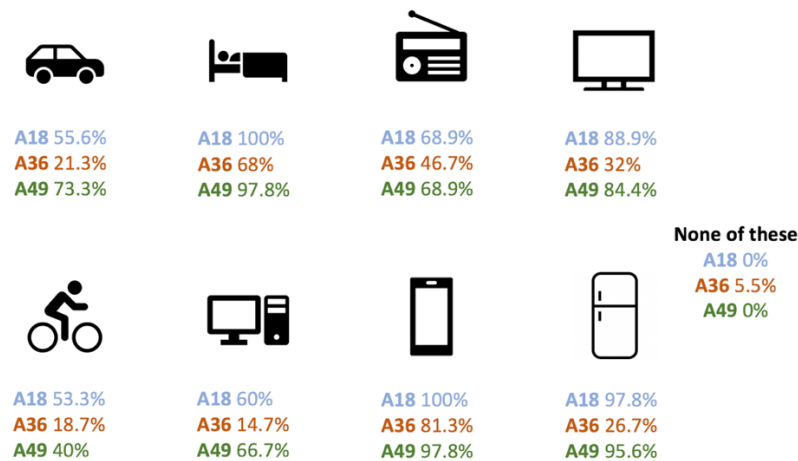


Figure 7.40 Material possessions (Source- The Author)

	0-2 Items	3-4 Items	5-6 Items	7-8 Items
Area 18	0%	20%	24.4%	55.6%
Area 36	52%	24%	9.3%	14.6%
Area 49	2.2%	17.8%	22.2%	57.8%

Table 7.7 Material possessions (Source- The Author)

The results of this question show that 52% of residents in Area 36 own between none and two of these material possessions. It is particularly noticeable that there is a considerable number of resident (32%) that do not own essential items such as a bed. Area 18, on the other hand, has no residents that own less than 3 of the items on the list, with 100% of them owning a bed. This is a visual way that demonstrates the financial differences between the three neighbourhoods. This validates the need to review neighbourhoods at the aggregate scale as there are significant differences in the wealth and lifestyle between the case-study neighbourhoods. Consequently, this means that resources should be allocated differently in different parts of the city to best tackle the urban issues that are important in each location. This information is thus useful for policymakers and planners to inform decisions on resource distribution and priority.

7.5.4 Economic Domain Subjective Responses:

Using the same method as in the previous two domains, residents are then asked subjective questions to follow up on the previous objective questions. The questions have used the same 4-point Likert scale, which asks on a scale from '1-Definitely not'

to '4-Definitely yes' regarding how certain indicators rank in the view of the resident. The subjective analysis of the economic indicators exposes notable viewpoints of residents, which are subsequently outlined.

7.5.5 Tenure and Ownership

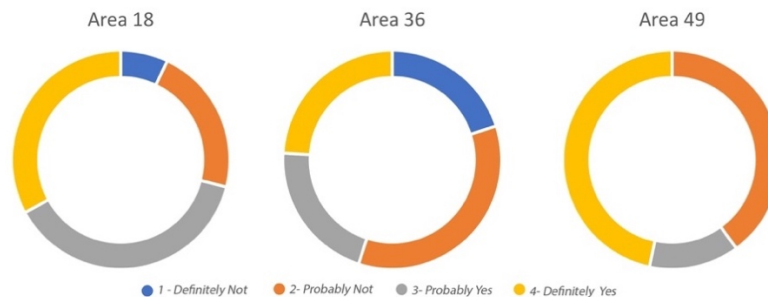


Figure 7.41 Subjective perception of tenure (Source-The Author)

Tenure is a significant contributor to a resident's QoUL. The results demonstrate that Areas 18 and 49 are predominantly satisfied with their tenure, while Area 36 is more negative regarding this indicator. Comparing satisfaction with tenure and the type of tenure in Figure 7.42, demonstrates that residents who own their home are satisfied with their tenure 97% of the time, and residents that live with their family are positive 100% of the time. Residents who rent their homes on the other hand, only report being satisfied with their tenure 39.9% of the time. Residents who state that they live in a home that is free but not authorised are always negative about their tenure.

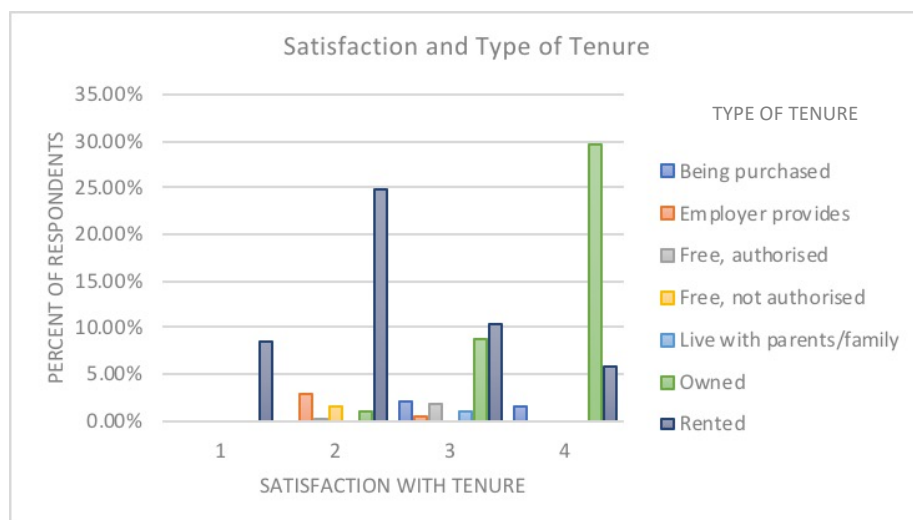


Figure 7.42 Satisfaction and type of tenure (Source-The Author)

This is significant as it displays that having ownership over property increases residential satisfaction, thus contributes to improving QoUL. It further shows that having insecure tenure negatively affects residents' perception of their tenure; consequently, this harms their quality of life. Improving urban tenure is therefore desirable for improving the residential quality of urban life. This information is

meaningful for policymakers and planners in Lilongwe as they can address tenure and ownership in the city as a way of improving residential QoUL.

7.5.6 Work Opportunities (In-formal Economy)

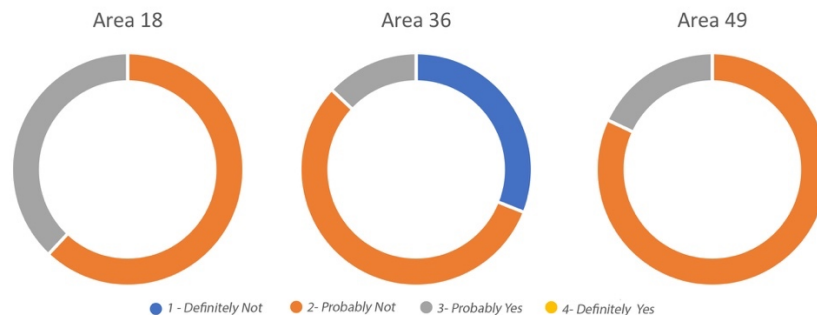


Figure 7.43 Subjective perception of work opportunities (Source-The Author)

Residents are asked if there are good work opportunities in their neighbourhood. Figure 7.43 demonstrates that the majority of residents are negative regarding this indicator. Area 36 is the most negative, with 82% reporting dissatisfied scores. Of this, 31% of respondents stated '1-definitely not' to this question. Area 49 also sees 82% provide negative scores, however, of these the residents also provided a score of '2-probably not'. Area 18 is the most positive for this indicator with 38% of respondents providing positive scores, however, this remains a low overall score.

As such, residents generally feel pessimistic about the work opportunities in their neighbourhood. This is possibly because many residents work out with their neighbourhood, for example, residents in Area 18 are more likely to work in the government offices or the city centre. A Spearman's correlation is run to determine the relationship between work opportunities and overall satisfaction with the economic condition of the neighbourhood. This revealed that there is a moderate positive monotonic correlation between the two indicators ($r_s=0.4$, $n=165$, $p<0.01$). This suggests that work opportunities have an association with the overall economic condition of the neighbourhood. As such, it is desirable to see more work opportunities within neighbourhoods. This connects with the discussion in Section 4.26, which states that it is desirable to see more amenities in the neighbourhoods. Providing more amenities also creates employment opportunities in the neighbourhoods.

7.5.7 Education

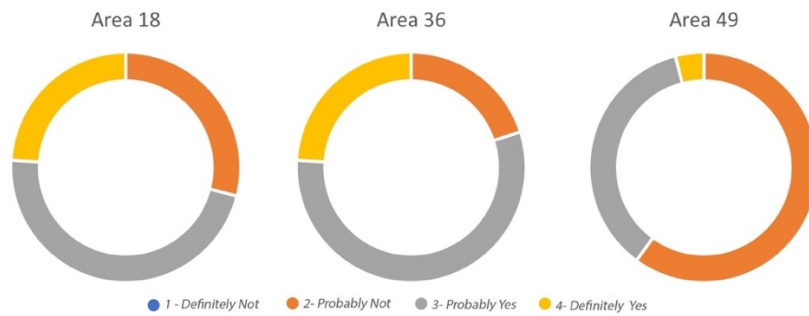


Figure 7.44 Subjective perception of local education (Source-The Author)

Access to and quality of education, are essential drivers for a country's economic potential. Education is thought to raise a person's job prospects, which results in higher income, and thus positively impact their QoUL. From reviewing the objective neighbourhood profiles, one might assume that Area 18 would be the most satisfied with the quality of their schools as they have 13 schools and the smallest population. One might then assume that Area 36 is the least satisfied as they have the fewest schools with only 7, however they have the largest population. Area 49 would thus be estimated to be in between the two as it has 11 schools.

However, looking at the subjective perception of the quality of schools in the neighbourhood, this is not the case, as displayed in Figure 7.44. 80% of residents in Area 36 report positively about the schools in their neighbourhoods, while only 40% of Area 49 are positive; 71% of Area 18 are positive. This reflects that objective data alone is not sufficient to determine how residents perceive their QoUL. This reiterates the theory that is discussed in Chapter Two: Section 3.4: 'The Personal Dimension', that states residents each have different assessment and judgement criteria; thus, objective data does not always portray the perception of residents. This proves the need for participatory methods to gain the perspective of residents.

7.5.8 Basic Needs (Poverty Rates)

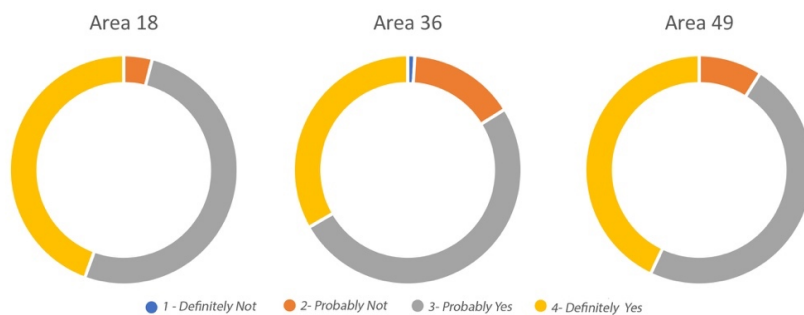


Figure 7.45 Subjective perception of personal basic needs (Source-The Author)

Chapter Five, Section 3.5: 'Poverty Rates', discusses that different variables are considered as 'basic needs' at different geographical scales. At a neighbourhood scale, poverty is described in basic material terms referred to factors, such as boreholes, schools, clinics, roads, to name a few. However, at a personal level, basic materials refer to food, drinking water, shelter and clothes. The residents are asked, "Do you feel you have the means to meet your basic needs?". This is therefore, asking about their basic personal needs, as opposed to basic neighbourhood needs.

It is positive to discover that the majority of residents feel they do have the means to meet their basic needs, however, 16% in Area 36 stated they do not, as well as 9% in Area 49 and 4% in Area 18. A Spearman's correlation is run to determine the relationship between means to meet basic needs, and overall satisfaction with the economic condition of the neighbourhood. This revealed that there is a moderate positive monotonic correlation between the two indicators ($r_s=0.5$, $n=165$, $p<0.01$). This discloses that basic needs play a significant role in the overall economic satisfaction of residents, as meeting your basic needs is a fundamental economic requisite. While there is a minority of residents who do not feel they can meet their basic needs, this is an issue which should be considered by policymakers and planners, particularly in Area 36, where 16% believe they cannot meet this.

7.5.9 Overall Economic QoUL:

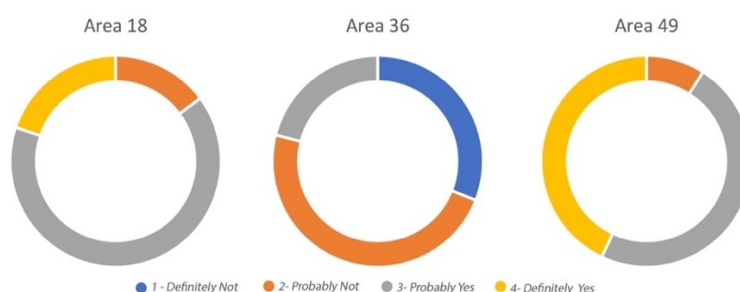


Figure 7.46 Subjective perception of economic quality of neighbourhood (Source-The Author)

Using the same method as the previous two sections, a validating question is used here stating "all things considered, how would you rate the overall economic quality of your neighbourhood?" which is shown in Figure 7.46. This question establishes the dependability of the indicators that are assessed. The validating question is used to check the survey data and ensure the questions are valid. To check the indicators against the validating question, the same method is applied as the previous two domains. Here, the mean result for each indicator is summed and divided by the number of questions. This provides a predicted mean which is compared with the stated mean from the validating question as shown in Table 7.8.

	Area 18	Area 36	Area 49
Tenure	3.0	2.3	3.1
Work Opportunities	2.4	1.8	2.2
School Quality	3.0	3.0	2.4
Basic Needs	3.4	3.2	3.3
Material Possessions	3.4	1.9	3.4
Predicted	3.04	2.4	2.9
Overall Economic	3.05	1.9	3.3

Table 7.8 Economic QoUL Indicators

The table displays that the predicted means for all three indicators are within 10% of the mean provided by the residents. The predicted mean, and the residents mean, are thus considered as similar, particularly with regards to Area 18. The table displays that the indicators used in this section are well balanced and all contribute to the overall economic QoUL in Lilongwe. This suggests that each of the indicators have similar importance weightings, consequently, all contribute to the mean similarly. As such, the questions and indicators in this section are validated.

7.6. Well-Being Quality of Urban Life

The majority of existing QoUL studies discuss physical, social and economic environments of urban life, however, they do not consider well-being as a domain in its own right. This section authenticates the vital role that well-being plays in urban life within the context of Lilongwe. This domain includes attributes such as health, safety, sanitation, and infrastructure. During the expert panel assessment, the indicator 'emotional well-being (EWB)' is removed from the study. EWB is examined from spill over effects; while EWB is removed from this study, it may be meaningful in a different context.

7.6.1 Drinking water

Water and sanitation are significant for a person's QoUL because they have implications for a person's health, as well as their free time if it is spent sourcing water. Chapter Five, Section 4.4: 'Environmental Services and Basic Infrastructure', discusses some of the health issues that arise from stagnant and contaminated water. Reviewing Figure 7.47, the majority of residents in Areas 18 and 49, (each 98%), have water piped into or near to their dwelling unit. The remaining 2% of Area 18's residents state they drink bottled water and the remainder of Area 49s residents' source their water from protected wells.

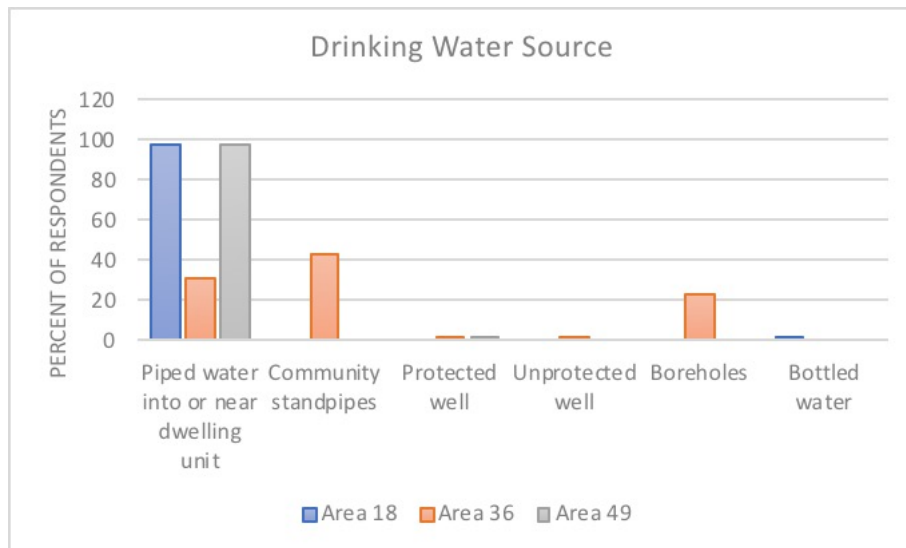


Figure 7.47 Drinking water (Source- The Author)

Figure 7.47 displays that there is a more extensive variety of water sources in Area 36. The most common water source is the community standpipe, which 43% of residents selected as their primary source of drinking water. This is followed by water piped into or near home (31%), then by using boreholes (23%), and finally using either protected or unprotected wells, (1% each). This aligns with the literature discussion in Chapter Five, section 4.4: 'Environmental Services and Basic Infrastructure', where it is stated that the water from the Lilongwe water board is often out in Area 36, however, that Area 49 receive good levels of water. It is thus unsurprising that residents in Area 36 use a mixture of water sources, as the piped water is thought to be unreliable.

7.6.2 Waste Typology

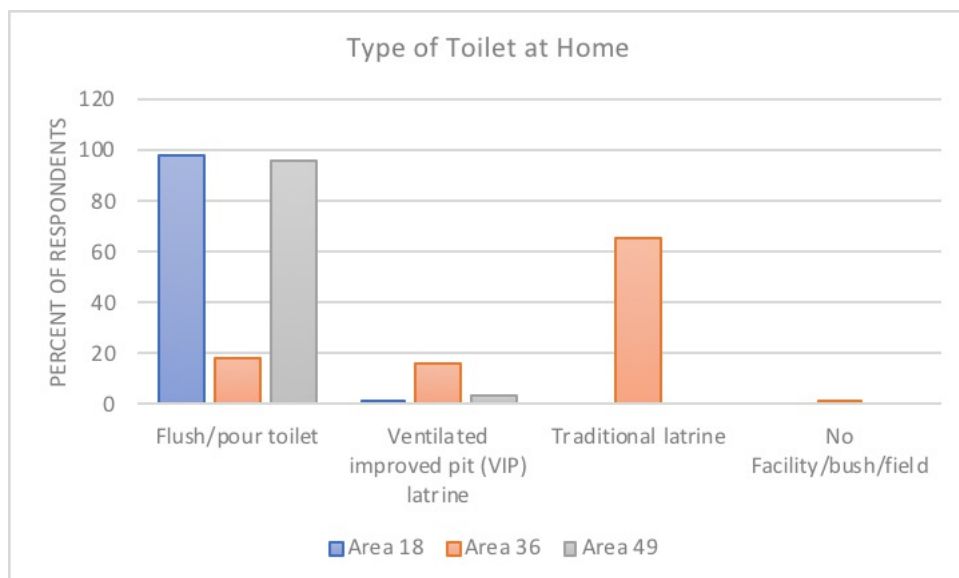


Figure 7.48 Waste typology (Source- The Author)

This question presents what type of waste facility residents use. Reviewing the 2018 Malawi Census, the main waste typology in the central region is the pit latrine, which is used by 73.8% of the population. Comparing the census data with the survey data, it is evident that the selected neighbourhoods are not representative of this indicator. Table 7.9 presents that Area 36 is most closely aligned with the census data, however, Area 36 also has more flush/pour toilets than the census states for the central region. This is possibly due to the case study neighbourhoods being in the city, as the city has better infrastructure than is found in the rural areas of the central region.

	Central Region	QoUL Survey	Area 36
Flush/pour Toilet	3%	70.7%	18%
VIP latrine*	13%	7.3%	16%
Pit latrine*	73.8%	21.7%	65%
Composite toilet	3.7%	0%	0%
Other	1.8%	0%	0%
No facility/bush/field	6.2%	0.33%	1%

Table 7.9 Comparison of waste typology with census data

Reviewing Figure 7.48, it is evident that Areas 18 and 49 have far above the regional average number of homes with flush/pour toilets. This indicates that they are particularly wealthy neighbourhoods in Lilongwe. This reiterates the conclusion from the economic domain that Area 18 and 49 are prosperous neighbourhoods of Lilongwe.

7.6.3 Fuel Typology

Access to electricity and provision of power is thought to be one of ESA's most considerable infrastructural challenges. Malawi faces frequent power shortages and implements planned load-shedding in areas of the country. As such, battery power and solar power as sources of electricity are becoming popular, as they allow residents to generate and store electricity as opposed to relying on the grid.

The residential attitude survey asked respondents which type of fuel they use for lighting in their homes. The results vary across the three neighbourhoods, however, the majority of residents in Areas 18 and 49 state that they use electricity, including solar or battery as displayed in Figure 7.49. Area 36 has a broader range of fuel typologies, with the main two types being electricity (59%) and candles (31%).

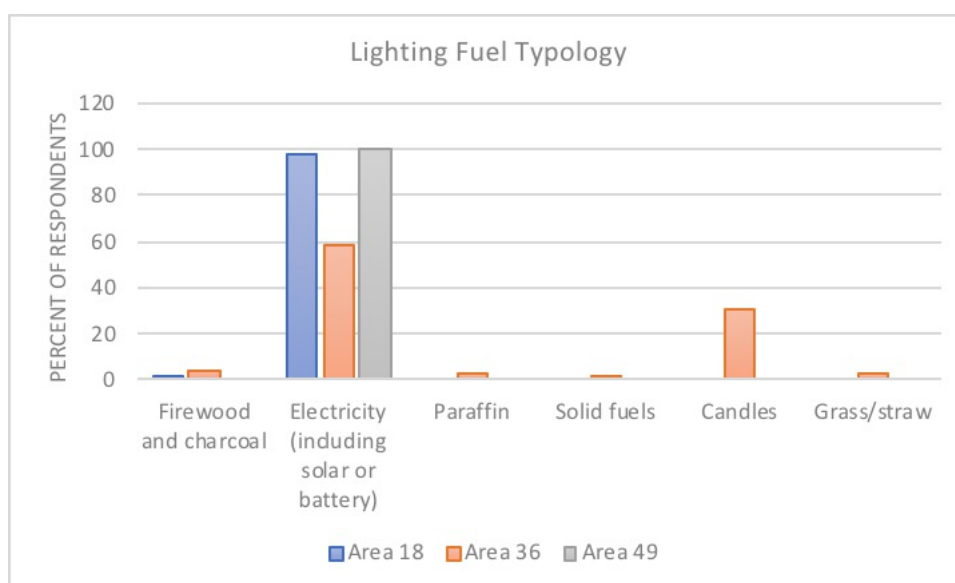


Figure 7.49 Fuel typology (Source- The Author)

	Central Region Lighting (Census)	QoUL Survey Lighting
Electricity (including solar or battery)	70.1%	85.7%
Paraffin	0.8%	1%
Firewood & Charcoal	10.4%	2%
Grass/straw	3.2%	1%
Other, Including Candles	15.5%	10.3%

Table 7.10 Comparison of fuel typology with census data

Table 7.10 compares the results of the residential attitude survey to the 2018 Malawi Population and Housing Census to compare the three neighbourhoods with this objective data source. This displays that the overall survey is somewhat representative of the general population. This question could be further elaborated on to seek to understand the type of fuel used for cooking as this may be different than the fuel used for lighting in the home.

7.6.4 Economic Domain Subjective Responses

Having obtained the objective data, this section again shifts to seek the resident's subjective interpretation of these various indicators. Again, this is significant, as it allows the researcher to compare the objective and subjective data, to understand which aspects of an individual's life they are satisfied with. Using the same methodology as the previous three sections, residents are asked to rank indicators on a scale from '1-Definitely not' to '4-Definitely yes'. Again, certain questions are deliberately reversed so that it is not clear that four should always be a positive number and one be a negative number. However, for the analysis, these questions are reversed back, to visually compare with 3 and 4 regarded as positive marks, and 1 and 2 considered negative marks. This subjective analysis reveals noteworthy subjective perspectives of the residents of the three neighbourhoods, which are discussed below.

7.6.5 Physical Health

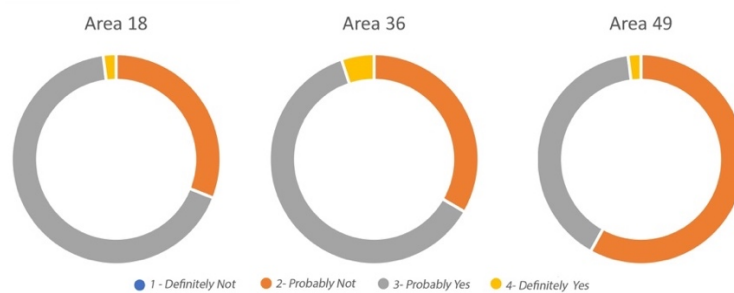


Figure 7.50 Subjective perception of physical health (Source-The Author)

Physical health has a substantial impact on a person's quality of life. As such, it is encouraging to see that the vast majority of respondents appear to be positive about their physical health, with 71% in Area 18 awarding either 3 or 4 out of 4, 72% in Area 36 providing positive scores, and highest of all, 82% in Area 49, displayed in Figure 7.50. There are various demographic and social factors discussed throughout literature which are thought to affect health. One of which is having strong relationships with family and community. Chapter Five, Section 4.2: 'Physical Well-being', discusses that social groups and families support those in need, which in turn has positive implications for health and QoUL.

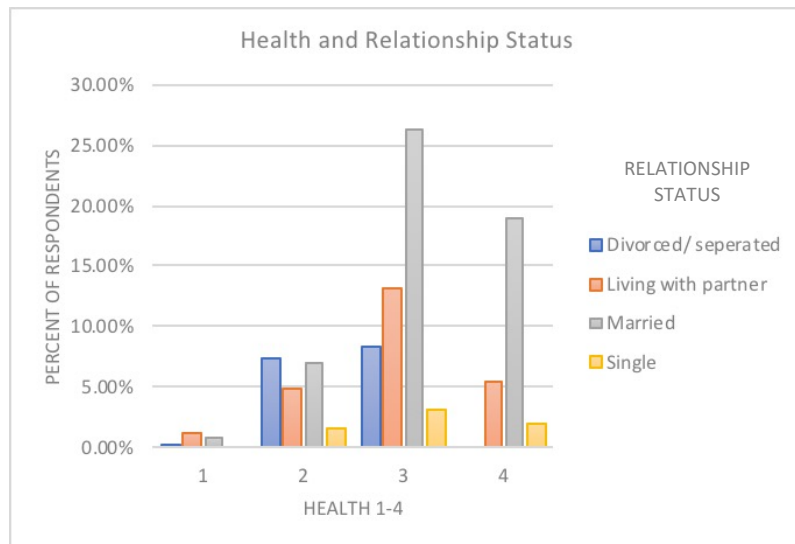


Figure 7.51 Comparison of health and relationship status (Source- The Author)

Figure 7.51 is designed to compare how a resident perceives their health with their relationship status. This displays that married residents, and residents that live with their partners, are likely to feel positive about their health. 85.4% of married people gave positive scores for their health, as did 75.8% of residents who live with their partners. This is higher than the sample average. Following on from this, it is then interesting to compare how many family members a resident has in the neighbourhood with how they perceive their physical health. Figure 7.52 compares these two factors. Figure 7.52 displays the information as % of column total as opposed to % of the overall total. By displaying the information in this way, it is clear that 100% of residents who have more than ten family members in the neighbourhood are very positive about their physical health. Residents with 7-9 family members close-by are also mostly positive about their physical health with 67% assigning 3 out of 4 for this question.

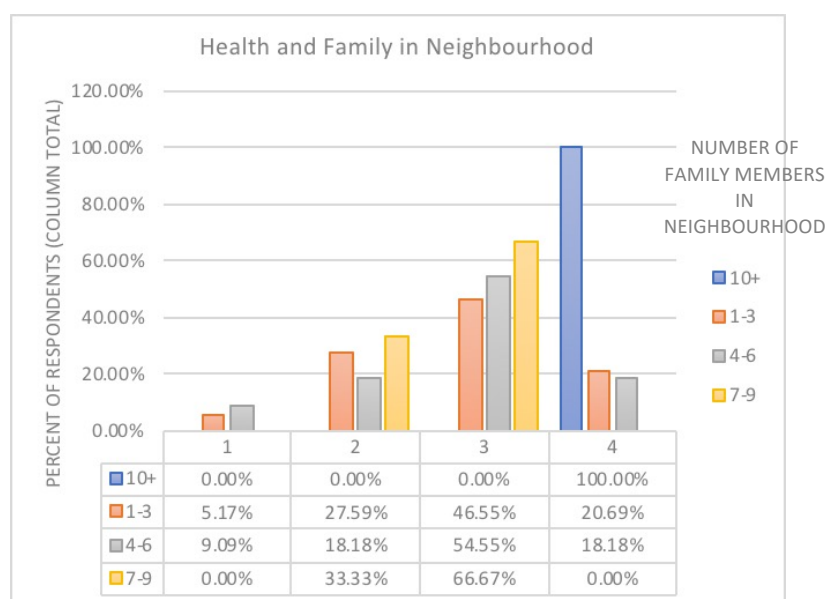


Figure 7.52 Comparison of health and family in neighbourhood (Source- The Author)

The findings suggest that having family close by and being in a stable relationship are positive contributors to physical well-being. However, it is significant to note that this data may be coincidental, and it is not to say that residents that are single or without family nearby have poor health. Nevertheless, it is interesting to question the relationship between family and social connections and health, as this concept is previously discussed in Chapter Five.

7.6.6 Healthcare Facilities

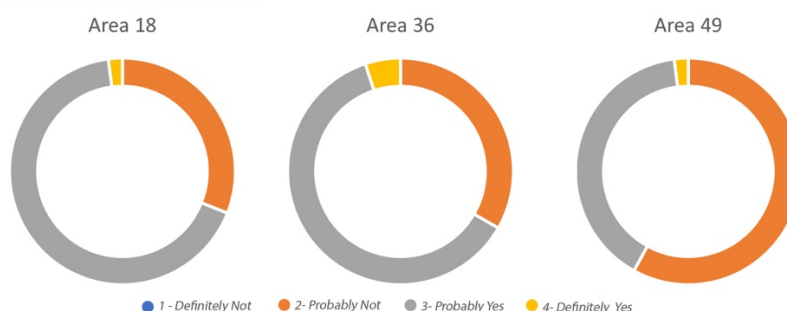


Figure 7.53 Subjective perception of healthcare facilities (Source-The Author)

Chapter Six presents that Areas 18 and 36 both have one healthcare facility, while Area 49 has two. The populations of these neighbourhoods vary dramatically, as Area 36 has a population of 92,733, Area 49's population is 52,915 and Area 18's population is 8,719. From this objective data, one might assume that Area 36 would feel the most negative about their healthcare facilities as they have the highest number of people using the same facility. However, the survey results show that 66% of Area 36's residents are positive about the quality of their healthcare facilities, while only 42% of

Area 49's residents are positive. As such, it is significant to investigate the residents reasoning from the questionnaire.

The subjective reasoning provided by residents in Area 49 sees a range of answers. 50% of the negative sample attribute their negative response to the accessibility of medical equipment in the healthcare facilities, and 46% believe that there are not sufficient drugs available. Only 27% of the negative population state that it is due to the number of services available. This confirms the neighbourhood profile that indicates that there are a good number of facilities, however, it appears the residents in Area 49 are less satisfied with the equipment and drugs available in the facilities. This question brings in the concept of individual perception and standard of comparison. The majority of facilities such as sanitation, access to energy, access to water, are high quality in Area 49. As such, residents are likely have a high standard of comparison, which would impact their subjective assessment of their healthcare facilities.

Comparing residents' perception of their health, with their perception of their healthcare facility, it is evident that residents who are happy with their healthcare facility also report good health, as those who provided 4 out of 4 for their healthcare facilities always gave positive scores for their physical health. Nevertheless, Figure 7.54 displays that residents with poor health provide a range of responses with regards to their healthcare facility.

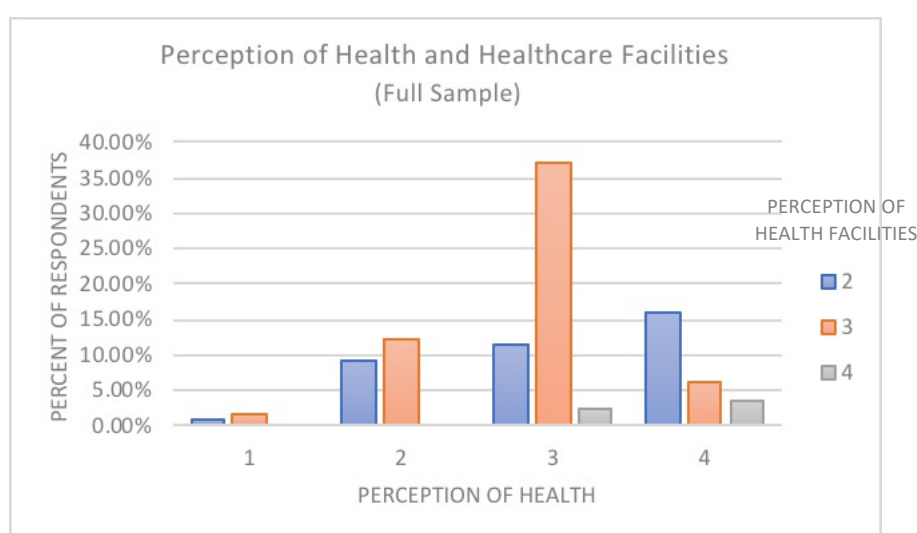


Figure 7.54 Perception of healthcare facilities and personal health

7.6.7 Waste Facility

There appears to be an issue with this question. The intention is to understand people's interpretation of their waste facility regarding their toilet, however, from

reviewing the comments on the surveys, it is apparent that many residents interpreted this question to mean their bin waste. This, therefore, means that some residents are discussing their bins, however, it appears some are discussing their toilets. As such, this question should be re-written to clarify the research interest.

7.6.8 Water Quality

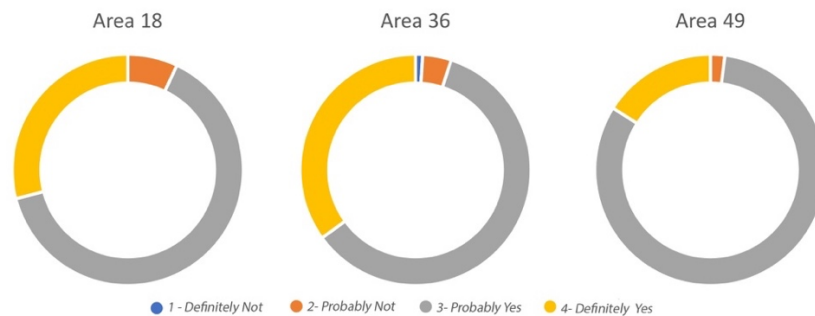


Figure 7.55 Subjective perception of water quality (Source-The Author)

Figure 7.55 displays residents' perception of their water quality. Here it exhibits that the majority of residents in all three neighbourhoods are mostly positive about the quality of their water. From the objective data, it is confirmed that there are various sources of water in Lilongwe. It is significant to understand how satisfied residents are with their water, as water is a basic human need. Figure 7.56 is designed to display satisfaction with water against the source of water. Reviewing Figure 7.56, it shows that those who have their water piped into or near their homes are generally satisfied with their water with 97.5%. The residents who are most positive about their water source are those who use community standpipes, as they assigned positive scores 100% of the time.

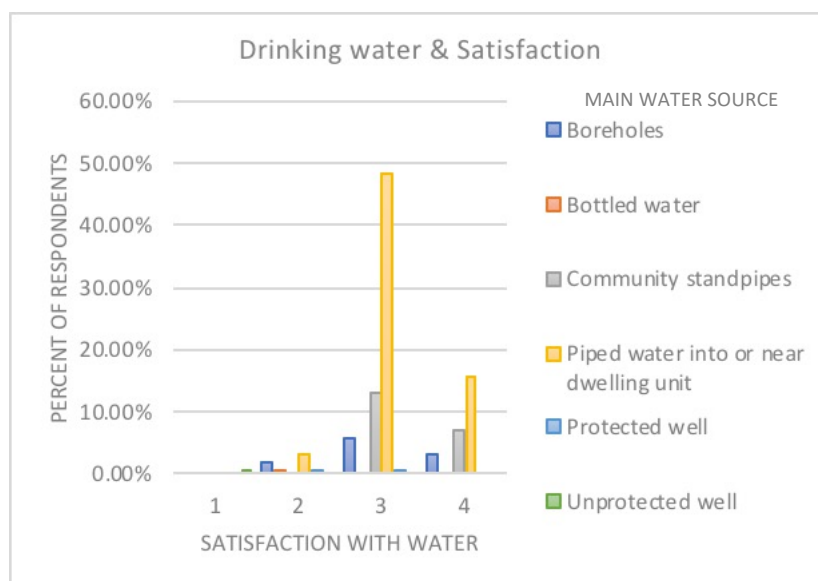


Figure 7.56 Satisfaction with water typology

An unexpected discovery is that those who drink bottled water report being dissatisfied with their water typology 100% of the time. This is possibly due to the cost of bottled water. The literature in Chapter Five: Section 4.4 discusses the connection between water sources and health. Using multi-factor analysis to compare factors, Figure 7.57 displays that residents who use boreholes often report poorer health while residents whose water is piped into their dwelling or drink bottled water report better health. The results on Figure 7.57 are displayed as the percentage of column total.

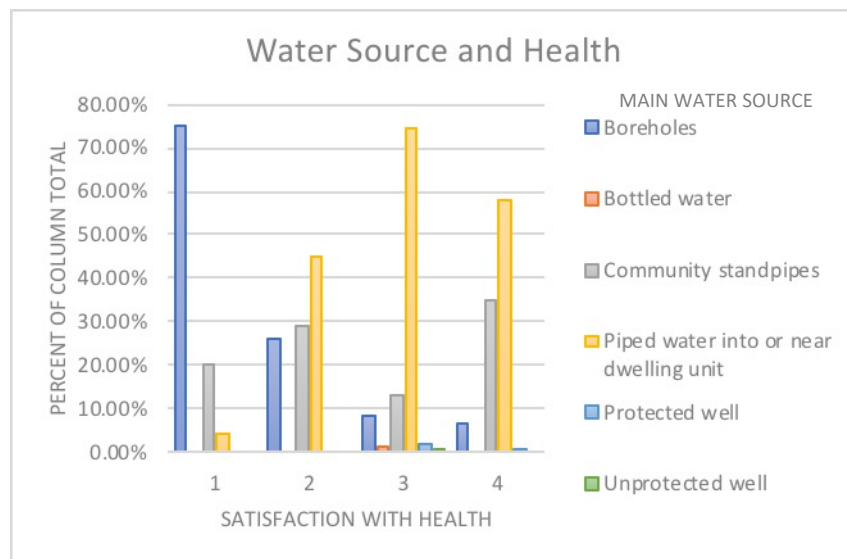


Figure 7.57 Water source and health

While this may be coincidental, the data suggests that there is an association between water source and health. As such, improving the water source could improve residents' health. This, in turn, has positive implications for overall QoUL. This is an instance where it is significant to note that correlation does not always provide the only causation. Residents who have water piped to their homes may also be wealthier, and have access to better conditions in general, which is positive for their health. As such, while this provides an interesting finding, further research into the relationship between water source and health are required.

7.6.9 Lighting Quality

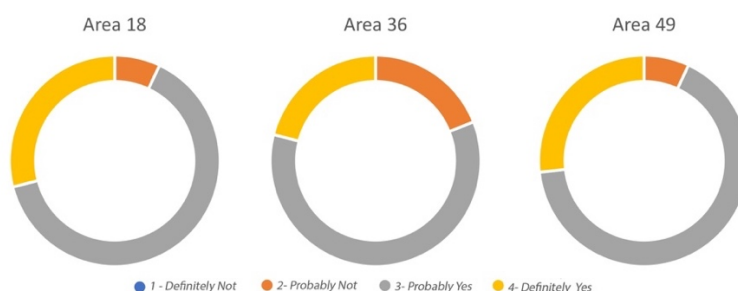


Figure 7.58 Subjective perception of lighting quality (Source-The Author)

Reviewing the data from the residential attitude survey, the majority of those surveyed feel positive about their source of energy for lighting, which is displayed in 7.58. Areas 18 and 49 both report satisfaction with lighting quality 93% of the time, closely followed by 81% in Area 36. A three-factor analysis is applied to determine the type of fuel used for lighting, resident's perception of its quality, and which neighbourhood they live in. This seeks to understand which areas felt positively about which electricity source.

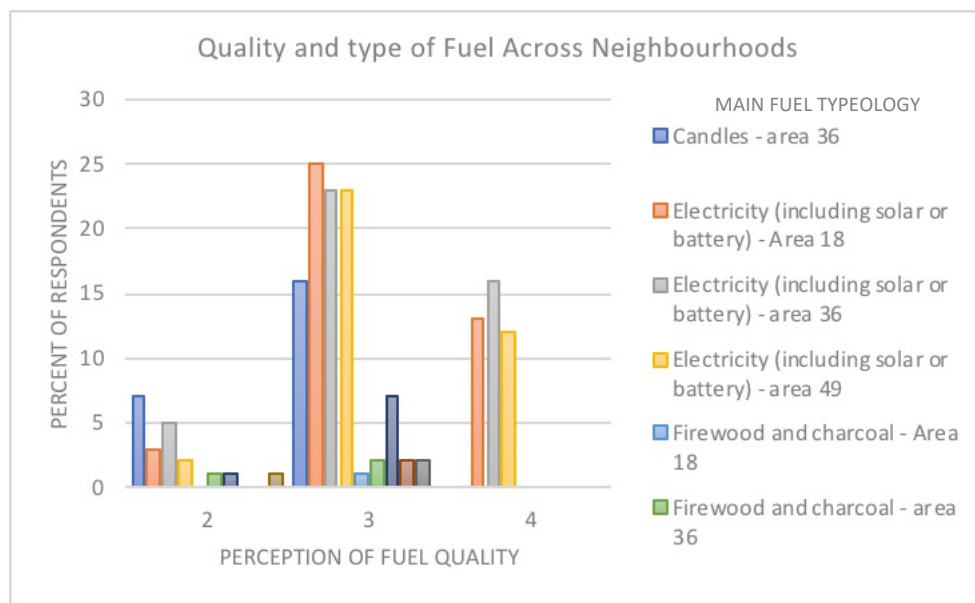


Figure 7.59 Quality and type of fuel (Source-The Author)

7.6.10 Safety

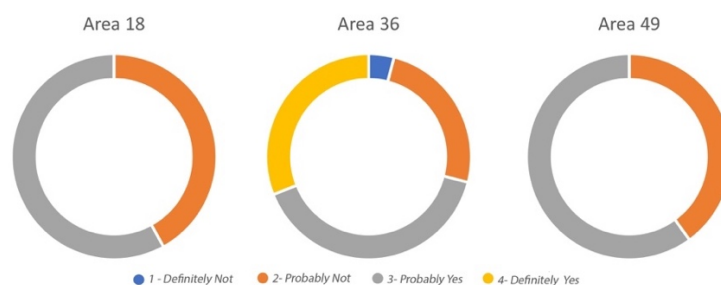


Figure 7.60 Subjective perception of safety (Source-The Author)

Safety and security are significant contributors to a person's QoUL. Feeling safe and secure has social consequences as it has implications for mental well-being and place attachment. Of the three neighbourhoods, Area 36 is the most negative about this indicator with 71% of residents stating they believe that there is much crime in their neighbourhood. The majority of residents in Area 18 and 49 believe that there is not much crime in their neighbourhood; however, there remains a significant population in each neighbourhood that do perceive neighbourhood criminality as being prevalent. This is a significant indicator for residential well-being, thus while there remains mixed

perception on the amount of neighbourhood crime, it should remain a priority to keep crime rates down. Methods to prevent crime through the urban realm are discussed in Chapter Nine.

7.6.11 Overall Well-Being QoUL

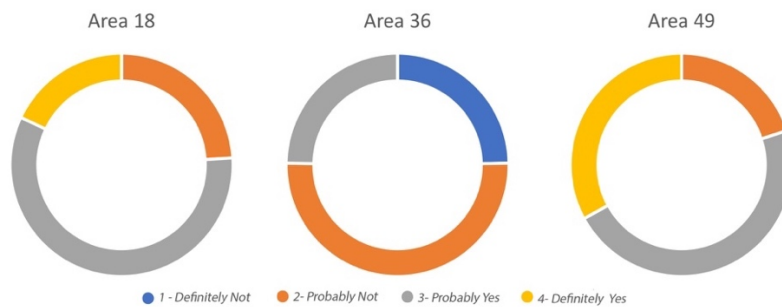


Figure 7.61 Subjective perception of wellbeing QoUL (Source-The Author)

This final domain uses the same methodology as the previous three domains, where a validating question is utilised. Here it asks, “all things considered, how would you rate the overall well-being quality of your neighbourhood?”, the results of which are shown in Figure 7.61. This establishes the dependability of the indicators that are used to address the well-being of the three case study neighbourhoods. The validating question allows the researcher to check the survey data, thus ensuring the questions are valid.

Similarly, to the previous sections, Table 7.11 provides the mean scores of the subjective well-being questions, which is then divided by the number of questions to provide a predicted mean.

	Area 18	Area 36	Area 49
Physical Health	2.8	2.9	3.1
Healthcare Facilities	2.7	2.7	2.4
Waste Facility	2.7	1.8	2.4
Water Quality	3	3.3	3.1
Lighting Quality	3.2	3.0	3.2
Safety	2.4	2.0	2.4
Predicted	2.8	2.3	2.8
Residents mean	2.9	2	3.1

Table 7.11 Economic QoUL indicators

Table 7.11 illustrates that the predicted mean for all three neighbourhoods is within 10% of the mean provided by the residents. The predicted mean and residents mean,

are thus very similar. As such, the indicators in this section can be considered well balanced, and all contribute to the overall well-being QoUL in Lilongwe. As such, the questions and indicators in this section are validated.

7.7. Summary Questions:

The final section of the residential attitude survey is the summary validating questions. This is similar to the validating questions that are used at the end of each of the domains in the survey, however, here it is for overall QoUL across the full survey. The validating questions again aim to establish the dependability of the questions used and generally summarise resident's perception of their QoUL. These validating questions are essential as they allow the research to check the survey data to ensure the overall survey is valid. The results of the summary questions are displayed in figures 7.62 and 7.63.

All things considered; I feel satisfied with my life?

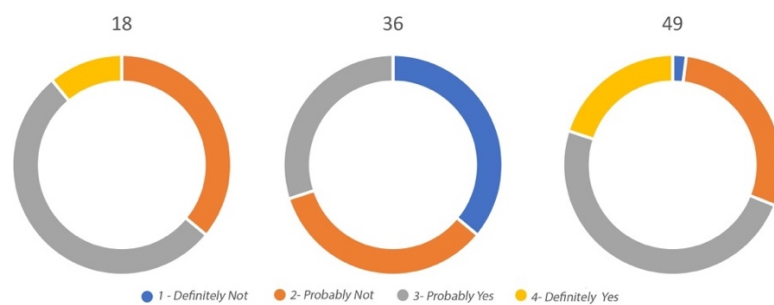


Figure 7.62 Subjective perception of life satisfaction (Source-The Author)

All things considered; I feel I have the important things in life?

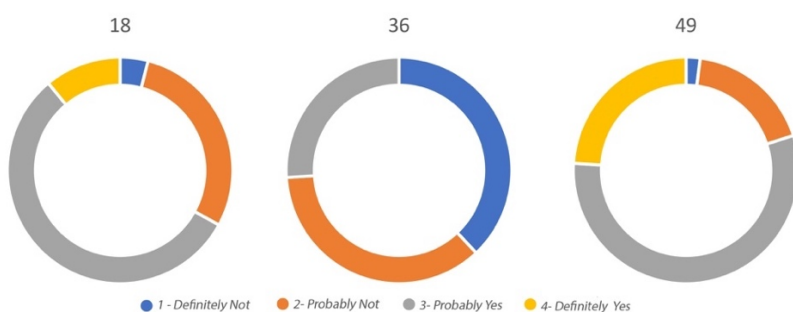


Figure 7.63 Subjective perception of having important things in life (Source- The Author)

Using the same methodology as each of the domains, the four domain validating questions are summed and divided by four. This provided a predicted overall QoUL mean for each neighbourhood which is outlined in a summary Table 7.12.

	Area 18	Area 36	Area 49
Predicted QoUL	3.0	2.0	3.2
Satisfaction with life	2.8	1.9	2.9
Important things in life	2.7	1.8	3.0
Total of the three	2.8	1.9	3.0

Table 7.12 Predicted QoUL satisfaction

Here, it is evident that the predicted means and the provided means are within 10% of each other, thus validating that the indicators used in this survey are representative to understand the QoUL of residents in Lilongwe. This validates that the indicators used in this survey provide a well-balanced picture of residential QoUL within the context of Malawi. It also suggests that the four domains of urban life contribute to overall QoUL, which are tested further using regression analysis in Chapter Eight.

An interesting result in this chapter is that Area 49 has the highest mean QoUL, averaging 3.0 out of 4; this is an extremely satisfactory QoUL score. Area 18 is close to this with an average QoUL score of 2.8 out of 4. Area 36 residents, on the other hand, have provided an unsatisfactory average score of 1.9 out of 4 for their overall QoUL. This clarifies the discrepancy between the lived-in conditions of various neighbourhoods in Lilongwe, which corroborates the need to investigate QoUL at a neighbourhood scale. By reviewing indicators and attributes at a neighbourhood scale, it is possible to determine the specific issues that are impacting the QoUL of a group of residents. This allows policymakers and planners to deliberately direct their attention onto issues that residents are dissatisfied with to resolve urban issues.

7.8. Conclusion:

This has reported the findings from stage Eight of the multi-layered methodological approach for investigating QoUL in neighbourhoods in Lilongwe (See Figure 3.3). This is the final layer of investigation, as it focuses on the residents' subjective interpretation of their QoUL across the three case study neighbourhoods in Lilongwe. The survey investigates the variations in QoUL across the residents' demographics, the four domains of urban life, as well as life as a whole.

The physical domain includes indicators which relate to both the physical home space, and the accessibility and connectivity of the wider neighbourhood. An interesting finding from the physical domain is the importance of the construction materials that are used. Residents are generally positive about their home when it is constructed using permanent materiality, and report negatively 100% of the time if their home is made from traditional materials and techniques. Satisfaction with one's home is also

compared with the size of the dwelling, which reveals that there is no clear correlation between these indicators. This is significant as it displays that the materiality of the home has a stronger connection to satisfaction than the size of the home, thus building smaller dwellings from permanent materials as opposed to large traditional dwellings, is likely to have a positive impact on residential QoUL. The regression analysis confirmed that there is a strong positive monotonic correlation between house quality and overall perceived physical QoUL, thus alluding that satisfaction with one's home has a strong impact on ones QoUL. Materiality of the home is not an attribute which is used in QoUL surveys globally, thus this finding would be overlooked if the survey was not tailored to the context under investigation. This reiterates the importance of using bespoke indicators. The analysis of the physical domain further displayed that residents report positively regarding their public transport. This is encouraging as it suggests that this is an indicator which does not require immediate attention to improve.

The social domain includes indicators which reflect the individual's relationships, their social amenities and their local governance. Reviewing residents perception of the social spaces in their neighbourhoods exposed that improving the quality of communal spaces should be a priority in Areas 49 and 36. Improving the urban open spaces is critical because these are the settings that residents spend their time, thus good quality social settings enhance the liveability of a neighbourhood. Methods to improve the quality and functionality of these settings are discussed in Chapter Eight where the survey results are combined with the findings from the direct observations. A further social finding is that residents are largely positive regarding the governance of their neighbourhood. This is an important social indicator, as lack of political capital makes residents feel powerless and undetectable, which negatively impacts QoUL. As such, residents' perception of their governance supports their QoUL. This is a positive result, thus is an area which does not require immediate attention, as it appears to be well resolved in these neighbourhoods.

The third domain assessed is the economic domain. This includes factors such as tenure, education, and work status. The residential attitude survey exposes that economic condition varies considerably across the three case-study neighbourhoods. This is particularly evident in the materials possessions question, which displays that residents of Area 36 own far fewer material items than residents in Area 18 or 49. This reiterates the need to conduct neighbourhood scale investigations, as the perceived privations vary noticeably across different areas of the city. The survey also highlights the importance of tenure on residents QoUL. By comparing residents' satisfaction with their tenure, and their type of tenure, it is evident that residents who rent their home

feel less secure in their tenancy than those who own their homes. Lacking secure tenure can negatively impact QoUL as it has negative implications for stress and emotional well-being. A positive finding from the survey is that the majority of residents believe they have the means to meet their basic needs. This is encouraging as although poverty is not an isolated economic phenomenon, there are undoubtedly links between basic needs and poverty rates. The regression analysis demonstrates that there is a moderate correlation between meeting one's basic needs and overall satisfaction with economic QoUL. This is significant as it displays that basic needs play a significant role in a resident's economic satisfaction; thus, this is a fundamental requisite of QoUL.

The final domain assessed is the well-being domain. This includes indicators which relate to health, safety and access to facilities. These are important aspects of resident's lives; thus, it is encouraging to discover that the majority of residents surveyed report satisfaction with their health and well-being. Nonetheless, the residential attitude survey reveals that urban safety requires attention in Area 36. Lacking safe and secure urban environments threatens the use of the public realm, which negatively impacts residents QoUL. Actions to improve the perception of safety are discussed in Chapter Eight and converted into recommendations in Chapter Nine. The survey presents that there are a range of water, waste and energy sources used throughout the city. The multi-factor analysis provides interesting relationships between residential satisfaction, and source of infrastructure. This information is useful to policymakers and planners, as they can see the relationship between source and satisfaction. This is evident with regards to the type of energy that residents have access to, where those who are dissatisfied with their energy source use different supply than those who are satisfied. These comparisons are useful as they point to infrastructures which have negative impact on residents QoUL, which require attention. This domain echoes the need to tailor the investigation to the context under investigation as indicators such as access to infrastructure are not included in QoUL globally. Many existing QoUL studies focus on the physical, social and economic environments of the city, however, do not examine well-being as a domain in its own right. The analysis of the residential attitude survey displays that well-being plays an important role in the urban life of residents in Lilongwe, thus confirming its importance as the fourth domain of QoUL.

This chapter has provided a comprehensive analysis of the four domains of QoUL from the perspective of the residents and by doing so, the chapter has authenticated the proposed indicators as essential for investigating QoUL in Lilongwe through the validating questions in each domain. The full indicator list is then verified by the use of

validating questions at the end of the survey. Chapter Eight: 'Discussion', tests this analysis further, by using regression analysis to confirm the importance of the four domains of QoUL and their relationship on one another. The focus of the following chapter is to bring together all the strands from the multi-methodological approach for investigating QoUL in Lilongwe, to provide comprehensive discussion of the quality of the case study neighbourhoods. This discusses the key findings from the various strands of investigation, to provide a thorough debate of the factors which contribute to residential QoUL in neighbourhoods of Lilongwe. This provides a rich understanding of the quality of urban realm and urban life in the case study neighbourhoods which forms the base of the recommendations for policy and design in Chapter Nine.

Chapter Eight: Discussion of Key Findings

8.1 Introduction

This research has detailed the QoUL across three heterogeneous neighbourhoods in the capital city of Malawi, Lilongwe. Through this exploration, the research aims to achieve a number of aims: one is to confirm the elements of a QoUL investigation, second is to test and evaluate the multi-methodological approach for exploration, third is to provide insight into urban spaces of Lilongwe, and fourth is to contribute and influence policy in Lilongwe to improve the QoUL for residents.

Due to the complexity of the scholastic topic, the research has used a multi-methodological approach for investigating QoUL in Lilongwe (See Figure 3.3). This approach involved two literature reviews; one regarding the theoretical underpinnings of the discourse and one which contextualises the indicators of the scholastic topic to Malawi. The methodological tactic additionally involved engagement with a panel of local experts to prioritise indicators importance for QoUL in Lilongwe. The neighbourhoods were then objectively analysed using profiling and observational assessments. Finally, occupants' perspectives were obtained using a residential attitude survey. Combined, this forms a holistic portrayal of the QoUL and urban conditions of the neighbourhoods. This information aims to be used to influence public policy and help to resolve urban issues.

The chapter is divided into two main sections which are followed by a reflective conclusion. The first section aims to validate the conceptual model, which was designed based on the literature discussed in Chapter Two (See Figure 2.8). This model guided the research, thus it is appropriate to return to it and test it further, using the data from the empirical fieldwork. This discussion provides a comprehensive recap of the dimensions of QoUL which were theoretically derived, to comprehend if this model successfully guides an applied QoUL project. This discussion is followed by a debate of the key findings from the research, which is conducted across the themes of the four domains of urban life: physical, social, economic and well-being. The purpose of this discussion is to point to specific indicators which impact residential QoUL and use the various strands of research to point to specific resolutions to the issues raised.

The overarching aim of this chapter is to draw together the information from the various strands of the methodological approach, to provide a rich understanding of the urban issues in the case study neighbourhoods. This information aims to provide reliable and valid inferences about the QoUL in each neighbourhood and highlight key findings which impact QoUL in this context. Ultimately, the discussion aims to utilise knowledge

gained throughout the study to develop recommendations that articulate the key issues that the analysis has revealed. The final recommendations for resolving urban issues are outlined in Chapter Nine.

8.2 The Seven Dimensions of QoUL:

The exploratory literature review in Chapter Two presented a conceptual model which provided the seven interconnected dimensions of QoUL (See Figure 2.8). This model consequently guided the research. This section will now return to the conceptual model and discuss the dimensions of urban life in Lilongwe in light of the findings from the research. This discussion aims to validate the conceptual model from Chapter Two through findings from the empirical research fieldwork.

8.2.1 The Domain Dimension:

A reoccurring theme of this thesis is the importance of the four domains of QoUL, namely: the physical, social, economic and well-being domains. The literary discussion in Chapter Two states that initially, QoUL studies were primarily focused on economic indicators. While economic indicators are fundamental, financial measures alone reflect a narrow focus on an individual's life. This tapered focus does not consider other important aspects of life which give existence meaning. As such, the discourse has been moving from this economic focus to a wide-reaching study which considers urban life in its entirety. An essential element of the discussion in Chapter Two is the need for the health and well-being domain to be considered as the fourth pillar of urban life in its own right, as often studies discuss only the physical, social and economic domains of urban life. This need has been identified because QoUL is deeply rooted in thinking of health, and provision of a healthy environment (Kamp et al., 2003; Westaway & Gumede, 2001; Das, 2008). The environment in which residents live affects both physical and emotional health, thus health and wellbeing are essential component of QoUL.

Chapter Two stated that the four domains of urban life are interconnected and reciprocal. Each entity contains information that is absent from other measures, therefore confirming that urban life is multidimensional. The focus of the following section is to statistically test the relationship between the four domains of urban life using regression analysis based on the results from the residential attitude survey. This aims to comprehend if there is a statistical correlation between the various domains of urban life and overall QoUL satisfaction.

A Spearman's rank-order correlation was run on the residential attitude survey to determine the relationship between each of the overall QoUL domains, with overall satisfaction with life. This has been conducted using the validating question for each of the four domains and the two validating questions at the end of the residential attitude survey. Table 8.1 presents the results of the Spearman's correlation, it's significance value which is 2-tailed (Sig.) and the sample size that completed the questions (N). This analysis is conduct across the full sample of the three neighbourhoods to provide a larger sample size. The results are replicated on the table for ease of use.

Spearman's Correlation		I feel I have all the important things in life	I feel satisfied with my life	Overall Physical QoUL	Overall Social QoUL	Overall Economic QoUL	Overall Well-being QoUL
I feel I have all the important things in life	Spearman's Correlation	1	.89**	.75**	.72**	.73**	.72**
	Sig. (2-tailed)		0.00	0.00	0.00	0.00	0.00
	N	165	165	162	151	156	163
I feel satisfied with my life	Spearman's Correlation	.89**	1	.71**	.66**	.67**	.69**
	Sig. (2-tailed)	0.00		0.00	0.00	0.00	0.00
	N	165	165	162	151	156	163
Overall Physical QoUL	Spearman's Correlation	.76**	.71**	1	.88**	.90**	.79**
	Sig. (2-tailed)	0.00	0.00		0.00	0.00	0.00
	N	162	162	162	150	154	162
Overall Social QoUL	Spearman's Correlation	.72**	.66**	.88**	1	.91**	.82**
	Sig. (2-tailed)	0.00	0.00	0.00		0.00	0.00
	N	151	151	150		144	150
Overall Economic QoUL	Spearman's Correlation	.73**	.67**	.90	.91**	1	.85**
	Sig. (2-tailed)	0.00	0.00	0.00	0.00		0.00
	N	156	156	154	144		155
Overall Well-being QoUL	Spearman's Correlation	.72**	.69**	.79**	.82**	.85**	1
	Sig. (2-tailed)	0.00	0.00	0.00	0.00	0.00	
	N	163	163	161	150	155	163

Table 8.1 Correlation between domain satisfaction and overall satisfaction with QoUL.

** . Correlation is significant at the 0.01 level (2-tailed).

A Spearman's correlation of 0.6-0.79 is considered strong, and 0.8-1 is considered very strong. Table 8.1 confirms that every result in this table is over 0.6, thus there is either a strong, or very strong correlation between all four of the domains and overall QoUL. Strong correlations have been coloured yellow, and very strong correlations have been coloured green for ease of reading. As well as having strong correlation with overall QoUL, table 8.1 displays that each domain also has either a strong, or very strong correlation with one another. This is significant as it confirms the spill over effects that each domain has on one another, as the four domains of urban life reciprocal and dynamic. This consequently means that if a resident feels a disparity in one domain, it will impact the others in return. As such, domains and indicators should not be treated as isolated issues. Figure 8.1 is designed to illustrate some of the spillover effects of the four domains of urban life; however, further paths may be apparent.

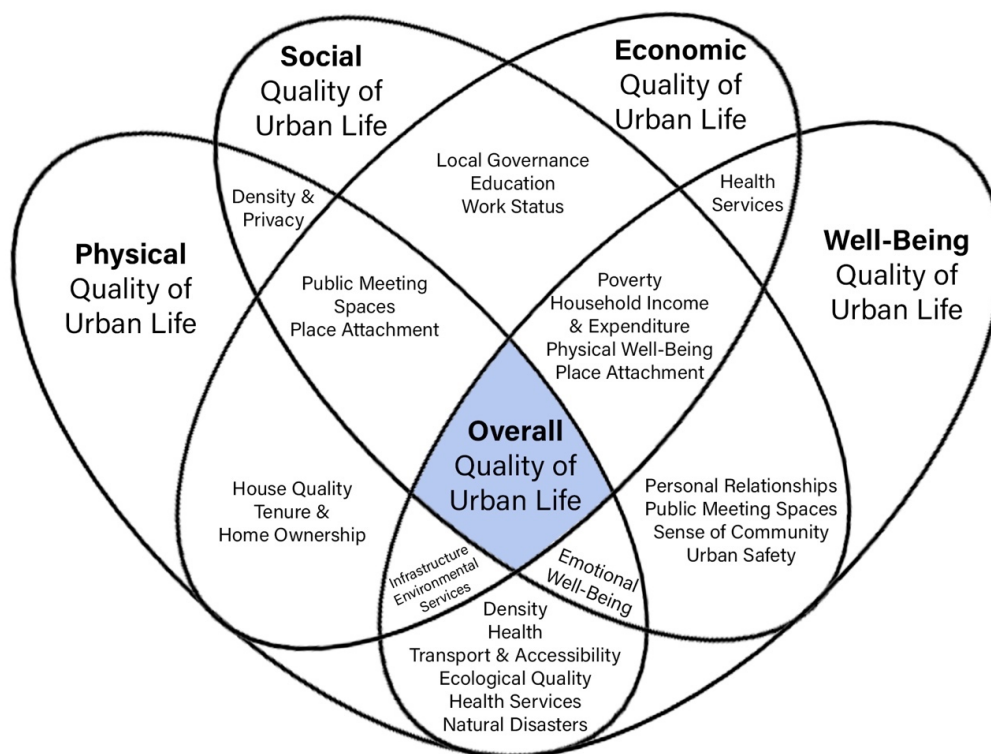


Figure 8.1 QoUL indicator and domain model

Figure 8.1 and Table 8.1 combined, recognise and validate the relationship between component parts of urban life, and how they work together to form QoUL. As such, urban life is formed through the continual interaction between physical, social, economic and well-being dimensions of urban life in Lilongwe. Consequently, QoUL in Lilongwe cannot be studied without a full investigation into the four domains of urban life. This statistically confirms the literary discussion in Chapter Two, that the four domains are essential for QoUL studies in Lilongwe.

8.2.2 The Scalar Dimension:

Chapter Two stated that there are numerous geographical scales that a QoUL study can investigate. These range from the household and neighbourhood, to the city and regional scales. The theoretical framework (Figure 3.16) states that the first step in operationalising the Conceptual QoUL Model (Figure 2.8), is to select the geographic scale under investigation. Selecting the geographic scale is an essential part of a QoUL investigation as it aids in selecting the correct indicators for assessing QoUL at that scale. Chapter Five: Section 4.5 discussed the fact that in Malawi, poverty is described differently at a household or neighbourhood level, thus requires specific indicators for assessment (Durstun & Nashire, 2001). This, therefore, means that if the study aims to influence policy and planning, it must ensure it is investigating the correct indicators at the appropriate scale. This is also important, as stating the geographic scale under investigation allows policymakers and planners to understand the scale of anticipated intervention, and it ensures consistency across projects (Cicerchia, 1996).

However, an important aspect of geographical scales is that they should not be explicitly isolated from the surrounding scales. This is because the satisfaction felt in one geographical scale will impact and affect the satisfaction felt in another, known as spill over effects. An example of this is that while this inquiry is principally a neighbourhood scale investigation, it remains fundamental to understand the level of satisfaction a resident feels with their home. During the residential attitude survey, participants were asked how they perceive the quality of their home and how they perceive the overall physical quality of their neighbourhood. To confirm the significant statistical relationship between house quality and overall physical quality of the neighbourhood, a Spearman's correlation was run. This revealed that there is a strong monotonic correlation between these factors ($r_s = .73$, $n = 165$, $p < 0.01$). Thus, the quality of a resident's home has a dramatic impact on their satisfaction with the physical aspects of their neighbourhood. As such, this is an important indicator which directly influences residential satisfaction at a neighbourhood scale. This confirms that there are spillover effects between the house scale and neighbourhood scales of urban life.

This project chose to investigate QoUL at a neighbourhood scale because one of the predominant aims of the study is to provide recommendations for policymakers and planners for allocating resources in Lilongwe. It is the belief of this research that resources can be best prioritised at a neighbourhood scale, as the heterogeneous neighbourhoods have separate needs to improve their QoUL, thus a city scale intervention may miss individual peculiarities of each neighbourhood. The fieldwork has revealed that the three case study neighbourhoods do not share the same

experience of QoUL. This was particularly highlighted by the differences in the residential attitude survey; however, it was also apparent in the neighbourhood profiles and the direct observations of public open spaces.

Section 3 discusses the lowest-ranked indicators in depth. However, here it is significant to mention that there are large discrepancies between the perceived privations in the three neighbourhoods. Indicators are considered high priority if over 75% of the sample population felt that they were dissatisfied with the quality of that indicator. The results of the residential attitude survey display that Area 18 has no high-priority indicators, Area 49 has one indicator within this classification, however, Area 36 has six indicators where a substantial quantity of the sample population is dissatisfied. This is considerably higher than the other case studies, which points to residents perceiving their QoUL to be lower in this neighbourhood. This confirms the need to evaluate QoUL at a neighbourhood scale, as it is evident that there are conditions that require attention in Area 36, which are already resolved in Area 18. This, therefore, means that policymakers and planners can direct their resources specifically to the issues which require attention in a targeted approach at improving QoUL. This validates the importance of a neighbourhood scale intervention of QoUL in Lilongwe, as advocated by this research.

8.2.3 The Temporal Dimension:

Chapter two: Section 3.3, discusses the fact that the urban environment is never static. It is a temporal phenomenon which changes over time. These changes are seen on a short and long timescale. Figure 8.2 displays the difference in a setting two hours apart. Figure 8.2 is of the school grounds in Area 36 which were taken as part of the walking-tour assessment. This observational assessment revealed the temporal nature of the setting. During the morning visit the grounds are busy, vibrant and full of life, however, when revisited during lunch hour, the setting was deserted. This is significant in a QoUL study, as it affects the use of observational tools and neighbourhood profiling. Each of these methods must be repeated at different times of the day and week, as the liveliness and vitality of a setting fluctuates over the course of a day and week.



Figure 8.2 Temporal studies of QoUL

A further temporal consideration is to understand the history of a neighbourhood. The neighbourhood profiles use objective data to comprehend and narrate the neighbourhood's past. Aspects of the neighbourhood's history can be significant when investigating their QoUL. One example of this was in Chapter Three: Section 6.2, which discussed the fact that Area 36 has experienced one of the highest increases in population in the city, however, has not seen a substantial increase in built-up expansion. This information is valuable for the analysis of the residential survey, as it reveals that there are a high number of entrepreneurs in Area 36. This is meaningful because the literature discussion in Chapter Five highlighted the fact that the growth of the informal sector and entrepreneurship are attributed to rapid urbanisation without substantial growth in formal sector jobs. This confirms the results of the residential survey, that Area 36's past explains its current situation.

An additional benefit of a QoUL study, is to repeat the methodology at a later date. By replicating the study, the first investigation forms a baseline. From this baseline, it is then possible to understand if the quality of urban life is improving or decreasing, as advocated by numerous scholars throughout the literature discussion in Chapter Two: (Marans & Stimson, 2011; Pacione, 2003; Marans, 2012; Schwartz, 2012; Miller et al., 2013). Consequently, this research has demonstrated the importance of time when conducting a QoUL, mutually considering the past, present and future of a neighbourhood.

8.2.4 The Personal Dimension:

The literacy discussion in Chapter Two explained that the quality of a setting is a subjective phenomenon (Marans, 2003; Marans, 2012). This means that each resident that experiences a setting will have their own perception of that space. This is due to each resident having associations with their environment, which are soaked in memories and meaning (Lynch, 1960). Consequently, a QoUL study must reflect both the objective and perceived environment. Subsequently, the urban realm must be considered a mental construct that is valued differently by the observer. Variance in perception is thought to be affected by a range of issues which form our standard of comparison. These include elements such as: aspiration levels, expectation levels, equity levels, reference group levels, personal needs, personal values, and more (Campbell et al., 1976; Marans & Rodgers, 1975). They are also thought to be related to demographic groups such as age, income, education and health status (Pacione, 2003).

This is a critical element of a QoUL study. As such, the focus of this section is to discuss some of the findings across various demographic characteristics and aspiration levels, using the multi-variate analysis on the results from the residential attitude survey. First, personal experience is tested to comprehend the felt differences between demographic groups. Following this, specific indicators are discussed where their results in the survey point to personal experience influencing the outcomes. This is due to the personal experience at times explaining the differences in the felt privations across the three neighbourhoods in the residential survey.

Table 8.2 displays the aggregate effects of residential QoUL with different demographic characteristics. The residential mean satisfaction scores have been calculated to analyse the variance. The table has various demographic classifications in the left column. This then presents the overall satisfaction for each of these classifications. This is followed by the group's satisfaction, which is segregated by the three neighbourhoods. The analysis uses the mean result for subjective assessment of overall satisfaction on a scale from 1- Definitely not satisfied, to 4- Definitely satisfied. The number in the brackets is the percentage of respondents who are in the classification.

Difference in the mean scores of demographic and socio-economic groups on the satisfaction with overall QoUL and the three neighbourhoods researched in Lilongwe.				
Demographic	Mean score based on a 4-point forced Likert scale (% of respondents within classification)			
	Subjective assessment of overall QoUL in Lilongwe	Subjective assessment of overall QoUL in Area 18	Subjective assessment of overall QoUL in Area 36	Subjective assessment of overall QoUL in Area 49
Age				
16-24	2.21 (9.1%)	2.50 (6.9%)	2.15 (17.9%)	2.00 (3.8%)
25-34	2.32 (33.2%)	2.63 (32.4%)	1.81 (34.7%)	2.87 (45.8%)
35-49	2.40 (42.7%)	2.83 (39.0%)	1.83 (38.9%)	2.81 (36.7%)
50-64	3.07 (13.0%)	3.17 (19.6%)	2.50 (5.7%)	3.40 (11.4%)
65+	2.60 (2.0%)	2.00 (2.1%)	2.50 (2.8%)	3.00 (2.3%)
Gender				
Female	2.35 (67.4%)	2.73 (58.9%)	1.93 (78.4%)	2.96 (42.6%)
Male	2.52 (30.4%)	2.79 (41.1%)	1.93 (20.2%)	2.70 (54.6%)
Relationship Status				
Divorced/Separated	2.22 (17.4%)	3.00 (12.9%)	1.54 (16.9%)	3.20 (9.8%)
Living with partner	2.66 (26.3%)	3.13 (22.4%)	1.94 (21.6%)	3.36 (21.5%)
Married	2.42 (37.1%)	2.58 (37.9%)	2.15 (47.0%)	2.81 (47.7%)
Prefer not to say	2.00 (3.6%)	2.50 (3.5%)	1.50 (2.6%)	2.00 (5.8%)
Single	2.29 (6.8%)	2.67 (9.7%)	1.33 (3.8%)	2.40 (8.0%)
Widowed	2.44 (8.9%)	2.80 (13.6%)	2.00 (8.2%)	2.60 (7.3%)
Religious Belief				
Christian	2.51 (68.2%)	2.68 (67.9%)	2.06 (65.6%)	2.97 (60.0%)
Muslim	2.20 (31.8%)	2.93 (32.1%)	1.69 (34.4%)	2.50 (40.0%)
Main Source of Income				
Employment	2.71 (56.9%)	2.79 (80.6%)	2.18 (30.4%)	2.97 (61.1%)
Entrepreneurship	2.32 (19.5%)	2.75 (12.5%)	2.12 (34.4%)	2.75 (7.8%)
Food crop sales	2.67 (1.2%)		2.67 (1.2%)	
Forestry Product	1.00 (0.9%)		1.00 (1.2%)	
Ganyu	1.26 (15.1%)		1.28 (22.8%)	1.28 (22.8%)
Pension	3.00 (0.7%)			3.00 (2.3%)
Petty trading	1.00 (0.9%)		1.00 (1.2%)	
Remittance	2.33 (4.2%)	2.50 (6.9%)	2.25 (5.6%)	2.00 (1.9%)

Table 8.2 Demographic experience using multi-variate analysis

QoUL and Age:

Table 8.2 shows that age groups exhibit variations with their satisfaction levels. Overall, those aged between 50-64 report the highest level of satisfaction with a mean score of 3.07 out of 4. Opposite to this classification, the youngest category surveyed report feeling least satisfied with their QoUL, as 16-24-year olds provided a mean of 2.21 out of 4. Happiness and QoUL are often understood to increase with age. The Cooper, et al., (2011) study in low- and middle-income countries state that older adults are thought to have greater emotional control than younger adults, and are more likely to limit stressful situations, which has positive implications for their overall QoUL. Other theories to the increase in QoUL with age is that older people may have more freedom to choose how to spend their time, particularly if they experience fewer demands (Cooper et al., 2011; Mercier et al., 1998). Scholars believe that older populations are often more satisfied because they have fewer worries and less desire for change (Mercier et al., 1998). Older residents may feel they have established their status in the community and have contributed economically towards their house and plot in a satisfying way. However, it is significant to note that the 65+ age category sees a decrease in overall satisfaction (mean 2.60/4). This could be connected to the over 65s experiencing poorer physical health which impacts their perception of their QoUL. This analysis confirms that the various age groups have a different perception of their QoUL, which illustrates the important role that personal experience plays in the perception of a person's QoUL.

QoUL and Gender

The literature in Chapter Five: Section 3.3 'Tenure and Ownership', explained that Malawi is a matrilineal country, thus, women exercise considerable authority alongside their brothers with regards to land ownership. This is meaningful, as Table 8.2 presents that there is not a significant difference between gender and QoUL in Lilongwe. Reviewing the literature on the topic of gender and QoUL, it is recognised that often variance in QoUL has more to do with age than gender (Mercier et al., 1998; Carr, et al., 2014). This echoes the findings from this study; therefore, the data appears to be representative of existing literature.

QoUL and Relationship Status

The discourse of QoUL and relationships presents that relationship status is equally salient to both men and women (Carr et al., 2014). This is particularly the case for older people, as both men and women pare down their social networks to include only connections which are important to one's overall well-being. Here, the multi-variate analysis presents that the two least satisfied groups overall are those who are single (mean 2.39/4) and divorced (mean 2.22/4). The most satisfied group overall are those

who are living with their partners (mean 2.66/4). This suggests that being in a happy, stable relationship is positive for an individual's QoUL. This is significant because the findings clarify the discrepancy between different demographic classifications.

QoUL and Religion

Religion and spirituality are often at the periphery of QoUL studies (Peterson & Webb, 2006; Hamren, et al., 2015). Recent discourse discusses that there is evidence that religiosity and spirituality have a positive impact on QOL (Hamren et al., 2015). Chapter Five: Section 2.4 'Sense of Community', discusses the fact that in the context of ESA, being a member of a religious group is more common than any other organisation, and that religious groups provide aid for members of the community, thus are positive for residential QoUL. Table 8.2 presents that all residents surveyed identify as being either Christian or Muslim, however, there is a larger sample of Christian respondents than Muslim. There is not a significant difference between the two religious' classifications, which suggest that having a faith is more important than which faith the resident has.

QoUL and Occupation

Occupation and factors that relate to one's employment have an impact on the sense of well-being, both physically and psychologically (Riise et al., 2001). This is not only economical, but the financial reward does also positively impact QoUL. Other factors than impact QoUL at work include the occupation conditions, and the amount of stress felt at work (Riise et al., 2001; Weziak-Bialowolska & Mcneely, 2018) Good quality physical and ergonomic working conditions are lacking in many low-income countries, which can expose workers to health hazards (Weziak-Bialowolska & Mcneely, 2018). This limits their satisfaction with work and has negative implications for QoUL.

Table 8.2 displays that residents who are in formal employment are considerably more satisfied with their life (mean =2.71), than those working in forestry or petty trading (mean =1.0). That being said, the group who are most satisfied with their occupation are those who are retired (mean =3.0). This is in line with the literature, both on age and occupation, that states that those who are retired will not be out working in stressful situations and are likely to be older. The satisfaction with occupation appears relatively even across the neighbourhoods; however, it is noted that Area 36 is the only neighbourhood with some of the lower-satisfaction occupations. This supports the principle that occupation impacts how residents perceive their QoUL, thus personal comparisons and expectations are essential when conducting a QoUL study.

Aspiration Levels

Ensuing from the previous discussion, while different demographic groups have different perceived QoUL, it is also believed that different aspiration and expectation levels affect people's values and their interpretation of various QoUL indicators. An instance where this is evident in the fieldwork was with regards to residents' perception of the quality of public transport in Area 49. This was disclosed in the residential attitude survey.

In Chapter Seven: Section 3.32, residents were asked if they believe that there is adequate public transport in their neighbourhood. While there remains a reasonable majority that agree that the public transport is good quality, 36% of the sample population in Area 49 disagreed, thus believing that transport is not good quality. By using multi-factor analysis, it revealed that those who use the public minibuses as their primary means of travel are satisfied with them, however, those who travel by car or truck are negative regarding the local public transport. This research believes that the residents who travel by car or truck prefer using their private means of travel, thus their expectation levels are higher than those who do not regularly travel by private means. This suggests that personal levels of comparison have impaired the perception of those who travel by car and truck. This corroborates the belief that personal comparison and expectation levels affect how residents perceive their QoUL.

Through this multi-variate and multi-factor analysis, it can be concluded that there are differences in the felt privations of different demographic and socio-economic groups. This validates the literary discussion in Chapter Two and confirms the importance of using participatory methods to understand resident's perception of their QoUL.

8.2.5 The Objective and Subjective Dimensions:

Continuing the theme of personal experience, is the need to integrate both an objective and subjective methodology when investigating QoUL. Chapter Three discussed that the methodology used in a QoUL investigation links the theory to the results. As such, it is essential that the strategy behind the design of the research methods connects the theoretical underpinnings of the discourse with the desired outcomes of the study. This means that the research paradigm, methodology and tools work together to form a QoUL investigation. As such, this research used an epistemological investigation as it emphasised that knowledge is best derived from a subjective interpretation of an objective reality. This thesis has accentuated the need to view QoUL using both the objective and subjective paradigms to link the two dialogues of research. This follows the previous section as it discusses the importance of personal experience in the built environment.

The complexity of the scholastic topic of QoUL has required a multi-method approach that uses both objective and subjective procedures, as displayed in Figure 3.3. The neighbourhood profiles provide an objective lens of the three case-study areas, while residential attitude survey provides a subjective voice for the inhabitants of the neighbourhoods. The observational assessments use an objective framework, however, there remains a subjective element to this form of research. Together, combining the various methods concludes with a reliable and valid inference about the QoUL within the case study neighbourhoods.

There are four primary strengths to the objective neighbourhood profiles. One strength is that they allow the reader to envisage the neighbourhoods; whether the reader is an academic or member of government, it remains beneficial for the reader to comprehend the objective condition of the neighbourhood. The second strength is that this forms a point of departure for policymakers and planners for assessing the urban condition of a neighbourhood. A third strength is that they enable the validation of subjective measures (Kamp et al., 2003) and the fourth strength is that they highlight when the subjective results differ significantly from the expected outcome. The neighbourhood profiles are used to confirm the results of the residential attitude survey on many occasions in Chapter Seven. This included discussion such as the dwelling typology, density, and urban open spaces, to name only a few. Each instance, the results of the survey reflect the condition of the neighbourhood, which corroborated the findings. This confirms that the residents are reflecting on the same characteristics that the profiles interrogated.

However, there are occasions where the residents' responses differ from the profiles. This is where merging the objective and subjective data highlights unexpected results. An example of this is that residents of Area 49 are considerably less satisfied with their healthcare facilities than the residents in Area 36. The neighbourhood profiles allude to the fact that Area 49 has more healthcare facilities per person than are found in Area 36, yet residents are less satisfied with their facilities. This enthused the question as to why residents of Area 49 feel negatively regarding their facilities, while Area 36 felt positive.

Analysing the results of the residential attitude survey exposed that residents of Area 49 attribute their pessimism to the fact that there are insufficient medical supplies or drugs available in the facilities. Consequently, this information is important for policymakers and planners as it displays that residents are not dissatisfied with the quantity of healthcare facilities, however, they are dissatisfied with the supplies that the facilities hold. This is meaningful, as it points to the need to improve supplies rather

than to look to build more healthcare facilities. This is a result which can only emerge by combining the objective data profiling with the subjective attitude survey. It combines and highlights findings in the data, which leads to well-considered recommendations for policymakers and planners to consider. As such, this empirical investigation confirms that merging objective and subjective data is desirable when conducting a QoUL project, as it arrives at the most reliable and valid inference about the QoUL in a particular setting. Combining the discussion across the personal dimension and the objective and subjective dimensions, confirms that QoUL is a relative as opposed to absolute term, thus the felt quality of an environment depends on the perception of the resident viewing it, as well as the objective condition of the setting.

8.2.6 The Cultural Dimension:

An overarching theme of this thesis is that an existing QoUL instrument developed for one context, is not suitable for measuring QoUL in a different cultural context. This is one of the primary gaps in current literature, as the majority of measurement methods have been developed based on Western samples (Pan et al., 2016; Shek, 2010; Low et al., 2018; Møller & Schlemmer, 1983). While there are some aspects of daily urban life which are culturally consistent, there are also unique characteristics that are individual to the specific culture (Tov & Diener, 2007). This, therefore, means that while some aspects of urban life are etic, there are also distinctive patterns that are emic, making contexts unique in their experience of QoUL (Tov & Diener, 2007). As such, using models and frameworks which draw principles from communities and cultures which are unfamiliar with the one under investigation, can overlook factors which are essential to daily life. This is significant, as issues which are meaningful in one culture, may not be in another, therefore studies should avoid imposing values which are not shared by the culture under investigation.

Malawi's capital city, Lilongwe, was selected as a case study for this investigation. The region of eastern-southern Africa (ESA) was selected because hitherto cities in this region have been in the periphery of urban studies. This has resulted in theories being mobilised without critical engagement on if the associated indicators are relevant in this context. Consequently, this research has been conscious to engage with local informants throughout the research to ensure culturally appropriate indicators and methods are used. This included collaboration with a group of experts, who prioritised and validated the indicators as significant for urban life in this context, and participation from residents in the attitude survey. Further engagement involved a colleague from a Malawian community group guiding the fieldwork by selecting the appropriate

spaces and recruiting local fieldwork assistants, and a member of the Malawian government surveys department reviewing the survey instrument before distribution. Chapter Five provided a dedicated scholarly space which investigated the indicators within the context of ESA to conclude with indicators and attributes which are used in the research fieldwork. The focus of the following section is to elaborate on some instances where this tailored approach to QoUL provided significant findings.

8.2.7 The Tailored Dimension:

One of the primary objectives of this research has been to derive, validate and test an appropriate indicator list for use in Lilongwe. This is because indicators form the basis of what is being examined, therefore it is fundamental that they reflect the aspects of life that are valued and significant to residents. Not only should the indicator list echo features of life that are important to residents, but they must also include factors which can be measured, observed and assessed by planners and academics (Marans & Rodgers, 1975). As such, compiling a well-balanced, context-specific, reliable indicator list is a laborious task.

Throughout the fieldwork, particular indicators are exposed as significant for life in Lilongwe, which are not investigated in QoUL studies in different contexts. One example is the materiality of the home. Residential satisfaction with their home is significantly influenced by the materials that their home is made from. Table 8.2 displays the aggregate effects of the materiality of the home, and the size of the home. The residential mean satisfaction scores have been calculated to analyse the variance. The table has the indicators in the left column. This is then compared with the satisfaction felt in each of the three case study neighbourhoods. The analysis is using the mean result for subjective assessment of overall satisfaction on a scale from 1- Definitely not satisfied, to 4- Definitely satisfied. This compares residents overall subjective assessment of their QoUL in Lilongwe dependent on their circumstances, such as type of home. This is not their satisfaction with that indicator, but their overall satisfaction with life, as aggregated by the group. The number in the brackets is the percentage of respondents who are in the classification.

Difference in the mean scores of demographic and socio-economic groups on the satisfaction with overall QoUL and the three neighbourhoods researched in Lilongwe.			
Demographic	Mean score based on a 4-point Likert scale (% of respondents within classification)		
	Subjective assessment of overall QoUL in Area 18	Subjective assessment of overall QoUL in Area 36	Subjective assessment of overall QoUL in Area 49
Main materials used for walls in home			
Traditional		1.37 (34.6%)	
Combination	2.43 (12.5%)	2.00 (33.8%)	2.00 (33.8%)
Modern	2.82 (87.5%)	2.52 (30.1%)	3.00 (66.2%)
Number of internal rooms in home			
1		1.00 (2.5%)	
2-3	2.79 (41.1%)	1.80 (74.7%)	2.82 (46.1%)
4-5	2.72 (46.4%)	2.42 (17.0%)	2.91 (39.9%)
6+	2.75 (12.5%)	2.75 (5.9%)	2.82 (14.1%)

Table 8.3 Satisfaction with house typology

Area 36 is the only neighbourhood which has traditional dwellings. Reviewing their subjective assessment of residents perceived overall satisfaction, compared with the materials their home is made from, it is clear that those who live in modern dwellings are considerably more satisfied than those who live in traditional or combination dwellings. Residents who reside in modern dwellings are the most satisfied across all three neighbourhoods, highlighted in green in Table 8.3.

Turning attention to the size of the home compared with the overall residential satisfaction, it can be seen that Area 36 presents a range of satisfaction with the size of the home, however, using multifactor analysis, it can be seen that all traditional dwellings are between 1-3 room size, as displayed in Figure 8.3. Both Area 18 and 49 display that the size of the home does not influence residential satisfaction, highlighted in yellow on Table 8.3. In fact, in Area 18 residents who reside in 2-3 room homes are more satisfied than those who reside in 6+ room houses, and in Area 49 residents in the 4-5 room homes are most satisfied. This displays that residential satisfaction in Areas 18 and 49 are more strongly influenced by the materiality of the home than the size of the home. As such, it is the opinion of this research that the materiality of the home influences the lower scores for the smaller dwellings. This opinion is based on the results of Area 18 and 49.

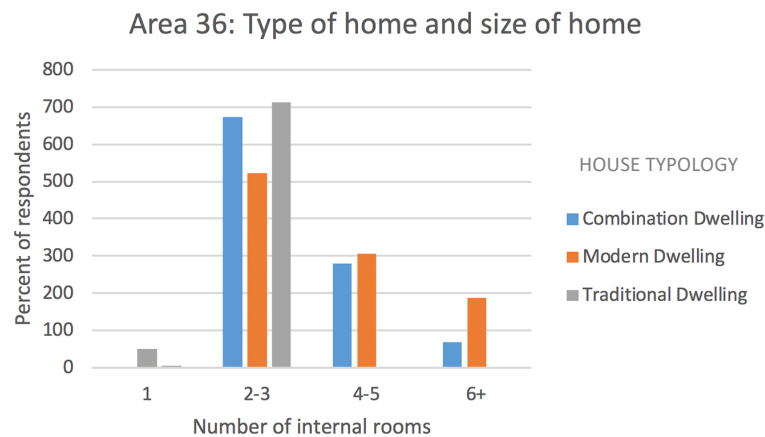


Figure 8.3 Type of dwelling, and size of dwelling

This is a significant outcome for the analysis, as it discloses the importance of construction materials used and that the materiality of their home dramatically impacts the perceived satisfaction with their home. A final method to corroborate this finding is reviewing the subjective reasoning provided by residents of Area 36 who state that their home is not a good quality building. Of the residents surveyed in Area 36, 82% were negative regarding the quality of their home. When asked why they believe this, 77% state that it is due to the materials their home is made from. As discussed, the research has found that there is a positive monotonic correlation between the quality of a person's home, and their perceived physical QoUL ($r_s=.73$, $n=165$, $p<0.01$), thus the quality of a residents home has a substantial impact on their satisfaction with their QoUL.

Through this analysis, it is apparent that the materiality of the home has a more significant impact on residential satisfaction than the size of the home, thus building good-quality smaller dwellings is preferable in the future. This is one example of a critical indicator which would not be assessed if the indicator list was not tailored to the context under investigation, as materiality is not included as a question in studies within Europe and America.

8.2.8 Conclusion on the Seven Dimensions of QoUL:

By combining the various strands of research, this section has validated the importance of the seven interconnected dimensions of QoUL, which were presented in Chapter Two. These concepts have guided the thesis from the outset, thus it is significant to empirically validate their importance in QoUL studies using the findings from the thesis fieldwork. This section of the chapter examined the role of many aspects of the conceptual model to confirm their importance in Malawi. This used statistical analysis, multi-variate analysis and key examples from the observations, to

highlight the significant importance of the seven interconnected dimensions of QoUL on the fieldwork. The focus of the subsequent section is to discuss the key findings of the particular indicators which impact residential QoUL in Lilongwe. This is conducted across the themes of the physical, social, economic and well-being domains.

8.3 Key Findings on the quality of Lilongwe's neighbourhoods:

Having discussed important findings from the research across the themes of the theoretical framework, this section will now discuss and summarise critical findings on the QoUL of the three case study neighbourhoods. This section includes the results of the residential survey, findings from the neighbourhood profiles, verdicts from the observational assessments, knowledge from the literature discussions and the views of the expert panel. This section therefore merges findings from all eight stages of the multi-layered methodological approach for investigating QoUL in neighbourhoods in Lilongwe (See Figure 3.3). This data aims to provide a deeper understanding of the QoUL in the neighbourhoods, which can be used by policymakers and planners in Lilongwe to aid in resolving urban issues. Combining the data across these strands provides a rich understanding of the urban issues, which results in valid inferences of the QoUL in the neighbourhoods. This section is discussed across the four domains of urban life, using the same structure as Chapters Five and Seven.

8.3.1 The physical quality of Lilongwe's neighbourhoods

Figure 8.4 illustrates how the sample of residents in the three case study neighbourhoods perceive the physical aspects of their neighbourhood based on the results of the residential attitude survey. The indicators which are coloured light blue and orange represent indicators which residents feel negatively, while the yellow and dark blue represent the percentage of positive residents. This information is aggregated by the neighbourhood in Figure 8.4.

Perceived Physical QoUL in 3 Neighbourhoods of Lilongwe

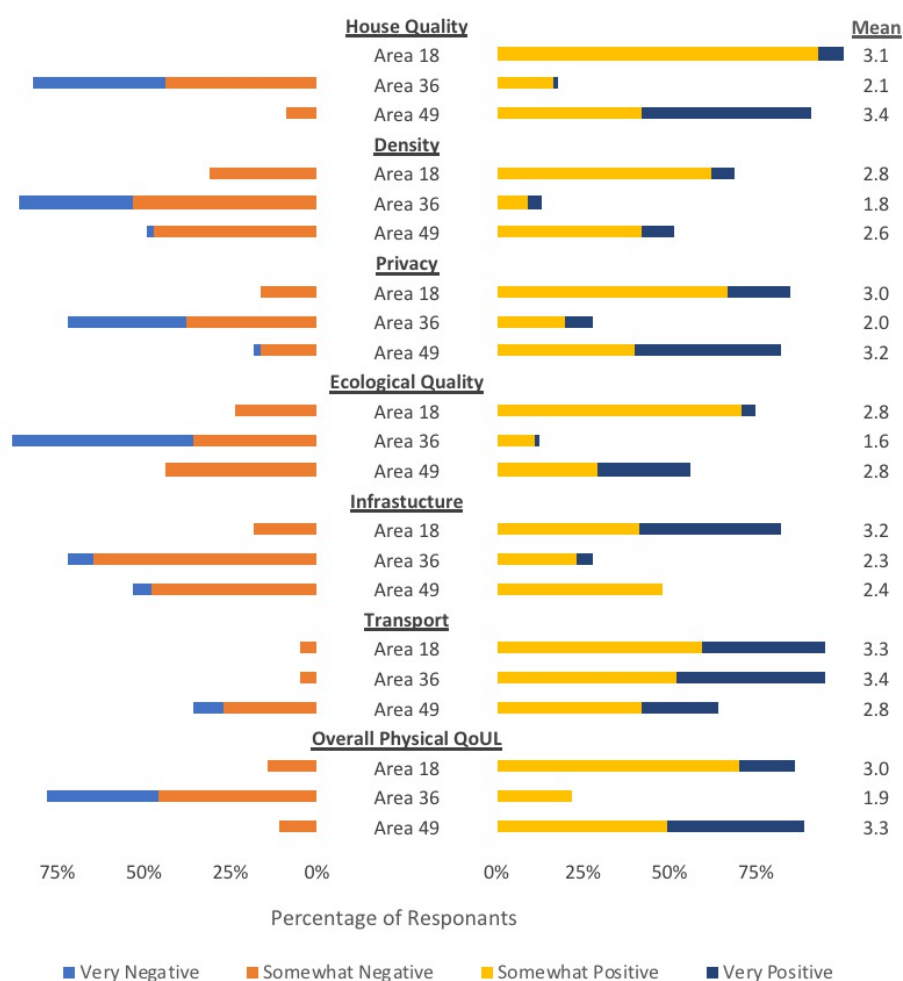


Figure 8.4 Perceived Physical QoUL

Figure 8.4 visually displays the percentage of satisfied and dissatisfied residents for each of the physical domain's subjective questions. This has been used to prioritise issues that require attention if a significant portion of the population is dissatisfied with the indicators. The results of this are displayed in Table 8.4.

	Area 18	Area 36	Area 49
High Priority (75-100% dissatisfaction)		Ecological Quality (88%) Density (86%) House Quality (82%)	
Moderate Priority (51-75% dissatisfaction)		Privacy (72%) Infrastructure (72%)	

Table 8.4 Perceived priority indicators

Reviewing the lowest ranking indicators across the three neighbourhoods demonstrates that Area 36 has the highest number of low-ranked indicators, with five indicators being considered priority issues. This confirms that Area 36 has the most physical priority issues, while residents of Areas 18 and 49 are significantly more satisfied with the physical quality of their neighbourhood. Area 36 thus requires greater attention to improve residential satisfaction. Residents in Areas 18 and 49 are not significantly dissatisfied with any physical indicator in their neighbourhood. This displays that the physical conditions of the neighbourhood that residents perceive is suitable, therefore do not require immediate attention to resolve any physical urban issues. The focus of the subsequent section is to discuss physical indicators individually using data from the eight strands of the multi-methodological approach for investigating QoUL in Lilongwe.

Density, privacy and ecological quality

Analysing the physical indicators in Area 36 has confirmed that the neighbourhood has issues particularly with regards to the neighbourhood's density. The objective neighbourhood profile in Chapter Six discusses that Area 36 has a density of 10,010 people per km^2 , compared with Area 18, which has a density of 4,065 people per km^2 . This objectively displays that the neighbourhood is denser, thus less space for green areas or public open spaces. As such, the residents' perception of the neighbourhood density confirms the objective data profiling, as 86% of residents in Area 36 report negative scores with regards to this indicator. The expert panel considered this as a priority issue, providing an average importance score of 3.5/4, thus confirming that experts believe this is a significant indicator for residents QoUL in Lilongwe.

In the residential attitude survey, participants are impelled for their reasoning for all of the subjective questions. This is provided on a multiple-choice basis, where residents can select all which apply (see Appendix 8). Here, when residents were asked why they believe their neighbourhood is too dense, 92% of those who provided negative scores state that there are too many buildings on their street, 30% believe that this is because their garden is too small, and 17% state that their neighbours garden is too small. This is a particularly challenging indicator to amend as the neighbourhood is built, however, it is apparent that residents are dissatisfied with this density level in Area 36.

Ecological quality is an important indicator for QoUL in this context because it strongly relates to privacy and density of the neighbourhood. From the neighbourhood profiles in Chapter Six, it is clear that Area 36 has some public open space, however, this is lower quality than was found in other parts of the city. The Figure-ground maps, in

particular (Table 6.1), display the discrepancy between the availability of open space across the three neighbourhoods. 88% of the sample population in Area 36 believe that there is not enough green and open space in their neighbourhood. Participants are again asked for their rational for why they believe their neighbourhood lacks green and open space. Of that population, 52% state it is due to the lack of plants, trees and vegetation in the neighbourhood. 30% of those who feel negatively state it is because of the lack of fields, and 11% state it is due to the lack of parks in the neighbourhood. A further 17% of residents remarked that there is not enough space in the neighbourhood for such spaces due to it being a compact neighbourhood with a high population. This response was not listed on the questionnaire but has been added for future projects.

A Spearman's correlation was run across the full residential attitude survey sample to determine if there is a statistical relationship between ecological quality and the overall physical quality of the neighbourhood. This exposed that there is a strong positive monotonic correlation between these two factors ($r_s=.65$, $n=165$, $p<0.01$), thus the ecological quality of a neighbourhood has a substantial impact on residents' overall satisfaction with their neighbourhood. As such, providing green and open space is a significant contributor to the resident's satisfaction with the physical aspect of their neighbourhood. If a neighbourhood has more green space or decorative landscaping, it is likely to feel less dense and thus more private. This information is valuable for policymakers and planners, as it suggests that a large percentage of residents would welcome the introduction of plants, trees and vegetation in the neighbourhood. This is a reasonably managed version of nature, which can beautify an area without requiring vast expanses of space. The neighbourhood profile in Area 18 displayed pockets of picturesque landscaping (Figure 6.1 D) which improve the overall appearance of the neighbourhood. This style of managed nature brings greenery to a neighbourhood without requiring large expanses of physical space, which can be beneficial to residential QoUL.

Privacy is a further significant indicator for physical quality of urban life. It is encouraging to see that both Areas 18 and 49 feel mostly positive regarding this indicator. However, in Area 36, a substantial number of residents feel negatively regarding the level of privacy in their neighbourhood. Here, 72% of the sample provided negative scores for this indicator. Of this sample, 87% state that it is due to passers-by being able to see into their plot, while 72% also state that their neighbours can see into their plot. 67% of the population also believe that their privacy is impaired by the lack of walls or bushes, with the same percentage stating that the privacy is lessened due to the size of their gardens. The neighbourhood profile in Chapter Six

discussed that there is a lack of walls, fences or vegetation around plots in Area 36, which are likely to make the urban life experience more public in this neighbourhood. As such, the results of the survey confirm the neighbourhood profiles. Using a Spearman's correlation, it can be seen that there is a strong positive monotonic correlation between the overall physical quality of the neighbourhood and privacy ($r_s=.72$, $n=165$, $p<0.01$). This, therefore, means that privacy has a significant impact on improving resident's perception of their physical quality of urban life in Lilongwe. Combining this information displays that the indicators of density, privacy and ecological quality are interlinked. Dissatisfaction with one indicator results in dissatisfaction with another, thus policymakers and planners can treat these as connected issues when planning a strategy to tackle the concerns raised by participants.

Building and House Quality:

A further significant physical indicator that has been revealed across the analysis relates to the construction materials used in the homes, as discussed in section 2.7. This was felt both in the objective neighbourhood profiling and the subjective residential attitude survey. The neighbourhood walk-through technique in Chapter Six visually displays the differences in building materials and techniques used in the domestic buildings in the three neighbourhoods. The homes in Area 36 use a mixture of construction materials and technique including many more traditional and combination dwellings than are found in Areas 18 and 49.

Of the residents surveyed in Area 36, 82% believe that their house is not a good quality building. When asked why they feel this way, 77% state that it is due to the materials their home is made from, 16% believe that it is due to the internal or external finish of their home. It is significant to note the multi-factor analysis in Section 2.7 'The tailored dimension', which discovered that those who are dissatisfied with their house predominantly live in homes made from traditional materials; as such, building smaller homes from a combination of permanent materials appears to be a more satisfactory form of constructing homes to improve residential QoUL in future. The expert panel assessment gave this indicator a high importance rating, with a mean score of 3.7/4. This displays that experts also see this as having a strong influence on residents QoUL. A Spearman's correlation was run to determine the statistical relationship between house quality and overall physical quality of the neighbourhood. This revealed that there is a strong positive monotonic correlation between these factors ($r_s=.73$, $n=165$, $p<0.01$), thus the quality of a residents home has a dramatic impact on their satisfaction with the physical aspects of their neighbourhood. As such, this is an important indicator which directly influences residential satisfaction, which confirms

the perception of the experts and residents. Combining this information presents that a possible solution to the problem is to encourage residents to build smaller homes from permanent materials. This could be encouraged through incentives such as access to loans to assist residents in accessing the funds for the construction of their homes and making permanent building materials accessible to those who are building or extending their home.

Transport

Through gaining the residents' opinion of different elements of their neighbourhood, it was noted that the majority of residents in all three neighbourhoods appear satisfied with their public transport. This is a significant finding, as there is less demand to improve the quality of urban transport compared to other factors which may play a more significant role in improving residential satisfaction.

Conclusion on physical findings:

Combining the residents' subjective assessment from Chapter Seven with the objective data gathered in Chapter Six confirms the importance of using a multi-layered methodological approach for investigating QoUL. Linking the findings across the objective and subjective strands provides a rich understanding of the urban issues, resulting in a reliable and valid inference about the QoUL in each neighbourhood.

By reviewing and analysing the findings across all eight stages of the multi-layered methodological approach, it can be concluded that Area 36 has considerably more physical priority issues than are found in the other case study sites. The neighbourhood is denser, with less access to green or open space. Many of the dwellings in this neighbourhood are made from traditional construction materials, which has emerged as a negative physical attribute for QoUL in this context. That being said, there are many positive qualities in this neighbourhood which are the focus of the social domain.

The analysis revealed that Areas 18 and 49 are physically good-quality neighbourhoods. The neighbourhood profiles visually display that the neighbourhoods have high-quality buildings and beautiful landscaping. The Figure-ground maps display that the streets are a satisfactory density level and use a structured street layout. The findings from the objective profiling are then confirmed by the resident's perception of their neighbourhood, displaying that no immediate attention is required in the physical domain of Areas 18 and 49, as residents are satisfied with the physical quality of their neighbourhood. The subsequent section will now focus on the social QoUL domain to understand its impact on residential QoUL in Lilongwe.

8.3.2 The social quality of Lilongwe's neighbourhoods

Using the same methodology as the Physical Domain, Figure 8.5 is designed to display the percentage of satisfied and dissatisfied residents for each of the subjective questions. This is again used to prioritise issues that require immediate attention to improve the QoUL of residents. The indicators which are coloured light-blue, and orange represent indicators which residents feel negatively, while the yellow and dark blue represent the positive residents. The summary of the priority indicators is displayed in Table 8.5.

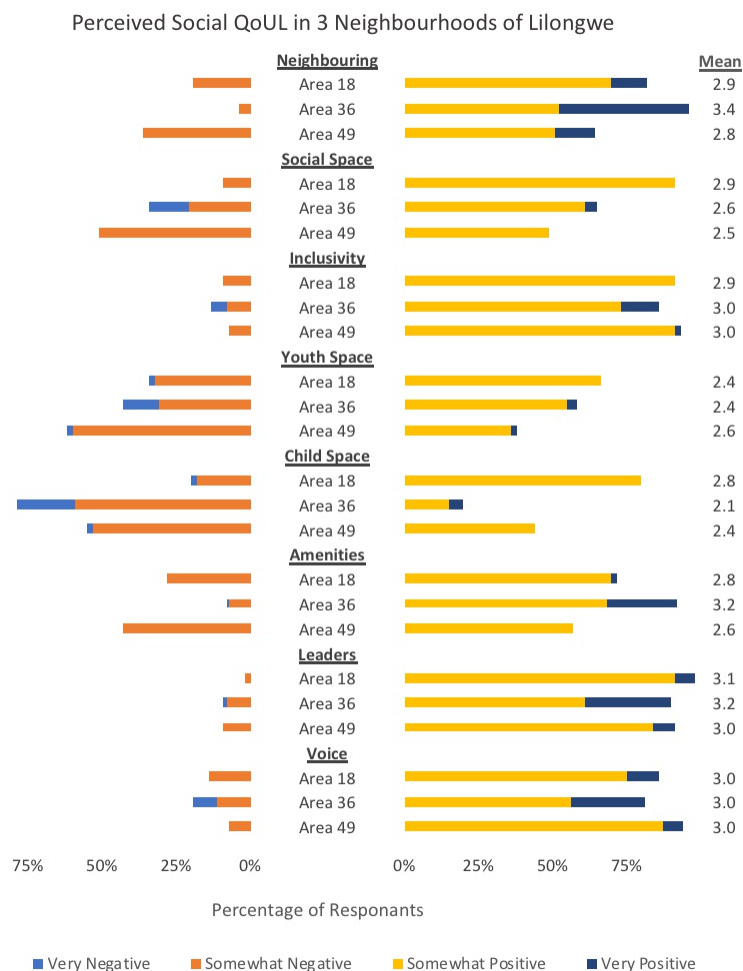


Figure 8.5 Perceived Social QoUL

The analysis of the social indicators across the three case study neighbourhoods has exposed critical findings. Looking at the lowest ranking indicators from the residential attitude survey, it can be concluded that the priority indicators relate to public places. A sample of public spaces were evaluated during the observational analysis in Chapter Six. This confirmed that the spaces available in Area 18 were high-quality, thus it is anticipated that residents perceive them well. The settings in Area 36 and 49 were of lower quality. Thus, the findings from the observational analysis echoes the findings from the residential attitude survey. The focus of the following section is to discuss the

social indicators individually using data from the various tools that are tested in the fieldwork.

	Area 18	Area 36	Area 49
High Priority (75-100% dissatisfaction)		Child Space (79%)	
Moderate Priority (51-75% dissatisfaction)			Youth Space (62%) Child Space (55%) Social Space (51%)

Table 8.5 Social Perceived Priority Indicators

Social Spaces

Improving the quality of the public social spaces is essential because these are the areas that residents spend a large portion of their time. As such, these spaces enhance the liveability of neighbourhoods and thus impact residential QoUL. From the results of the residential attitude survey, it is apparent that residents of Area 49 are dissatisfied with the space available to all demographics, while Area 36 is primarily concerned with the spaces for children.

The observational analysis in Chapter Six points to particular factors that could positively contribute to improving urban open spaces in the context of Lilongwe. One of the common issues felt by the observational assessment was the absence of shade and seating spaces. Microclimate conditions are essential prerequisites of good quality urban open spaces in this context. Seating within shade can be provided both formally and informally, and equally appear to draw users into a setting for an extended period of time. An additional positive factor in ensuring public open spaces are functional is to have refreshments available. The literature postulates that having refreshments available is attractive to users, which entices residents into the setting. Encouraging food and drink vendors into public open spaces should result in an increase in the number of visitors using the setting for recreational means, which is a sign of a good quality open space. This also provides an employment opportunity for vendors.

A further significant factor for improving the quality of urban open spaces is to ensure the spaces are physically and socially inclusive. This includes ensuring that the spaces are physically accessible, as this invites all demographics to use the setting. This can be done through warranting that the ground is easy to navigate without large potholes

and ditches and that there are handrails for areas that are elevated. Social exclusivity can be felt through actions such as charging to enter or by excluding certain demographics from a space, which should be avoided if possible. The observational analysis further analysed the consequence of settings having a good relationship with the street. By providing sightlines between the setting and the wider neighbourhood, residents are more likely to visit the space as they transit the neighbourhood. Each of these findings were revealed in the observational analysis in Chapter Six and point to methods of improving the quality of urban open spaces for all demographics. Providing good quality urban spaces are essential for enhancing QoUL because they promote social contact with neighbours, and positive community engagement.

Using the same methodology as the physical domain, it is again significant to explore why residents feel negative regarding the social space in Area 49. Residents were asked why they believe that there are not suitable spaces in the neighbourhood to meet socially on a multiple-choice basis. Of the negative sample in Area 49, 72% attribute this to the quality of the spaces, 61% state that they believe this is due to the accessibility of the spaces, and 31% of the sample believe that it is due to the quantity of spaces available. It is encouraging to note that 0% attribute this negativity to their gender. This points to improving the quality of the existing spaces as opposed to seeking to erect new urban open spaces, as the majority of residents are satisfied with the number of spaces that they have available.

Children's Spaces

A further indicator which was deemed unsatisfactory both in Area 36 and 49 is the provision of space for children. 51% of Malawians are under the age of 18, thus spaces for youth and children affect a large portion of the population. The literature in Chapter Five postulates that childlore remains the daily currency of play for children and that this is created wherever children gather, be that on the street, or the school grounds (Penn, 2005). Chapter five further discusses some design-oriented elements, which make areas more suitable for play. This may increase residential satisfaction with their play spaces and engage children in the use of public space.

One recommendation is to make streets liveable by controlling traffic. The neighbourhood profiles found that when vehicles are absent in the street, children and youth are more likely to play. A recommendation by (Penn, 2005) is to understand where children play, and respect this when planning any spaces for children. This can include involving public participation such as residential surveys to gain insight into the residents. Hicks & Hicks (2005) advise including arrangements of seating and shelter to encourage parents and carers to stay where the children play. This is

encouraged for spaces with young children, as it increases their safety. Providing shade and seating was also highlighted by the observational assessment. Hicks & Hicks (2005) discuss that ensuring proximity of play sites to children's homes is favourable for ensuring residents use the neighbourhood play space. Being close to the home is advantageous as it allows proximity to refreshments and facilities if required. Finally, Hicks & Hicks (2005) state that the importance of drawing on the natural environment cannot be overstated. Using natural areas as spaces for play is desirable and often form the best exploratory learning experiences for children. Areas which meet these recommendations can be seen in the neighbourhood profiles such as Figure 6.22, where children are seen playing in the canopy of trees, close to the home.

It is again significant to explore why residents feel negative regarding the spaces for children in both in Area 36 and 49. 69% of the sample in Area 36, and 88% of the sample of negative residents in Area 49, attribute their dissatisfaction with the number of spaces available for children. 25% of the negative sample in Area 36 also believe their negative perception of children's spaces stems from the quality of the available spaces. As such, the results suggest that it would be desirable to see the introduction of more spaces for children to play in these neighbourhoods.

Access to amenities

Looking at Figure 8.5 it appears that Area 49 is less satisfied with its access to amenities than the other neighbourhood. This suggests that there is an opportunity for more small businesses to open in Area 49 as the current residents believe that there is room for more amenities in the neighbourhood. It was noted in the observational analysis and the space profiles that there is construction work taking place in Area 49, thus it is likely that more shops will open near the commercial space in Area 49 soon. Nevertheless, it is encouraging to see that the amenities are well received in the other case study neighbourhoods.

Local Governance

The concept of governance has been particularly favourable in the social domain as residents believe that they have good leaders and that they have a say in the running of their community. This is important because a lack of voice can make residents feel invisible and powerless, which harms their QoUL. Local governance is prioritised highest of the social indicators by the expert panel, gaining an average score of 3.3/4. As such, it is supportive to QoUL that this important social indicator is well-received by all three case study neighbourhoods. Using a Spearman's correlation, shows that there is a moderate positive monotonic correlation between having a voice in the

community and there being areas to meet socially ($r_s=0.48$, $n=165$, $p<0.01$). This postulates that if a resident has space to meet in their neighbourhood, it increases a resident's perception of being heard in their community. Chapter Five: Section 2.1 discusses that politics unfolds in space, and the everyday urban environments are often the stage upon which this happens. Ordinary spaces become sites for micro-politics where residents engage with their social connections and thus contribute to the politics of their neighbourhood. As such, the residential attitude survey statistically confirms the literary discussion.

Neighbouring

The literary discussion in Chapter Five discussed that urban Malawians are linked in a web of strong social relationships. These include secure reciprocity relationships with kin and neighbours, which have positive implications for QoUL. As such, it is positive that the majority of residents who were surveyed feel satisfied with their propinquity with their neighbours. Area 36, in particular, had 96% of residents state they have a good relationship with their neighbours. The neighbourhood profile of Area 36 displayed images of groups socialising in the streets, which illustrates the vibrant community life found in Area 36. Having strong neighbourhood relationships provide support for residents which positively influence QoUL.

Conclusion on social findings

This section has combined the findings on the social domain of QoUL using data from the various stages in the multi-layered methodological approach. By so doing, the research has provided a holistic understanding of the social realm of QoUL in Lilongwe. Similar to the physical domain, the amalgamated research findings provide a rich understanding of social issues in Lilongwe, particularly concerning urban open spaces. This merged data set has provided reliable inferences on methods to improve the quality of urban open spaces in Lilongwe. This will be used to produce a list of suggestions in Chapter Nine, which aims to be useful to policymakers and planners when allocating the resources in this context. Reviewing the full data set confirms that the residents predicted social quality of life is strong, however enhancing public social spaces, particularly for youth and children, would be beneficial to the overall urban environment. Residents have very strong propinquity with their neighbours which promotes engagement in the social realm of the neighbourhoods. Finally, residents report high levels of satisfaction with their local governance which has constructive implications for residential QoUL.

8.3.3 The economic quality of Lilongwe's neighbourhoods

Using the same methodology as the previous two domains, Figure 8.6 displays the percentage of satisfied and dissatisfied residents for each of the subjective questions. This is again used to prioritise issues that require immediate attention to improve the QoUL of residents. The summary results are displayed in Table 8.6. By analysing the economic conditions of the three case study neighbourhoods, significant findings have been exposed which are the focus of the following discussion.

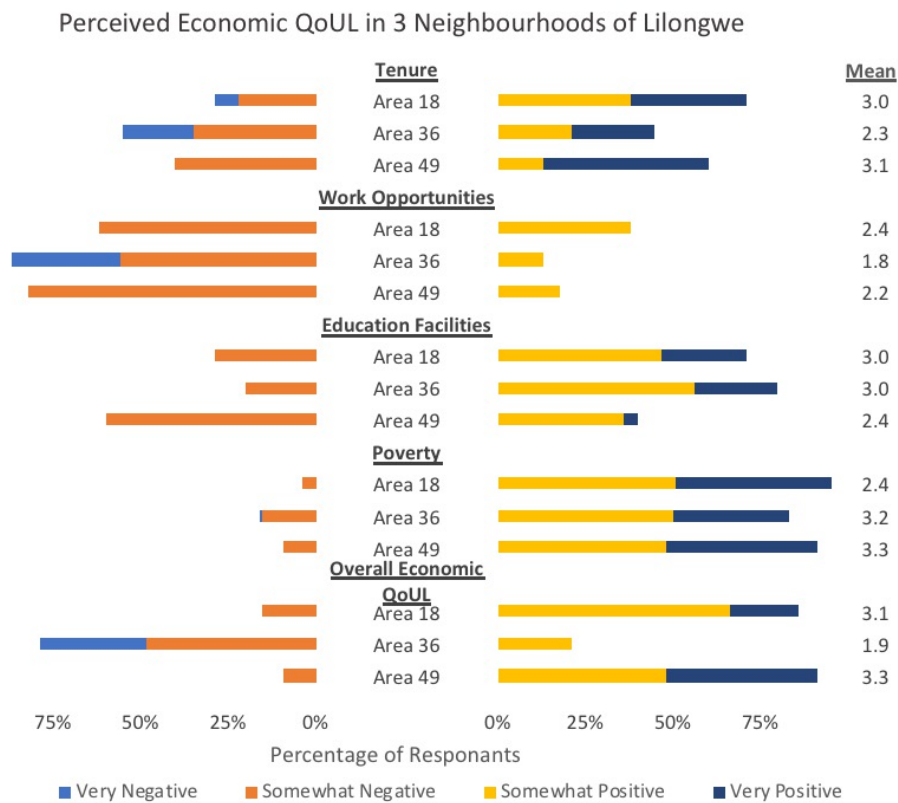


Figure 8.6 Perceived economic QoUL

	Area 18	Area 36	Area 49
High Priority (75-100% dissatisfaction)		Work Opportunities (87%) Material Possessions	Work Opportunities (82%)
Moderate Priority (51-75% dissatisfaction)	Work Opportunities (62%)	Tenure (55%)	Education Facilities (60%)

Table 8.6 Prioritised economic indicators

Reviewing the lowest ranking indicators from the residential attitude survey discloses that the Area 36 has the largest number of priority issues, followed by Area 49 and finally Area 18. Across all three neighbourhoods, 'work opportunities' is highlighted as

an aspect of urban life that residents are dissatisfied with. The focus of the following section is to discuss the economic indicators individually using data from the various tools from the multi-methodological approach for investigating QoUL in Lilongwe.

Work Opportunities

Reviewing the lowest-ranked indicators across the neighbourhoods has revealed that the only indicator that is low for all three neighbourhoods is work opportunities. Area 36 was the most negative regarding this indicator, with 87% of residents being dissatisfied with the work opportunities in their neighbourhood. This is the only instance where an indicator has been listed as an issue by residents in Area 18. Work status was prioritised as a high importance rating to the expert panel, who provided an average score of 3.8/4 for this indicator. The analysis of the residential attitude survey displayed that there is a moderate positive monotonic correlation between work opportunities and overall economic QoUL, thus this is an indicator that is seen to affect the overall economic QoUL of residents. As such, improving the work opportunities at a neighbourhood scale would be desirable for improving QoUL of residents. Work opportunities is, therefore, an essential indicator to address, as experts deem it essential and residents across the full sample are dissatisfied with it. As such, it would be desirable to see more work opportunities at a neighbourhood scale in Lilongwe. This connects with the discussion regarding amenities that states it would be desirable to see more facilities in neighbourhoods. Working to create more amenities also creates employment opportunities which is seen as a priority to residents in the case study neighbourhoods.

Tenure

Tenure is a significant indicator whose impact on QoUL should not be underestimated. By evaluating the resident's satisfaction with their tenure and their tenure type, it is evident that those who rent their home feel much less stable in their tenancy than those who own their home. The literature discussion in Chapter Five stated that poor tenure has negative implications for emotional well-being and stress. If residents are evicted from their rented properties, they could have to relocate to a different neighbourhood, thus they lose many of their local social ties. Children may have to move school, and workers travel a considerable distance to their workplace. The analysis in Chapter Seven compared residents' perception of their tenure with their type of tenure. This revealed that residents who own their home are satisfied with their tenure 97% of the time, while residents who rent their homes only report being satisfied 39.9%. This is significant, as it exposes having ownership of a property increases residential satisfaction, thus contributes to improving QoUL.

Due to the high percentage of dissatisfied residents in Area 36, the subjective reasoning provided by the residents has been analysed. This revealed that of the sample in Area 36 who are negative about their tenure, 93% attribute this to the fact that they do not own their plot. 12% also stated that they believe the housing costs in the area are too high, and 7% commented that their landlord is intimidating. Each of these factors negatively contributes to the perception of tenure. As such, a method of making tenure more secure for residents would be desirable and should be reviewed particularly with regards to Area 36. Methods to improve tenure are discussed further in Chapter Nine.

Education facilities

Education facilities is one of the instances where combining the objective data profiling with the subjective survey data exposed the discrepancy in the felt adversity between the case study neighbourhoods. From reviewing the objective data profiles, one might assume that Area 36 would feel least satisfied with their education facilities as they have the fewest schools per person. However, the subjective assessment displayed that Area 36 are the most satisfied with their education facilities, with 80% of residents stating they believe there are good education facilities in their neighbourhood. Area 49 has more schools per person than Area 36, yet they report high levels of dissatisfaction with their education facilities.

When impelled for reasoning as to why residents of Area 49 perceive the schools to be poor quality, 75% state that they believe it is due to the attendance rate of students in the neighbourhood, and only 25% attribute their negativity to the quality of the school buildings. This displays that the physical school buildings are satisfactory, however, there is a perception that learners are not attending school. This, therefore, requires different intervention from providing new classrooms in Area 49. This is an instance where the personal levels of comparison have influenced the subjective perception of the residents. This reiterates the theory that residents have different judgement criteria, thus, objective data alone is not sufficient to analyse QoUL.

Material Possessions

The economic domain of the QoUL survey exposed significant differences in the prosperity of the case-study neighbourhoods. The material possessions question, in particular, reveals that Areas 18 and 49 are more affluent than those sampled in Area 36. The results of this question visually display the low financial situation in Area 36, and the vast difference it has with the other case studies. This significant disparity between the economic conditions of the neighbourhoods validates the need to tackle QoUL at a neighbourhood level, as there are substantial differences between the

needs of the different neighbourhoods. As such, different priorities should be addressed to best resolve the QoUL of each neighbourhood as there are indicators which are resolved in Areas 18 and 49 which require attention in Area 36. As such, targeting resources at specific aggregated problems provides an efficient means of resolving urban issues.

Conclusion on economic findings

The analysis of the economic data from all of the stages in the multi-layered methodological approach for investigating QoUL has exposed the considerable differences in the financial condition of residents in the case study neighbourhoods. The wealth of an individual is thought to provide a first approximation of their quality of life. However, as this research has reiterated, this approximation is narrow, thus does not consider other aspects which are essential to a person's QoL.

By linking the research across objective and subjective data sources, the discussion has provided a rich understanding of the economic issues that residents in the neighbourhood's face. This is useful for understanding the QoUL of the case study neighbourhoods as the economic condition has a significant impact on residents QoUL. This has exposed that Area 36 is considerably less affluent than the other neighbourhoods investigated. This was particularly demonstrated by the discrepancy in material possessions, as a considerable portion of Area 36 do not own essential belongings. Areas 18 and 49 appear to be relatively affluent neighbourhoods. These findings are echoed in the good physical quality of the neighbourhoods, which are displayed in the neighbourhood profiles. Overall, across the three neighbourhoods, it would be desirable to see an increase in work opportunities, it would be suitable to see an introduction of secure tenure in Area 36, and an improvement in school attainment in Area 49.

8.3.4 The well-being quality of Lilongwe's neighbourhoods

This section has used the same methodology as the previous sections, where Figure 8.7 summarises the percentage of satisfied and dissatisfied residents for each of the subjective questions. Again, this has been used to prioritise issues that require attention to improve the QoUL of residents.

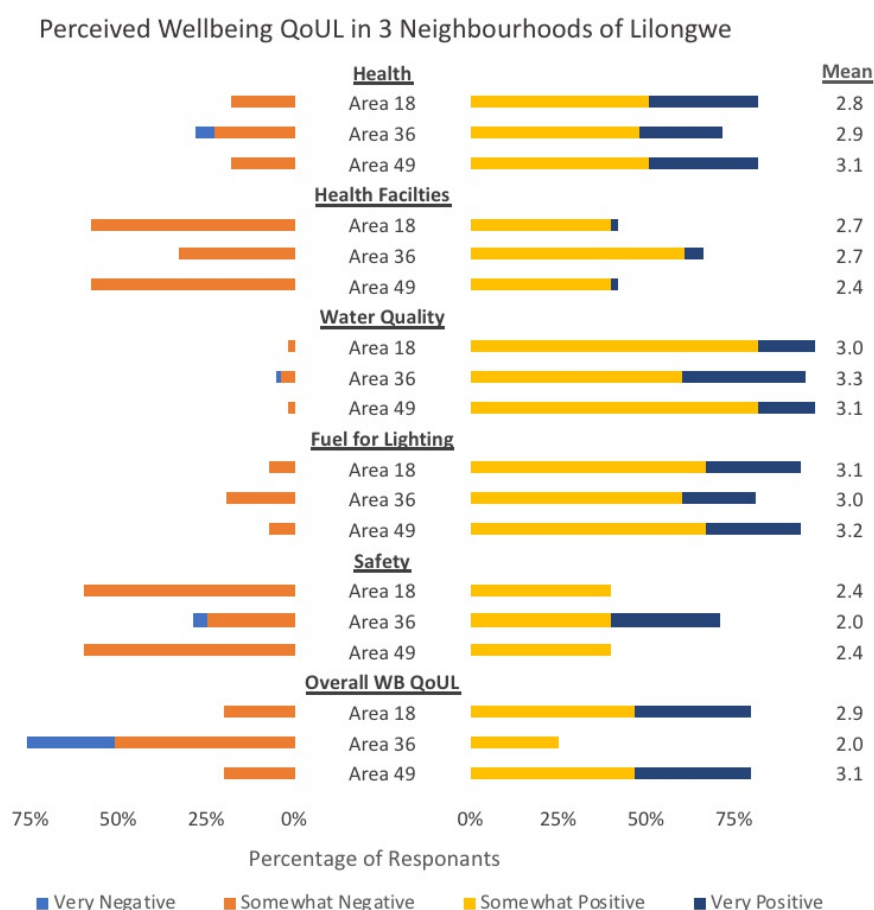


Figure 8.7 Perceived well-being QoUL

Table 8.7 presents the lowest ranking indicators across the three neighbourhoods based on percent of dissatisfied residents. The results from this analysis prove encouraging as the majority of residents are satisfied with the preponderance of in their well-being domain. Residents appear satisfied with their physical health and are content with their source of water. As such, there are few indicators which are considered high priority in this domain. The analysis of the well-being indicators has exposed noteworthy outcomes which may be useful for policymakers and planners in Lilongwe.

	Area 18	Area 36	Area 49
High Priority (75-100% dissatisfaction)		Safety (71%)	
Moderate Priority (51-75% dissatisfaction)			Healthcare Facilities (58%)

Table 8.7 Perceived Prioritised well-being indicators

Urban Safety

The results of the attitude survey place urban safety as a high priority in Area 36. By reviewing the objective data provided in Chapter Six, it was anticipated that Areas 18 and 49 would feel positively about the level of safety in their neighbourhood. Safety is implied in these neighbourhoods through evidence such as the beautifully landscaped gardens. This suggests that residents have a strong sense of place attachment, which has positive implications for public safety. A further physical indicator highlighted in the neighbourhood profile of Area 18 is that plots often have side walls but are open to the street. The literature discussion in Chapter Five discussed that in this context, building sidewalls implies a desire for privacy as opposed to safety, as residents are likely to build their front walls first if they wish to gain a feeling of protection. This suggests that the neighbourhood has a secure atmosphere as residents do not feel the need for front walls. Finally, both Area 18 and 49 are within close proximity to the police station or police headquarters, which are again positive elements of urban safety displayed in the neighbourhood profiles.

The results of the residential attitude survey display that 71% of the population in Area 36 believe that crime is prevalent in their neighbourhood. When prompted for reasoning, 96% of the negative population state that they feel there is a high number of crimes in the neighbourhood. 28% of this sample attribute the wrongdoing to a lack of lighting in the neighbourhood. Chapter Five: Section 4.3, discusses some of the ways that the urban environment can improve the feeling of safety for residents. By lacking safe and secure environments, the use of the public realm and thriving urban environments are threatened (Carmona et al., 2003). As such, safe and secure urban environments are fundamental for a positive feeling of QoUL.

The urban layout can impact the feeling of safety in several ways. One is to ensure spaces are of good quality that residents want to visit, as this will increase the activity, which in turn reduces anti-social behaviour (Bartlett, 1999). Other urban elements include laying eyes on streets (Jacobs, 2011) as having neutral proprietors viewing the street makes it feel safer, thus again encourages people into the spaces. Providing mixed-use buildings also increases the vibrancy of a neighbourhood, as it gives people

a reason to walk on the street and creates extra routes around the neighbourhoods (Jacobs, 2011). At a neighbourhood scale, providing ownership over spaces may improve resident's perception of safety (Newman, 1996). This makes it easier for residents to determine who should be in the spaces, thus making it harder for people to access settings near residents' homes if they should not be there. Other factors which improve residential safety discussed in the Chapter Five include: reducing the number of fast-moving vehicles on the street, minimising air pollution and eradicating water contamination (Carmona et al., 2003). Together, these urban factors help to improve urban safety, which may assist in reducing the perception of crime in Area 36. These factors are converted into recommendations to improve neighbourhood safety in Chapter Nine.

Healthcare facilities

An interesting finding is exposed with regards to the healthcare facilities through combining the objective and subjective data sources. Residents of Area 49 report the lowest satisfaction with the healthcare facilities according to the results of the residential attitude survey. This contradicts the objective data profiles, as Area 49 has more facilities per person than Area 36. As such, it is essential to understand why residents in Area 49 perceive their healthcare facilities undesirably. This requires analysis of the subjective reasoning question in the survey for the low privation in Area 49 to be analysed.

This analysis exposed that 50% of the negative sample believe that there is not adequate medical equipment available in their healthcare facilities, with 46% stating that there are not always drugs available. 31% remarked negatively about the quality of the healthcare workers. However, it is significant that only 4% provided negative comments regarding the quality or quantity of the healthcare infrastructure. This discloses that residents do not believe that they require more facilities, instead they appear to desire better provision of drugs and equipment in their existing facilities. Combining the various data sources has provided a rich understanding of the healthcare situation in the neighbourhood, which results in a reliable proposal to improve the healthcare facilities and best improve the resident's perception. This finding suggests improving the services and provision of drugs in Area 49 as opposed to seeking new facilities.

Health

An interesting finding from the residential attitude survey data is the association between physical health, and having family nearby, or being in a stable relationship. The discussion in Chapter Seven: Section 6.05 'Physical Health', displays that

residents who are in a stable relationship are likely to feel positive about their health. Further, it speculates that residents that have a high number of family members nearby are likely to report positively about their physical health. This information is potentially coincidental; however, the literature in Chapter Five discusses that having propinquity relationships provide support for residents during times of crisis. Furthermore, the literature discusses that having good supportive relationships nearby benefits residents financially, which have positive implications for physical and emotional health. This literature discussion is confirmed in the results of the residential attitude survey. As such, promoting a robust social QoUL appears to have positive implications for health and well-being.

The urban environment contributes towards resident's health in numerous ways. This was discussed in Chapter Five: Section 4.2 'Physical well-being', regarding provision of healthy urban design through delivery of neighbourhood open spaces, safe streets from vehicular traffic and minimising spread of disease through low-density neighbourhoods. The results of the survey further postulate that encouraging residents to have propinquity relationships close by is positive for physical health.

Water Source

The analysis of the residential attitude survey revealed that there is a mixture of water, waste and energy sources used throughout the city. While this information can be found from objective data sources such as neighbourhood profiling and reviewing government documents and the census, it is interesting to use multi-factor analysis to understand the resident's subjective assessment of these objective indicators through the attitude survey.

From the survey analysis, residents who source their water from community standpipes, boreholes or have their water piped into their unit are satisfied over 97% of the time. Residents are almost always satisfied with their source and the quality of their water. This is significant to policymakers and planners as it appears this is not a high priority area for resource allocation as, on the whole, residents appear to be positive about their water. However, by comparing water source with health, it appears there is a relationship between poorer health and using boreholes. While this may be coincidental, the data does postulate that there is an association between these indicators which should be followed up on. This is an example of a situation where correlation does not necessarily provide the causation; however, it is a significant finding which is worth pursuing in future as it affects resident's health.

Conclusion on well-being Findings:

By bringing together the strands of the multi-layered methodological approach for investigating QoUL, it can be concluded that the well-being environment is well perceived by residents. Aspects of this domain were considered high importance to the expert panel, particularly health services, which was ranked third-highest overall importance with an average score of 3.7/4. Physical well-being, urban safety and environmental services were also ranked as high importance to experts, gaining an average score of 3.6, 3.5, and 3.5 out of 4 respectfully. This displays that these indicators contribute considerably to the satisfaction of residents, therefore it is encouraging that residents appear satisfied with the majority of their environmental services and their physical health.

Aspects of urban safety should be reviewed with regards to Area 36. The literature discussion in Chapter Five provided suggestions on how the urban realm can positively contribute to a feeling of safety which may be useful to policymakers and planners in Lilongwe. The only other indicator to gain a low residential score was healthcare facilities in Area 49. Reviewing and merging the data from numerous strands has revealed that the negative perception is related to the services and drugs available as opposed to the quality or quantity of the health services in Area 49. The information from this discussion is used in Chapter Nine to form recommendations for improving the QoUL of residents in Lilongwe.

8.4 Conclusion

This chapter has synthesised and discussed the key findings from the various stages in the multi-methodological approach for investigating QoUL in Lilongwe. This combined multiple source of data and has resulted in a significant quantity of information on the QoUL of neighbourhoods in Lilongwe. This discussion met numerous objectives including validating the importance of the seven interconnected dimensions of QoUL as presented in Chapter Two (Figure 2.18), confirming the significance of using a multi-layered methodology, (as presented in Figure 3.3), and provided insight into the urban environments of the three case study neighbourhoods and hence extend the literature of urban life in Lilongwe, Malawi.

Structurally, the chapter was split across two strands. First the discussion used the findings from the fieldwork to empirically validate the conceptual model from Chapter Two: (Figure 2.8). Secondly, the comprehensive amalgamation of the various stages of multi-methodological approach was used to provide a rich understanding of the quality of urban realm and urban life in the case study neighbourhoods. This confirmed the importance of the mixed methodology as presented in Chapter Three: Figure 3.3.

The conceptual QoUL model guided the thesis from the outset; thus, it was essential to return to the seven interconnected dimensions of QoUL and validate their importance through the empirical research findings. This section of the chapter examined the aspects of the conceptual model to confirm their importance in Malawi. This used statistical analysis, multi-variate analysis and key examples from the observations to highlight the significant importance of the seven interconnected dimensions of QoUL in the fieldwork. Section 2.1: 'The Domain Dimension', used regression analysis to confirm the reciprocal nature of QoUL indicators and domains, illustrating that urban life is formed through the continual interaction between the physical, social, economic and well-being dimensions of urban life. Additionally, this discussion confirmed the important role that health and well-being plays in the urban environment due to its strong or very strong correlation with the other domains, and with life as a whole. This is significant as the well-being domain is not regularly considered as a QoUL dimension in its own right, however this analysis has confirmed its place as one of the four domains of urban life.

The chapter then clarified the important role that personal experience plays in residents' assessment of their urban life using multi-variate analysis. This illustrated that different demographic and socio-economic groups perceive their QoUL differently, which corroborates the literary discussion in Chapter Two: Section 3.4, 'The Personal Dimension'. This confirmed that QoUL is perceived differently by the various age groups, and that work status impacts satisfaction with life. This discussion included examples which relate to lifestyle as well as demographics, to display the range of characteristics that impact resident's perception of their QoUL in Lilongwe. Following this, the temporal nature of the urban environment was visually confirmed in Figure 8.2. This emphasised the need to investigate QoUL at different time scales as the urban environment is never static. Observations must be conducted at various times of the day and week to include both peak and off-peak observations. This discussion further highlighted the need to consider the neighbourhoods past and future when conducting a study, as the past forms the present, which impacts the future QoUL of neighbourhoods.

The last dimension from the conceptual model interrogated is to tailor the indicators to the context under investigation. The discussion provided an example of an essential indicator that impacts residential QoUL, which would be missed if the investigation was not tailored to the context. This highlighted the important role that construction materials play on residential QoUL, which is an indicator which was bespoke to this investigation. This clarified the need to contextualise projects to the factors which are important in each separate urban environment, as advocated by this thesis. The

conclusion from this discussion is that the conceptual model is effective at guiding a QoUL study as it encompasses all the primary elements of a QoUL investigation, as identified by this research.

Having validated the seven interconnected dimensions of QoUL, the focus of the subsequent section was to use the multi-methodological approach to interrogate the various physical, social, economic and well-being indicators. Each strand of research has its strengths, however when combined, the data concludes with reliable and valid inferences about the QoUL in a setting. Using the full data set, the discussion provides an in-depth understanding of the quality of each neighbourhood across a wide spectrum of indicators of urban life. This examination revealed certain indicators which affect residents perceived privations with their QoUL. This discussion allows the data to be scrutinised using information from the various sources, to conclude with a valid inference of the QoUL in each neighbourhood. From this multi-methodological discussion, it is apparent that there are more indicators in Area 36 which require attention than are observed in the other case study neighbourhoods. This is particularly apparent in the physical domain of QoUL. Area 36 is denser than Area 18 or Area 49, which results in less access to green or open space. There are a higher percentage of residents who reside in traditional or combination dwellings, which appears to be unfavourable for their QoUL. Areas 18 and 49 however, are physically good quality neighbourhoods, with landscaping and permeant structures throughout.

Similar to the physical domain, the amalgamated research findings of the social indicators provide a rich understanding of the social issues in the investigated neighbourhoods in Lilongwe. This is particularly evident regarding urban open spaces. By merging the data from the observational assessments with the perception of the residents, the research is able to provide reliable methods to improve the quality of the urban open spaces investigated. Chapter Nine will translate these research findings into a set of recommendations to improve the quality of urban open spaces and enhance the liveability of neighbourhood settings for residents. The residential attitude survey displayed the strong propinquity relationships that neighbours in this setting share, which promotes engagement in the social realm of their neighbourhood. The survey further demonstrates the high levels of satisfaction that residents feel for their leaders, which is positive for QoUL. The social domain is generally well-received by the surveyed residents. The literary discussions confirm the importance of strong social ties and good governance for a resident's QoUL, thus it is beneficial that residents are positive regarding these indicators of urban life.

Following the social domain review, the discussion went on to debate the economic conditions of the neighbourhoods using the amalgamated research findings. The research disclosed that Area 36 is less affluent than Areas 18 or 49. This is illustrated visually by the divergence in material possessions owned in each neighbourhood, as many residents in Area 36 lack essential items. The knowledge from the attitude survey is confirmed in the neighbourhood profiles which reveals Areas 18 and 49 are high physical quality neighbourhoods. The investigation furthermore revealed the importance of secure tenure on residents QoUL. This is an indicator which requires focus to amend as lacking secure tenure has negative implications for residents QoUL. The literary discussions disclosed that lack of secure tenure makes residents feel powerless and has negative implications for QoUL; if residents are evicted, they may lose many social connections, as they may not find another home in the same neighbourhood. As such, recommendations to improve tenure are discussed in the following chapter.

The last domain investigated is the well-being domain. Bringing the strands of research together revealed that this domain is generally well perceived by the residents and appears well refined in the neighbourhood profiles. This is a domain which the expert panel consider as high priority, thus aspects of health and well-being are likely to influence resident's daily life considerably. As such, it is encouraging that residents are satisfied with how their urban environment impacts their health and their access to essential services. Nevertheless, the indicator safety should be reviewed with regards to Area 36 as there is a significant percentage of dissatisfied residents in this neighbourhood. Chapter Nine uses information from the literary discussions combined with the attitude survey to discuss methods where the urban realm can positively contribute towards a feeling of safety.

Combining the residents' subjective assessment from Chapter Seven with the objective data gathered in Chapter Six, confirms the importance of using a multi-layered methodological approach. Linking the findings across the objective and subjective strands provides a rich understanding of the urban issues, resulting in a reliable and valid inference about the QoUL in each neighbourhood. A list of recommendations and suggestions are provided in Chapter Nine to improve the quality of urban life at a neighbourhood scale in Lilongwe. The identified recommendations aim to provide a basis for improving the quality of urban life of residents of Lilongwe's neighbourhoods, as well as improve aspects of the urban realm. The next chapter delivers the final conclusions, recommendations and reflections.

Chapter Nine: Conclusion

9.1 Introduction

This research has investigated the QoUL of three neighbourhoods in Malawi's capital city, Lilongwe. Through this exploratory investigation, the research has designed and tested a theoretical model, methodology and framework, which aims to guide practitioners who are investigating this scholastic topic. Through this exploration the research aims to contribute to urban policies, aiding in the resolution of urban issues in the case-study neighbourhoods. The recommendations for policy are the focus of this chapter.

One of the aims of the research has been to extend the writing on modern African cities, while underpinning the significant role that culture and context play in the discourse of QoUL. This research is one of the first investigations into the urban life of neighbourhoods in Malawi, and thus provides new knowledge on the importance of space to residents and comprehension of how residents react to their urban environments. This knowledge aims to contribute to urban policies in Lilongwe. By so doing, it has been imperative that the research design and test a theoretical model and analytical framework, to guide practitioners who are investigating this complex scholastic discourse within the context of ESA. A fundamental theme of this research has been the importance of deriving and tailoring indicators to the context under investigation. This is carried out across several strands to ensure their importance to the city's residents.

The final contributions of this research are presented in this chapter, by offering a set of recommendations for improving the QoUL of residents in Lilongwe. This proposes methods to improve the quality of neighbourhoods, across a range of small to large scale interventions. The interventions are offered at both strategic and design levels to best resolve the challenges faced. The recommendations include specific methods to improve the QoUL of the neighbourhoods, based on the findings from the amalgamation of the multi-faceted approach to investigating QoUL in Lilongwe's neighbourhoods.

This chapter presents the research conclusions and is conducted across three main strands, starting by discussing the contribution of the research. The contributions of the research each stem from the questions and objectives outlined in Chapter One: Introduction. The chapter then discusses the recommendations of methods to improve the QoUL of residents based on the analysis of the primary and secondary data

sources. Finally, the chapter notes the research conclusions, the practical limitations, and summarises opportunities for future research before providing a final remark.

9.2. Contribution of the Research

This research has investigated the QoUL of three neighbourhoods in Malawi's capital city, Lilongwe. It has designed and tested a theoretical QoUL model and framework for use in QoUL studies in eastern-southern Africa (ESA). The research aims to contribute to urban policies and urban knowledge across four primary strands, which are presented in Figure 9.1. Detailed explanations of how the contributions to knowledge are met are the focus of the following section.

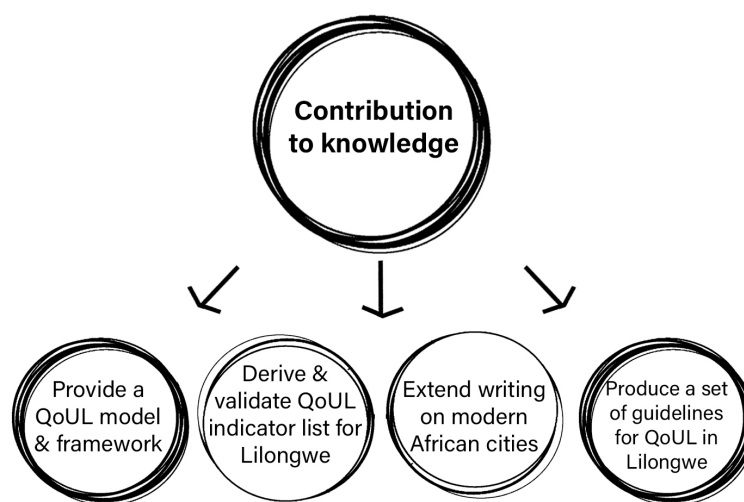


Figure 9.1 Contribution to knowledge

Contribution 1- Designed and tested a new context specific model and multi-layered methodological approach for evaluating QoUL in the context of Lilongwe, Malawi. This aims to guide practitioners in Lilongwe towards resolving urban issues.

The first contribution of the research formed the initial phase of the inquiry, which was addressed by the literature review in Chapter Two and the research design in Chapter Three. The literature review in Chapter Two provided essential knowledge about the seven dimensions of a QoUL study based on sound theories and concepts. The review synthesised existing models for evaluating QoUL, converging them to ascertain the core dimensions of QoUL. This formed the conceptual model, which guided the thesis from the outset (See Figure 2.8). This model was subsequently validated in Chapter Eight based on the empirical thesis research.

Figure 2.8 was operationalised by following the steps provided in the theoretical framework (See Figure 3.16), which was complemented by the multi-layered

methodological approach diagram (See Figure 3.3). Operationalising involves selecting aspects about the study, such as the scale of investigation, and deriving the correct indicators. This then suggests the steps that are taken to conduct a QoUL study, including gaining the data for analysis, which is formed into an output of recommendations. Finally, the framework suggests that the project is repeated after a short time, to understand if the efforts of the practitioners are improving or decreasing the QoUL in the neighbourhoods under investigation.

This discussion is complemented by Figure 3.3, which provides the multi-layered methodological approach to investigating QoUL. Due to the complexity of the topic, multiple methods are required to reach a comprehensive understanding of the QoUL in a neighbourhood. One of the most significant aspects of the multi-layered methodological approach is the need for both objective and subjective methods. This, therefore, recommends the adaption of participatory mechanisms to understand the urban environment from the perspective of the residents. This is due to the concept of QoUL being interpreted differently by each individual; thus, the quality of the urban environment is personal to the observer. By combining objective and subjective data, the investigation reaches a rich understanding of the urban conditions. As such, the methodological approach displays the objective conditions of the city, and its subjective perception in the mind of the users. Participatory mechanisms were included at two phases; the first to involve a panel of experts to feed into the importance of the indicators, to ensure they agree that the indicators are representative of the urban issues felt by residents in Lilongwe. The second involved gaining the perspective of residents regarding their observation of the condition of their neighbourhood through the residential attitude survey.

Together, these three diagrams can be used to guide practitioners in Lilongwe towards resolving their urban issues and the QoUL of residents. By contextualising the research through the expert panel assessment, the research is confident that this tailored approach is appropriate for the context under investigation. The discussion in Chapter eight empirically debated the usefulness of the conceptual model and multi-layered methodological approach. This discussion resulted in the confirmation that these models are effective at guiding a practical investigation into QoUL in Lilongwe, and thus can be used in future explorations. This contribution meets question 1 and objective 1, as outlined in the introduction of this thesis.

Contribution 2- Derived a set of indicators tailored to the context of the study, with potential for replicability in future projects.

The next research contribution informed the second phase of the research. This was achieved across three primary strands, which involved a case study comparison and expert panel assessment in Chapter Four, and contextual literature review in Chapter Five. One of the core themes of this thesis has been to derive and validate the correct indicators for evaluating QoUL in Lilongwe. Indicators form the basis of a project, thus it is essential to ensure the correct indicators are being addressed to positively engage with the conditions of the city and its residents. Reaching a definitive indicator list for all people in all places, is riddled with difficulties. This is due to QoUL being soaked in individual meaning, and important factors will vary depending on the context. As such, indicator lists should be tailored to the setting under investigation, to avoid imposing views of a different context or a different time. A contribution from this research is, therefore, the tailored indicator list, which aims to encompass the important aspects of life to dwellers of neighbourhoods in Lilongwe.

Chapter Four began by gaining in-depth insight into the field of QoUL through a comparison of existing QoUL studies. By synthesising the existing empirical studies, the literature presented a non-contextualised set of indicators and qualities that can be used to measure and investigate QoUL. It was found that QoUL requires investigation through a range of indicators across four main themes: physical, social, economic and well-being. In order to understand the importance of the indicators within the context, the derived indicators were presented to a panel of experts. The experts were asked to rate the importance of each indicator in the context of Lilongwe; this resulted in the validation of 22 indicators. The indicators were then further investigated through a contextual literature review to gather essential knowledge about the meaning of the indicators within Malawi.

Through this rigorous investigation, the research is assured that the indicators addressed by the thesis provide a full picture of the QoUL of residents in Lilongwe. While many of the indicators are similar to ones found in other parts of the world, their meaning is often unique to Malawi. Figures 5.1 - 5.4 provide comprehensive indicator and attribute models which display the indicators and attributes which have been derived and validated to meet this research objective. This is a significant contribution as an agreed indicator list does not exist, thus this research has derived and validated one bespoke to the context under investigation. Although this list is tailored to Malawi, a similar process can be followed to replicate the findings in neighbouring cities. This contribution relates to question 2 and objective 2 from the thesis introduction.

Contribution 3: Extend writing on modern African cities, particularly with regards to their neighbourhoods and urban open spaces.

The results and analysis of the fieldwork inform the third research contribution and are found in Chapters Six, Seven and Eight of the theses. Knowledge regarding how the built environment impacts residential QoUL in ESA was achieved through three strands: the residential attitude survey, neighbourhood profiles and the direct observations.

Understanding how residents use their neighbourhood urban open spaces within Lilongwe was gathered primarily through the neighbourhood profiles, walking tour, and behavioural snapshot observations. The neighbourhood profiles indicated the importance of street life and the social domain of QoUL. The direct observations present how functional and liveable the urban open settings are, and if they enhance the QoUL of residents. These approaches react to the existing physical, social, economic and well-being aspects of the neighbourhoods in Lilongwe. This provided an impressionistic analysis of the lived-in conditions of the urban settings, which pictorially represent the condition of architectural aspects of the neighbourhood such as dwelling typology and streetscape. The structured observational assessments point to what residents do while in urban open spaces, illustrating how they engage with the urban realm. This highlighted the importance of aspects such as shade, spaces to sit, and good quality urban materials.

Having established these objective profiles, the residents' perception of their urban environment and QoUL was gained through the residential attitude survey. This gained the subjective interpretation of the city's residents, which is indispensable in this form of investigation. Using various statistical methods, relationships between indicators were tested to understand how they impact residents QoUL. Particular attributes of the urban environment are shown to strongly impact residents QoUL, be that positively or negatively. These will be elaborated on during the recommendation section of this chapter. By linking the two dialogues of objective and subjective methods, this research has provided a multi-faceted discussion about the relationship between residents and their urban environment within the context of Lilongwe. This has produced new knowledge on how the urban environment is used through the observations, as well as a first-hand understanding of how residents perceive their urban environment. This provides knowledge of how the urban realm impacts residents lives in Lilongwe's neighbourhoods to meet question 3 and objective 3, as outlined in Chapter One.

Contribution 4- Produced a set of guidelines for enhancing the QoUL of neighbourhoods in Lilongwe.

The final contribution of this research is informed by the amalgamation of the analysis of the various stages of the multi-layered methodological approach. The research was brought together in Chapter Eight to provide a discussion of the findings of the research. This highlighted that particular indicators are perceived as satisfactory to residents, while others remain dissatisfactory. Through this, the research has identified areas for resolution in order to enhance the QoUL in Lilongwe's neighbourhoods. The recommendations will now be outlined to meet contribution 4. These aim to positively engage with the case-study neighbourhoods to improve the QoUL of the residents. This addresses question 4 and objective 4 as outlined in the thesis introduction. The recommendations are the focus of the following discussion.

9.3. Recommendations

Based on the results and analysis of the multi-layered methodological approach, several recommendations have come to the foreground which this research believes can positively contribute to the QoUL of residents in Lilongwe's neighbourhoods. Chapter Eight presented the analysis and evaluation of QoUL in the case study neighbourhoods across all strands of the methodological approach. This highlighted that there is a discrepancy in the felt privations of the case study neighbourhoods and pointed to particular indicators which require addressing. This has now been compiled into a list of recommendations.

These recommendations are provided at two levels; the first are design-oriented, which aim to improve the liveability, quality and satisfaction with one's neighbourhood. The second layer are policy-oriented, which focus on larger scale suggestions for conducting studies. These are presented at the neighbourhood scale. The rationale for the recommendations stem from the analysis in Chapters Six and Seven, and the discussion in Chapter Eight.

9.3.1 Design-oriented recommendations

In order to effectively improve residential satisfaction, the urban realm must respond to the needs of residents. As such, practitioners must understand the relationship between people and their everyday environment. The focus of this section is to discuss the recommendations for each neighbourhood based on the findings from the research. While some findings are only related to specific neighbourhoods, their conclusions may be relevant to other neighbourhoods. As such, the recommendations are discussed in the themes of physical, social, economic and wellbeing indicators,

with the particular neighbourhood mentioned in brackets. Based on this discussion, design recommendations are summarised in Figure 9.2, and detailed in the subsequent bullet points.

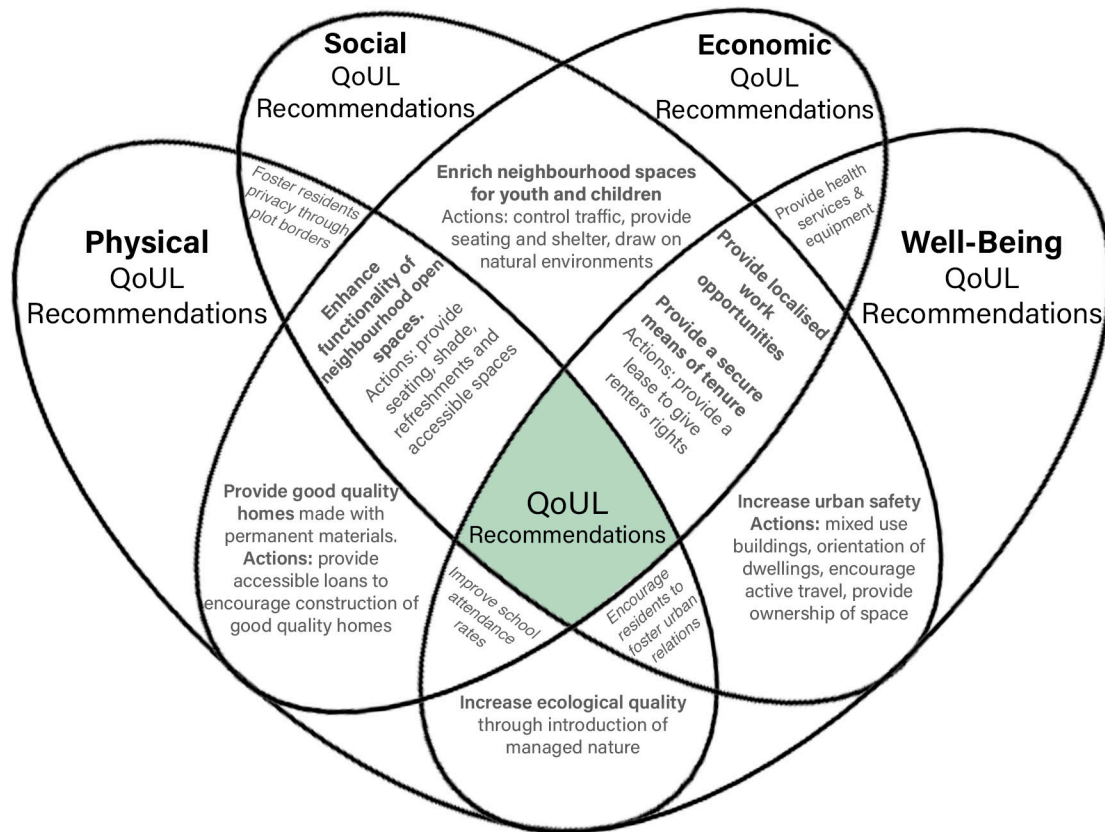


Figure 9.2 QoUL design-based recommendations

Physical QoUL Recommendations:

- **Providing good quality homes made from permanent materials is a key element in increasing users satisfaction (Area 36)**
 - From the analysis, it is evident that smaller, good quality homes are preferable to larger, lower quality homes
 - Of those surveyed, residents who live in permanent dwellings are satisfied with their home 95% of the time, while those who live in traditional dwellings report satisfaction 18% of the time.
 - From the sample population in Areas 18 and 49, there is no notable difference in satisfaction based on house size.
 - Permanent materials may be too expensive for many residents; thus, actions such as providing accessible loans and making building materials available would be desirable to encourage the construction of good quality homes

- ***Increasing the ecological quality of the neighbourhood would be desirable (Area 36)***
 - Residents recognise that there is a lack of available space for large parks or greenland.
 - Beautifully landscaped neighbourhoods are positive, not only for the ecological quality of the neighbourhood, but also have positive implications for safety, place attachment and if used correctly, can provide privacy for gardens
 - Many residents surveyed stated they would welcome the introduction of plants, trees and vegetation in the neighbourhood. This form of managed nature beautifies the neighbourhood, without requiring vast areas of space
- ***Introduce borders between plots for a feeling of privacy (Area 36)***
 - A high percentage of the sample population believe that passers-by can see into their plot. A method for reducing this would be to introduce borders between plots to increase a feeling of privacy for residents
 - Using natural borders further increases the ecological quality of the neighbourhood
- ***Recognise the importance of lowering residential density in future developments***
 - Residents in Area 36 perceive their density negatively
 - From the observation in Area 49, it appears semi-detached dwellings are being erected. This form of house typology may assist in increasing the available green space
 - As such, ensure future developments are lower density than Area 36

Social QoUL Recommendations:

- ***Enhance the liveability and functionality of neighbourhood urban open spaces***
 - Utilise the existing public spaces, as small adaptations will increase the functionality and users' attachment to the spaces, as are outlined below.
 - Provide areas of seating, preferably within shaded spaces. These can be formal or informal settings
 - Provide settings large enough for groups to congregate for periods of time, with good microclimate conditions

- Provide accessible spaces which are walkable and easy to navigate. This requires ensuring ground materials are good quality and that any elevated spaces have handrails or ramps to assist special users
 - Detailed consideration into the requirements of special users in public space should be conducted
 - Ensure spaces are socially inclusive where possible. This should see spaces that welcome all demographics who ideally do not pay to enter.
 - Encourage food and drink vendors into the settings. Refreshments are essential for encouraging residents to stay for longer, and also provide job opportunities for vendors
 - Take advantage of the sightlines between settings and the neighbourhood. Encourage users to transit the space, as they may decide to stop and dwell. If users cannot see a space, they are less likely to visit it
 - Together, these recommendations aim to enhance the liveability of urban open spaces which is desirable, as urban open spaces are beneficial to physical health, emotional well-being and have a relationship with local governance, thus have many positive spill-over effects
- ***Enrich the neighbourhood spaces available for children and youth***
 - Spaces for children can be improved by making small adaptations to existing urban spaces by following the suggestions below:
 - Use participatory methods to understand which spaces are important for children
 - Control traffic to make streets liveable, this makes settings safer and more relaxed for young children to play
 - Provide areas of seating and shelter. This encourages parents into a space, which increases the safety for children
 - Ensure spaces have a good proximity to homes. This makes it possible for children to return home to use facilities such as toilets which reduces the need to provide them within the setting. Being close to home also potentially provides refreshment opportunities for children
 - Draw on natural environment such as trees for shade where possible. These can provide visually pleasing settings

- ***Control traffic to make streets liveable***

- Although mentioned in the previous section, controlling traffic is essential, thus has been repeated as its own recommendation
- Using street layout such as cul-de-sacs and dead-end roads can encourage slower traffic
- Enforce a safe speed limit in built-up areas and close to settings where children play
- This makes streets safer for all pedestrians and cyclists which improves QoUL

Economic QoUL Recommendations:

- ***Provide more localised work opportunities at a neighbourhood scale***

- The analysis made it apparent that all neighbourhoods are dissatisfied with the availability of localised work opportunities
- This could be encouraged by attracting more vendors into public open spaces, as it is identified that certain spaces lack refreshments
- Opening more local amenities where residents can work, particularly in Area 49, as residents there are somewhat dissatisfied with their amenities

- ***Provide a secure means of tenure for renters***

- Renters remain insecure in their perception of their tenure. Insecure tenure has many negative implications, particularly with regards to emotional well-being, stress and if residents lose their home, they may find themselves separated from their existing local social support
- Devise and implement methods to make tenure more secure for renters. This may involve options such as a lease which provide renters with more rights over their home
- Improving tenure is likely to make residents feel more attached to their home, which has positive implications for place attachment. This has constructive consequences for engagement in the social realm of the neighbourhood

- ***Improve the attendance rate of learners (Area 49)***

- The analysis displayed that the physical education facilities are satisfactory, however, residents perceive that there is a low attendance rate among learners in Area 49

- As such, methods should be taken to encourage learners to attend school. This could include incentives to benefit learners who attend school. For example, provision of school meals

Wellbeing QoUL Recommendations:

- ***Increase urban safety and security through urban design decisions***
 - Design neighbourhood spaces that encourage residents to visit. This increased activity reduces anti-social behaviour and fosters strong community engagement
 - Orientate houses to view the street. This positions neutral proprietors to view the street, which increases a feeling of safety
 - Provide a mixture of domestic and commercial buildings in neighbourhoods. This diverse land use gives residents daily requirements to walk in the neighbourhood, including in predominantly residential areas. This extra activity provides further neutral proprietors who are beneficial for reducing crime
 - Control traffic to increase road safety
 - Provide ownership over spaces adjacent to residents' homes. This makes it easier for residents to determine who should be in a space, thus, harder for offenders to access a setting
 - Together, these factors help to improve urban safety, which may assist in reducing crime
- ***Ensure provision of high-quality healthcare services (Area 49)***
 - Although residents in Area 49 are satisfied with the quality and quantity of their healthcare facilities, they remain dissatisfied with the services provided within the facilities. As such, the analysis points to improving the following services:
 - Improve the provision of medical equipment in the services
 - Improve the provision of drugs
 - Ensure sufficient training of healthcare workers
- ***Encourage residents to foster their urban relationships***
 - Having family nearby, and being in a stable relationship, appear to be positive associations for residents' physical health
 - Residents should be encouraged to support one another and reciprocate this support as a means of assisting their health and wellbeing
 - Encourage positive social relationships to provide support in times of need

- Secure tenure may also assist this, as residents are likely to develop strong attachment to their home and community, thus, strengthening the social realm of the neighbourhood
- ***Investigate the relationship between poor health and boreholes***
 - The analysis points to there being a relationship between poor health and using boreholes. This is an issue which should be followed up on by a deeper investigation
 - Minimise water contamination by ensuring boreholes are not in proximity of waste facilities or latrines that could cause contamination

9.3.2 Policy-oriented recommendations

For the above-mentioned indicators to come to fruition, the following policy-oriented recommendations should be considered. This category of recommendations is offered at a government scale and is aimed at practitioners working in Lilongwe who are looking to improve residential QoUL. Governments should focus on establishing healthy urban environments, which positively impact residents QoUL. Five recommendations for government intervention are presented in Figure 9.3

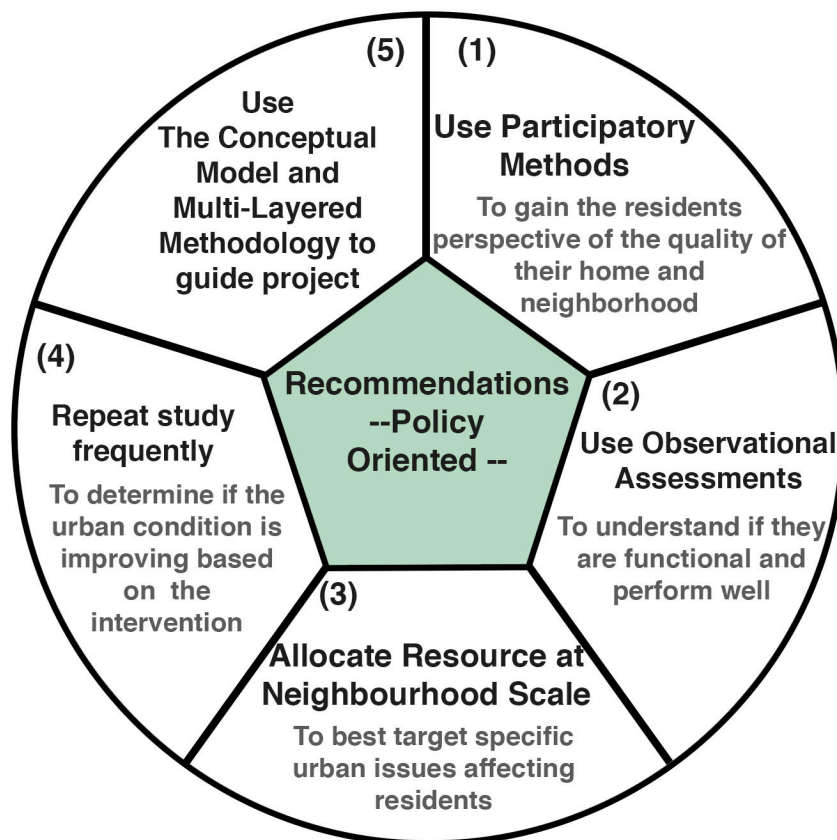


Figure 9.3 Policy Oriented Recommendations. Source- The Author

- ***Use participatory methods to gain residents subjective perspective of the quality of their home and neighbourhood***
 - Residential surveys provide insight into how populaces perceive their urban environment. This indicates aspects which they perceive as good and poor quality, which can be used to allocate resources
 - A drawback of this methodology is that surveys can be costly and time consuming to perform
 - The research therefore suggests complementing surveys with objective data sources and observational assessments if there is not the resource to conduct large-scale surveys
- ***Use observational assessments in urban open spaces to understand if they are functional and perform well***
 - Observational assessments gather a large amount of information in a short space of time.
 - They require minimal training for the fieldworker, thus are an excellent tool for evaluating the quality of urban open spaces
 - These should be combined with residential attitude surveys
- ***Consider resource allocation at a neighbourhood scale to best target urban issues***
 - Aspects of urban life which require attention in one neighbourhood may already be met in other neighbourhoods, thus do not require intervention in all neighbourhoods
 - Funding and resources will go further if they are targeted as specific issues which impact residents QoUL in a particular setting
- ***Repeat methodology frequently to determine if the urban condition is improving or declining based on the intervention***
 - The urban environment changes continuously.
 - It is advisable to repeat participatory methods, to understand if residents perceive indicators of their urban environment as improving, due to the intervention of the resource allocation
- ***Use Figures 2.8, 3.3, and 3.16 to guide studies in investigating QoUL in cities in Malawi***
 - These models and frameworks have been tested in this thesis

- This confirmed their ease of use and that they gather a valuable broad range of information that can be analysed to produce knowledge on the QoUL of residents
- This can then be used to positively engage with the lived-in conditions of the urban environments to improve residential QoUL

9.4. Research Conclusion and Reflection

This research has investigated QoUL and QoL across a range of disciplinary backgrounds including: sociology, environment behaviour studies, psychology, geography and urbanism. By understanding the various disciplinary views, the research was able to form a solid theoretical knowledge of the discourse. This was essential in designing the conceptual model and research framework. Understanding QoUL through the views of a range of disciplines revealed the complexity of the phenomenon under investigation. This pointed to the need for a multi-methodological approach for inquiry, which has informed the research findings.

By utilising exploratory sequential design, this research provided a thorough investigation into QoUL in Lilongwe. This began with an exploratory investigation into the relevant indicators that require examination before conducting the empirical fieldwork. This has provided a multi-faceted methodological approach that adequately responded to the exploratory nature of the research. Through so doing, the research has provided a deep understanding of the topic of QoUL, as well as a systematic investigation into the neighbourhoods in Lilongwe. The three neighbourhoods were purposefully selected to provide a range of urban characteristics and social individualities. By comparing the results across the heterogeneous neighbourhoods, the research has identified different indicators that are significant to the various populations. This confirmed the importance of neighbourhood scale intervention, as indicators that require attention in one neighbourhood are already met in another.

Through this multi-faceted exploration, the research has concluded with a range of recommendations with specified suggestions on methods to fulfil these recommendations. These draw on the various strands of research to conclude with issues which are considered priority to the residents, with explanations on means to resolve the urban issues which are informed through the neighbourhood profiles, direct observations and literary discussions. This research therefore aims to be useful to policymakers and planners in Lilongwe to aid in the resolution of urban issues. The findings can be used to improve policies related to urban planning, housing, infrastructure systems, economic development, health and education.

The research findings have revealed that the multi-method approach is a highly practical strategy as it discusses not only what the concerns are, but also provides means to resolve these concerns. Combining the observational assessment with the residential surveys, allows a fruitful understanding of the neighbourhood for practitioners. This approach to investigating QoUL could be used in future research in Malawi, and perhaps, if the indicators are prioritised correctly, the approach could be replicated to other cities in the region. The focus of the subsequent section is to outline the challenges and limitations faced by the research and suggest possibilities for future research.

9.4.1 Limitations, challenges and suggestions for future research

There were a small number of practical limitations and challenges which effected the research which are outlined subsequently. Additional methodological limitations and challenges were discussed in Chapter Three. This section will correspondingly discuss potential suggestions for future research based on the limitations and challenges presented.

The principal challenge with the fieldwork was the process of collecting primary data. This methodological constriction was the implementation of the residential attitude survey. This limitation stems from the fact that local fieldwork assistants were required to conduct the survey. They did so as face to face interviews which are time consuming and costly, as each interview took over an hour to conduct. It would have been ideal to have a larger sample size to participate within the residential attitude survey, as larger samples provide more confidence in the conclusions drawn and are potentially more representative of the conditions of neighbourhoods. Nevertheless, by comparing the data with the census data, it demonstrated that the sample was predominantly representative; thus, the sample was useable. The research could also be repeated to explore the QoUL in other neighbourhoods. This would allow for a comparison with the findings from this thesis to explore conditions which are satisfactory for residents in the various neighbourhoods of Lilongwe. A further limitation with the residential attitude survey is that there was not a large sample of under 18s who took part; thus, this demographic was not fully captured by the investigation. This was an oversight by the researcher, as it should have been within the aims of the investigation to ensure young participants were targeted. Future research should ensure under 18s are included in the participatory methods as it is essential to gain their insight into the condition of their urban environment.

A second suggestion for future research is to consider investigating the spaces specifically for children in Malawi as the current research was not purposely designed to evaluate spaces for children. Spaces for youth were investigated; however, due to the high percentage of young residents in Malawi, further research could examine the quality of children's spaces through direct observations. The evaluations of other open spaces combined with literature have provided a valuable contribution to understanding children's settings in this context. Still, a more in-depth analysis may prove exciting and work to improve such settings in future.

Although each city should be considered by itself, there are aspects of QoUL which could be investigated in neighbouring cities. This methodology may be appropriate in other cities in Malawi, and indeed, if the indicators are reconsidered, the research could potentially be repeated in neighbouring countries. It must be emphasised that the indicators would require review and not be directly implemented in a neighbouring country as there are undoubtedly unique aspects of urban life to each country. However, a similar methodology could be tested in neighbouring countries, to examine the applicability of the recommendations and findings to other cities in the sub-region of ESA. This would be useful as the relationship between residents and their urban environments is critical, and there remains a lack of scholastic engagement in cities within the ESA sub-region. While this investigation has provided a route map for conducting such studies, future research may involve replicating the methodology to neighbouring cities and countries to expand the engagement in the urban realm and urban life in ESA.

A final suggestion for future research would be to focus on the health and wellbeing related aspects of QoUL. There has been a recent surge in the need for understanding the importance of the impact of the urban environment on residents due to the current health pandemic of Covid-19 (Salama, 2020; Shenker, 2020; Gilbreath, 2020; Badger, 2020). As such, understanding the relationship between residents and their urban environment has never been more relevant. This pandemic has highlighted the importance of healthy urban environments for residents QoUL during such a critical health crisis. Understanding and investigation into how urban environment impacts residents physical and emotional health has been emphasised during the pandemic on a global scale. Improving urban open spaces at a neighbourhood scale is essential as these remain the settings which the population can access, as residents should be staying local to minimise the spread of infection. The thesis has highlighted the significant role that health plays in the urban environment, which could be investigated further. As such, a detailed investigation into how the urban environment impacts the health of residents in the context of Malawi is a beneficial future research interest.

Bibliography

Abdelhalim, A., 1996. Culture, Environment and Sustainability: Theoretical Notes and Reflections on a Community Park Project in Cairo. In: W. Reilly, ed. *Sustainable Landscape Design in Arid Climates*. Washington: The Aga Khan Trust for Architecture, pp. 49-61.

Abubakar, I. R. & Doan, P. L. (2010). New Towns in Africa: Modernity and/or Decentralization. Presented at the 53rd African Studies Association Annual Meetings, San Francisco, November 18- 21

AfricaNews, 2019. *AfricaNews*. [Online]

Available at: <https://www.africanews.com/2019/04/10/cyclone-idai-s-death-toll-stands-at-847-thousands-need-food-water-and-shelter/>
[Accessed 11 April 2019].

Akinboade, O. A., 2005. A review of women, poverty and informal trade issues in East and Southern Africa. *International Social Science Journal*, 57(184), pp. 255-275.

Alda-Vidal, C., Kooy, M. & Rusca, M., 2018. Mapping operation and maintenance: an everyday urbanism analysis of inequalities within piped water supply in Lilongwe, Malawi. *Urban Geography*, 39(1), pp. 104-121.

Almanasreh, E., Moles, R. & Chen, T. F., 2019. Evaluation of methods used for estimating content validity. *Research in Social and Administrative Pharmacy*, 15(2) pp. 214-221.

Anderson, J. E., Jenkins, P. & Nielsen, M., 2015. Who plans the African city? A case study of Maputo: Part 1- The structural Context. *International Development Planning Review*, 37(3) pp. 331-352.

Ansell, N. & Blerk, L., 2005. "Where we stayed was very bad..." migrant children's perspectives on life in informal rented accommodation in two southern African cities. *Environment and Planning*, 37(3) pp. 423-440.

Badger, E., 2020. *Density Is Normally Good for Us. That Will Be True After Coronavirus, Too.*, Chicago: The New York Times.

Bahaji, B., 2020. Covid-19 impact could be 'disastrously high' in poverty-stricken Malawi. *UN News*, 2 May.

Banerjee, T., 2007 [2001]. The future of public spaces: beyond invented streets and reinvented places. In: M. Carmona & S. Tiesdell, eds. *Urban Design Reader*. New York: Routledge, pp. 153-162.

Banks, M., 2007. Visual methods and field research. The SAGE Qualitative Research Kit. In: U. Flick, ed. *Using Visual Data in Qualitative Research*. London: SAGE Publications Ltd, pp. 57-92.

Bartlett, S., 1999. Children's experience of the physical environment in poor urban settlements and the implications for policy, planning and practice. *Environment & Urbanization*, 11(2), pp. 63-74.

Becker, R. A., Denby, L., McGill, R. & Wilks, A. R., 1987. Analysis of Data from the Places Related Almanac. *The American Statistician*, 41(3), pp. 169-186.

Beecham, S., Hall, T., Britton, C., Cottee, M., Rainer, A., 2005. Using an expert panel to validate a requirements process improvement model. *The Journal of Systems and Software*, 76(3) pp. 251-275.

Bonham, G. S., Basehart, S., Schalock, R. L., Marchand, C. B., Kirchner, N., & Rumenap, J. M. (2004). Consumer-based quality of life assessment: The Maryland Ask Me Project. *Mental Retardation*, 42 (5), 338-355.

Bosselmann, P., 2007 [1998]. Images in motion. In: M. Carmona & S. Tiesdell, eds. *Urban Design Reader*. New York: Routledge, pp. 267-292.

Bourrie, D. M., Cegielski, C. G., Jones-Farmer, L. A. & Sankar, C. S., 2014. Identifying Characteristics of Dissemination Success Using an Expert Panel. *Journal of Innovative Education*, 12(4), pp. 357-380.

Brady, P. J., Song, H.-J. & Butler III, J., 2017. Using an expert panel to develop social support program sequencing for young adults with type 1 diabetes. *Health Promotion Practice*, 18(6), pp. 789-797.

Brown, D., 2011. Making the linkages between climate change adaption and spatial planning in Malawi. *Environmental Science & Policy*, 14(8), pp. 940-944.

Bryceson, D., 2006. Fragile Cities: Fundamentals of Urban Life in East and Southern Africa. In: D. Bryceson & D. Potts, eds. *African Urban Economies: Viability, Vitality or Vitation*. Basingstoke UK: Palgrave Macmillan, pp. 3-38.

- Bryceson, D. F., Mbarara, T. C. & Maunder, D., 2012. Livelihoods, daily mobility and poverty in sub-Saharan Africa. *Transport Reviews*, 23(2), pp. 177-196.
- Camagni, R., Capello, R. & Nijkamp, P., 1998. Towards sustainable city policy: an economy-environment technology nexus. *Ecological Economics*, Volume 24, pp. 103-118.
- Camfield, L. & Skevington, S., 2008. On subjective well-being and quality of life. *Journal of Health psychology*, 13(6), pp. 764-775.
- Campbell, A., Converse, P. E. & Rodgers, W. L., 1976. Introduction. In: *The Quality of American Life. Perceptions, Evaluations and Satisfaction*. New York: Russell Sage Foundation, pp. 1-18.
- Carmona, M., 2010. Contemporary Public Space, Part Two: Classification. *Journal of Urban Design*, 15(2), pp. 157-173.
- Carmona, M., Heath, T., Oc, T. & Tiesdell, S., 2003. The Social Dimension. In: *Public Places Urban Spaces. The Dimensions of Urban Design*. Oxford: Elsevier Ltd, pp. 106-129.
- Carmona, M. & Tiesdell, S., 2007. Section Seven. The Temporal Dimension. In: M. Carmona & S. Tiesdell, eds. *Urban Design Reader*. London and New York: Routledge, pp. 263-266.
- Carr, D., Freedman, V. A., Cornman, J. C. & Schwarz, N., 2014. Happy Marriage, Happy Life? Marital Quality and Subjective Well-being in Later Life. *Journal of Marriage and Family*, Volume 76, pp. 930-948.
- Cicerchia, A., 1996. Indicators for the measurement of the quality of urban life. What is the appropriate territorial dimension?. *Social Indicators Research*, Volume 39, pp. 321-358.
- Cilliers, J., Hughes, B. & Moyer, J., 2011. *African Futures 2050*, Pretoria: Institute for Security Services.
- Cobbinah, P. B. & Barkwah, R. M., 2017. Toward a more desirable form of sustainable urban development in Africa. *African Geographical Review*, 36(3), pp. 262-285.
- Cooper, C., Bebbington, P. & Livingston, G., 2011. Cognitive impairment and happiness in old people in low and middle income countries: results from the 10/66 study. *Journal of Affective Disorders*, Volume 130, pp. 198-204.
- Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* (4th ed.). Thousand Oaks, CA: Sage.

Creswell, J. W., 2003. *Research design: qualitative, quantitative and mixed method approaches*. 2nd ed. Newbury Park, California: Sage Publications.

Creswell, J. W., 2015a. Chapter 2: Steps in Designing a Mixed Methods Study. In: *A Concise Introduction to Mixed Methods Research*. London: SAGE Publications Ltd, pp. 10-21.

Creswell, J. W., 2015b. Chapter 4: Basic and Advanced Mixed Methods Designs. In: *A Concise Introduction to Mixed Methods Research*. London: SAGE Publications Ltd, pp. 34-50.

Crotty, M., 1998. Introduction: the research process. In: *The foundations of social research; meaning and perspective in the research process*. London: SAGE Publications, pp. 1-17.

Cummins, R. A. (1996). The domain of life satisfaction: An attempt to order chaos. *Social Indicators Research*, 38, 303–332.

Das, D., 2008. Urban Quality of Life: A Case Study of Guwahati. *Social Indicators Research*, Volume 88, pp. 297-310.

Davis, L. L., 1992. Instrument review: Getting the most from a panel of experts. *Applied Nursing Research*, 5(4), pp. 194-197.

Day, C. & Midbjer, A., 2007. *Environment and Children*. First ed. Oxford: Elsevier Ltd.

Demissie, F., 2009. Imperial legacies and postcolonial predicaments: an introduction. In: F. Demissie, ed. *Postcolonial African Cities*. London: Routledge, pp. 1-10.

Diener, E., 1995. A value based index for measuring national quality of life. *Social Indicators Research*, Volume 36, pp. 107-127.

Diener, E. & Suh, E., 1997. Measuring quality of life: economic, social and subjective indicators. *Social Indicators Research*, Volume 40, pp. 189-216.

Diner, E. & Tov, W., 2007. Subjective Well-Being and Peace. *Journal of Social Issues*, 63(2), pp. 421-440.

Durston, S. & Nashire, N., 2001. Rethinking poverty and education: an attempt by an education programme in Malawi to have an impact on poverty. *Compare: A Journal of Comparative and International Education*, 31(1), pp. 75-91.

Elkan, W., 1967. Circular Migration and the Growth of Towns in East Africa. *Int'l Lab*, Volume 96, pp. 581-589.

Englund, H., 1996. Between God and Kamuzu: the tradition to multiparty politics in central Malawi. In: R. Werbner & T. Ranger, eds. *Postcolonial Identities in Africa*. London: Zed Books Ltd, pp. 107-135.

Englund, H., 2002. The village in the city, the city in the village, migrants in Lilongwe. *Journal of Southern African Studies*, 28(1), pp. 137-154.

Esmaeilpoorarabi, N; Yigitcanlar, T., Guaralda, M., 2016. Towards an Urban Quality Framework: Determining Critical Measures for Different Geographical Scales to Attract and Retain Talent in Cities. *International Journal of Knowledge-Based Development*, 7(3), pp. 290-312.

Felce, D. & Perry, J., 1995. Quality of Life: Its Definition and Measurement. *Research in Developmental Disabilities*, 16(1), pp. 51-74.

Franz, J., 1994. A critical framework for methodological research in architecture. *Design Studies*, 15(4), pp. 433-447.

Galliers, R. D. & Huang, J. C., 2012. The teaching of qualitative research methods in information systems: an explorative study utilizing learning theory. *European Journal of Information Systems*, 21(2), pp. 119-134.

Gasper, D., 2006. Culture and Development. In: D. A. Clark, ed. *The Elgar Companion to Development Studies*. Cheltenham. UK: Edward Elgar, pp. 96-101.

Gavrilidis, A; Ciocănea, C; Niță, M; Onose, D; Năstase, I., 2016. Urban Landscape Quality Index – Planning Tool for Evaluating Urban Landscapes and Improving the Quality of Life. *Procedia Environmental Sciences*, Volume 32, pp. 155-167.

Gehl, J., 1987. *Life between buildings: Using public space*. s.l.:Van Nostrand Reinhold.

Gehl, J & Svarre, B. 2013. *How to Study Public Life: Methods in Urban Design*. Copenhagen: Island Press.

Gerke, W. J. C & Viljoen, C J. 1968. *Master plan for Lilongwe, the capital city of Malawi*. Cape Town: Purnell.

Gilbreath, A., 2020. *Escaping Coronavirus lockdown*, Rambalac: Longreads.

- Godard, X., 2011. Poverty and Urban Mobility: Diagnosis Toward A New Understanding. In: H. T. Dimitriou & R. Gakenheimer, eds. *Urban Transport in the Developing World: A Handbook of Policy and Practice*. Cheltenham: Edward Elgar Publishing Limited, pp. 232-261.
- Grant, J. S. & Davis, L. L., 1997. Focus on Quantitative Methods. Selection and use of content experts for instrument development. *Research in Nursing & Health*, 20(3), pp. 269-274.
- Groat, L. & Wang, D., 2013. Systems of Inquiry and Standards of Research Quality. In: *Architectural Research Methods*. Hoboken, New Jersey: John Wiley & Sons, Inc, pp. 63-100.
- Gumede, V., 2018. Social policy for inclusive development in Africa. *Third World Quarterly*, 39(1), pp. 122-139.
- Hansen, K. T., 1997. On The Home Front. In: *Keeping House in Lusaka*. Columbia: Columbia University Press, pp. 94-117.
- Hart, K., 1973. Informal Income Opportunities and Urban Employment in Ghana. *The Journal of Modern African Studies*, 11(1), pp. 61-89.
- Helliwell, J., Layard, R. & Sachs, J. 2013. *World Happiness Report*, New York: UN Sustainable Development Solutions Network.
- Hersperger, A., Knopf, M., Siegreid, A. & Kienast, F., 2017. Evaluating outcomes in planning: Indicators and reference values for Swiss Landscapes. *Ecological Indicators*, Volume 77, pp. 96-104.
- Hicks, J. & Hicks, J., 2005. Razor blades and teddy bears- the health and safety protocol. In: M. Dudek, ed. *Children's Spaces*. Oxford: Architectural Press, pp. 195-214.
- Hirsch, W. Z., Sonenblum, S. & Dennis, J. S., 1971. Application of input- output techniques to quality of urban life indicators. *Kyklos*, 24(3), pp.551-533
- Hjelm, L., Handa, S., Hoop, J. d. & Palermo, T., 2017. Poverty and perceived stress: Evidence from two unconditional cash transfer programs in Zambia. *Social Science and Medicine*, Volume 177, pp. 110-117.
- Howe, J. D. G. F., 2001. Poverty and Urban Transport in East Africa. *Municipal Engineer*, 145(4), pp. 267-271.

Hyrkäsa, K., Appelqvist-Schmidlechner, K. & LeaOksa, 2003. Validating an instrument for clinical supervision using an expert panel. *International Journal of Nursing Studies*, 40(6), pp. 619-625.

Ilic, I., Millic, I. & Arandelovic, M., 2010. Assessing Quality of Life: Current Approaches. *Acta Medica Mediana*, 49(4), pp. 25-33

Jacobs, A. & Appleyard, D., 2003 [1987]. Towards an Urban Design Manifesto. In: R. T. LeGates & F. Stout, eds. *The City Reader*. London: Routledge, pp. 437-447.

Jacobs, J., 2011. The Uses of Sidewalks: Safety. In: *The death and life of great American cities*. New York: Modern Library, pp. 37-71.

Jeffres, L. W. & Dobos, J., 1995. Separating people's satisfaction with life and public perceptions of the quality of life in the environment. *Social Indicators Research*, 34(2), pp. 181-211.

Jenkins, P., 2013a. 3. Contextualisation at Macro-Level. In: *Urbanization, Urbanism and Urbanity in an African City*. New York: Palgrave MacMillan, pp. 47-78.

Jenkins, P., 2013b. Introductory Material. In: *Urbanisation, Urbanism and Urbanity in an African City. Home Spaces and House Cultures*. New York: Palgrave MacMillan, pp. 1-43.

Jenkins, P., 2013c. Key Issues Arising. In: *Urbanization, Urbanism and Urbanity in an African City*. New York: Palgrave MacMillan, pp. 199-220.

Jorm, A. F., 2015. Using the Delphi expert consensus method in mental health research. *Australian & New Zealand Journal of Psychiatry*, 49(10), pp. 887-897.

Jul-Larsen, E. & Mvula, P., 2009. Security for Many or Surplus for the Few? Customary Tenure and Social Differentiation in Southern Malawi. *Journal of Southern African Studies*, 35(1), pp. 175-190.

Kadzamira, E. & Rose, P., 2003. Can free primary education meet the needs of the poor?: Evidence from Malawi. *International Journal of Education Development*, 23(5), pp. 501-516.

Kahneman, D. & Riis, J., 2005. Living and thinking about it: Two perspectives on life. In: N. Baylis, F. Hupper & B. Keverne, eds. *The science of well-being*. Oxford: Oxford University Press, pp. 285-301.

Kalipeni, E., 1997. Contained urban growth in post-independence Malawi. *East African Geographical Review*, 19(2), pp. 49-66.

Kalipeni, E., 1999. The spatial context of Lilongwe's growth and development. In: E. Kalipeni & P. T. Zeleza, eds. *Scared spaces and public quarrels*. s.l.:Africa World Press , pp. 73-109.

Kamp, I., Leidelmeijer, K. & Marsman, G. & H. A., 2003. Urban Environmental Quality and Human Well-Being. Towards a Conceptual Framework and Demarcation of Concepts; a Literature Study. *Landscape and Urban Planning*, 65(1-2), pp. 5-18.

Kashef, M., 2016. Urban livability across disciplinary and professional boundaries. *Frontiers of Architectural Research*, 5(2), pp. 239-253.

Kaspin, D., 1995. The Politics of Ethnicity in Malawi's Democratic Transition. *The Journal of Modern African Studies*, 33(4), pp. 595-620.

Khavul, S., Bruton, G. D. & Wood, E., 2009. Informal Family Business in Africa. *Entrepreneurship, Theory and Practice*, pp. 1219-1238.

Kita, S. M., 2017. Urban vulnerability, disaster risk reduction and resettlement in Mzuzu city, Malawi. *International Journal of Disaster Risk Reduction*, Volume 22, pp. 158-166.

Kitayama, S. & Markus, H. R., 2000. The pursuit of happiness and the realisation of sympathy: cultural patterns of self, social relations and well-being. In: E. Diner & E. M. Suh, eds. *Culture and Subjective Well-Being*. Cambridge, Massachusetts: MIT Press, pp. 113-128.

Kivunja, C. & Kuyini, A. B., 2017. Understanding and applying research paradigms in educational contexts. *International Journal of Higher Education*, 6(5), pp. 26-41.

LAB-Project-Team, 2013. *City of Lilongwe Biodiversity Report*, Cape Town: Local Action for Biodiversity.

LAB-Project-Team, 2013. *City of Lilongwe Biodiversity Report*, Cape Town: ICLEI .

Lee, T. & Marans, R. W., 1980. Objective and Subjective Indicators: Effects of Scale Discordance on Interrelationships. *Social Indicators Research*, Volume 8, pp. 47-64.

- Lewinson, A. S., 2009. Viewing postcolonial Dar es Salaam, Tanzania through civic spaces: a question of class. In: F. Demissie, ed. *Postcolonial African Cities. Imperial Legacies and Postcolonial Predicaments*. Oxon: Routledge, pp. 43-58.
- Lewthwaite, S. & Nind, M., 2016. Teaching Research Methods in the Social Sciences: Expert Perspectives on Pedagogy and Practice. *British Journal of Educational Studies*, 64(4), pp. 1-18.
- Lindstrom, N., 2014. *Survey of Urban Poor Settlements in Lilongwe*, s.l.: s.n.
- Lofti, S. & Solaimani, K., 2009. An assessment of urban quality of life by using analytic hierarchy process approach (Case study: comparative study of quality of life in the North of Iran). *Journal of Social Sciences*, 5(2), pp. 123-133.
- London, F., 2020. *Healthy placemaking: wellbeing through urban design*. London: RIBA Publishing.
- Low, C T., Stimson, R., Chen, S., Cerin, E., Wong, P., Lai, P C., 2018. Personal and Neighbourhood Indicators of Quality of Urban Life: A Case Study of Hong Kong. *Social Indicators Research*, 136(4), pp. 751-773.
- Lund, C., Breen, A., Flisher, A., Kakuma, R., Corrigall, J., Joska, J., Swartz, L., Patel, V., 2010. Poverty and common mental disorders in low and middle income countries: A systematic review. *Social Science & Medicine*, 71(3), pp. 517-528.
- Lyenda, G. & Simon, D., 2006. Gender Relations, Bread Winning, and Family Life in Kinshasa. In: M. J. Murray & G. A. Myers, eds. *Cities in contemporary Africa*. New York: Palgrave MacMillan, pp. 221-240.
- Lynch, K., 1960. *The Image of the City*. Cambridge, Massachusetts, and London, England : The M.I.T Press.
- Lynn, M. R., 1986. Determination and quantification of content validity. *Nursing Research*, 35(6), pp. 382-385.
- Lyons, G., 2010. Quality of Life for Persons with Intellectual Disabilities: A review of the literature. In: R. Kober, ed. *Enhancing the quality of life of people with intellectual disabilities*. Dordrecht Heidelberg London New York: Springer, pp. 73-126.
- MacLean, L. & Salama, A. M., 2019. Towards a context specific and multidimensional quality of urban life model. *Open House International*, 44(1), pp. 25-33.

Madanipour, A., 2003 [1998]. Social Exclusion and Space. In: R. T. LeGates & F. Stout, eds. *The City Reader*. London: Routledge, pp. 181-189.

Malkina-Pykh, I. & Pykh, Y., 2008. Quality-of-life indicators at different scales: Theoretical background. *Ecological Indicators*, 8(6), pp. 584-862.

Manda, M. A. Z., 2007. Mchenga- urban poor housing fund in Malawi. *Environment & Urbanisation*, 19(2), pp. 337-359.

Manda, M. A. Z., 2009. *Water and sanitation in urban Malawi: can the Millennium Development Goals be met? A study of informal settlements in three cities*, London: Human Settlements Group (IIED), pp. 1149

Manda, M. Z., 2014. Where there is no local government: addressing disaster risk reduction in a small town in Malawi. *Environment and Urbanization*, 26(2), pp. 586-599.

Marans, R., 2003. Understanding environmental quality through quality of life studies: the 2011 DAS and its use of subjective and objective indicators. *Landscape and Urban Planning*, Volume 65, pp. 73-83.

Marans, R., 2012. Quality of Urban Life Studies: An Overview and Implications for Environmental-Behaviour Research. *Social and Behavioural Sciences*, Volume 35, pp. 9-22.

Marans, R. & Kweon, B., 2011. The quality of life in metro detroit at the beginning of the millennium. In: R. Marans & R. Stimson, eds. *Investigating Quality of Urban Life*. Dordrecht: Social Indicators Research Series Springer, pp. 163-183.

Marans, R. & Rodgers, W., 1975. Towards an understanding of community satisfaction. In: A. Hawley & V. Rock, eds. *Metropolitan America in Contemporary Perspective*. New York: John Wiley and Sons, pp. 299-352.

Marans, R. & Stimson, R., 2011. An overview of quality of urban life. In: R. Marans & R. Stimson, eds. *Investigating quality of urban life: theory, methods and empirical research*. Dordrecht Heidelberg London New York: Social Indicators Research Series. Springer, pp. 1-29.

Marsella, A. J., Levi, L. & Ekbal, S., 1997. The importance of including quality of life indices in international social and economic development activities. *Applied and Preventive Psychology*, 6(2), pp. 55-67.

Martín, I. L., Fernandez, A., Marin, R., Andrade, B., Valle, J., Juanas, E., Pacsual, B., 2014. Qualitative study of college tutoring through the expert panel method. *Higher Learning Research Communications*, 4(1), pp. 82-90.

Mbembe, A., 1992. Provisional Notes on the Postcolony. *Africa*, 62(1), pp. 3-37.

McCrea, R., Marans, R., Stimson, R. & Western, J., 2011. Chapter 3: Subjective Measurement of Quality of Life Using Primary Data Collection and the Analysis of Survey Data. In: R. Marans & R. Stimson, eds. *Investigating Quality of Urban Life*. New York: Springer, pp. 55-76.

McCrea, R., Shyy, T.-K. & Stimson, R., 2006. What is the strength of the link between objective and subjective indicators of urban quality of life?. *Applied Research in Quality of Life*, 1(1), pp. 79-96.

McCrea, R., Stimson, R. & Western, J., 2005. Testing a moderated model of satisfaction with urban living using data for Brisbane-South East Queensland, Australia. *Social Indicators Research*, Volume 72, pp. 121-152.

Meagher, K., 2005. Social Capital or Analytical Liability? Social Networks and African Informal Economies. *Global Networks*, 5(3), pp. 1470-2266.

Mehta, V., 2014. Evaluating Public Space. *Journal of Urban Design*, 19(1), pp. 53-88.

Mehta, V., 2007. Lively Streets. Determining environmental characteristics to support social behaviour. *Journal of Planning Education and Research*, 27(2), pp. 165-187.

Mercier, C., Peladeau, N. & Tempier, R., 1998. Age, Gender and Quality of Life. *Community mental health journal*, 34(5), pp. 487-500.

Miller, H. J., Witlox, F. & Tribby, C. P., 2013. Developing context-sensitive livability indicators for transportation and planning: a measurement framework. *Journal of Transport Geography*, Volume 26, pp. 51-64.

Mobach, M. P., 2008. Do virtual worlds create better real worlds?. *Virtual Reality*, Volume 12, pp. 136-179.

- Møller, V., 2018. Whatever happened to social indicators in Africa? Whatever happened indeed! A developing world perspective on the Kenneth C. Land and Alex C Michalos report on 'Fifty years after the social indicators movement. *Social Indicators Research*, 135(3), pp. 1009-1019.
- Møller, V. & Schlemmer, L., 1983. Quality of life in South Africa: Towards an instrument for the assessment of quality of life and basic needs. *Social Indicators Research*, 12(3), pp. 225-279.
- Møller, V. & Schlemmer, L., 1989. South African quality of life: A research note. *Social Indicators Research*, Volume 21, pp. 279-291.
- Mostafa, A., 2012. Quality of life indicators in value urban areas: Kasr Elnile Street in Cairo. *Social and Behavioural Sciences*, Volume 50, pp. 254-270.
- Mukherjee, S. & Benson, T., 2003. The determinants of poverty in Malawi, 1998. *World Development*, 31(2), pp. 339-358.
- Mulligan, G. & Carruthers, J. I., 2011. Amenities, Quality of Life and Regional Development. In: R. Marans & R. J. Stimson, eds. *Investigating Quality of Urban Life. Theory Methods and Empirical Research*. New York: Springer Dordrecht Heidelberg London. Social Indicators Research Series, pp. 107-133.
- Munthali, K. G., 2017. Lilongwe Metropolitan Area. In: Y. Murayama, C. Kamusoko, A. Yamashita & R. C. Estoque, eds. *Urban Development in Asia and Africa. Geospatial Analysis of Metropolises*. Singapore: Springer, pp. 319-346.
- Murray, M. & Myers, G., 2006. *Cities in Contemporary Africa*. 1st ed ed. New York: Palgrave Macmillan US.
- Myers, G., 2011. (I)n(f)ormal cities. In: *African Cities. Alternative Visions of Urban Theory and Practice*. London: Zed Books Ltd, pp. 70-103.
- Myers, G. A. & Murray, M. J., 2006. Introduction: Situating Contemporary Cities in Africa. In: G. A. Myers & M. J. Murray, eds. *Cities in Contemporary Africa*. New York: Palgrave MacMillan, pp. 1-25.
- National-Statistics-Office, 2018. *2018 Malawi population & housing census. Be counted. Leave no one behind*, Zomba: Government of Malawi.
- Ndi, A., 2009. Metropolitanism, capital and patrimony: theorizing the postcolonial West African city. In: F. Demissie, ed. *Postcolonial African Cities*. Oxon: Routledge, pp. 11-24.

- Newman, O., 1996. Defensible space principles. In: *Creating defensible space*. Washington: Department of Housing and Urban Development, pp. 9-30.
- Ng, M. K., 2016. The right to healthy place-making and well-being. *Planning Theory and Practice*, 17(1), pp. 3-6.
- Ng'ong'ola, C., 1982. The design and implementation of customary land reforms in central Malawi. *Journal of African Law*, 26(2), pp. 115-132.
- Niehaves, B., 2007. On Epistemological Pluralism in Design Science. *Scandinavian Journal of Information Systems*, 19(2), pp. 93-104.
- Nkomwa, E. C., Kalanda-Joshua, M., Ngongondo, C., Monjerezi, M., 2014. Assessing indigenous knowledge systems and climate change adaption strategies in agriculture: A case study of Chagaka Village, Chikhwawa, Southern Malawi. *Physics and Chemistry of the Earth*, Volume 67-69, pp. 164-172.
- Ogden, J. A., 1996. 'Producing' respect: the 'proper woman' in postcolonial Kampala. In: R. Werbner & T. Ranger, eds. *Postcolonial Identities in Africa*. London: Zed Books Ltd., pp. 165-192.
- Okpala, D. D., 2009. *Regional Overview of the Status of Urban Planning and Planning Practice in Anglophone (sub-Saharan) African Countries*, s.l.: UNHabitat.
- Oldenburg, R., 1999. *The Great Good Place. Cafes, coffee shops, bookstores, bars, bar salons and other hangouts at the heart of the community*. Third ed. New York: Marlowe & Company.
- Olvera, L. D., Plat, D. & Pochet, P., 2008. Household transport expenditure in Sub-Saharan African cities: measurement and analysis. *Journal of Transport Geography*, 16(1), pp. 1-13.
- Pacione, M., 2003. Urban environmental quality and human wellbeing- a social geographical perspective. *Landscape and Urban Planning*, 65(1-2), pp. 19-30.
- Pan, X., Chahal, J. & Ward, R., 2016. Quality of urban life among older adults in the world major metropolises: a cross cultural comparative study. *Ageing & Society*, 38(1), pp. 108-128.
- Parnell, S. & Robinson, J., 2012. (Re)theorizing Cities from the Global South: Looking Beyond Neoliberalism. *Urban Geography*, 33(4), pp. 593-617.

Pasino, P., 2016. *Social and environmental determinants of quality of life : the case of Glasgow*. Glasgow: University of Strathclyde.

Penn, H., 2005. Spaces without Children. In: M. Dudek, ed. *Children's Spaces*. Oxford: Architectural Press, pp. 178-194.

Peters, P. E., 2010. "Our daughters inherit our land, but our sons use their wife's fields": matrilineal-matrilocal land tenure and the New Land Policy in Malawi. *Journal of Eastern African Studies*, 4(1), pp. 179-199.

Peterson, M. & Webb, D., 2006. Religion and Spirituality in Quality of Life Studies. *Applied research in quality of life*, Volume 1, pp. 107-116.

Petric, J., Maver, T., Conti, G. & Ucelli, G., 2002. *Virtual reality in the service of user participation in architecture*. Aarhus, International Council for Research and Innovation in Building and Construction, pp. 83-91

Pieterse, E. & Parnell, S., 2014. Africa's urban revolution in context. In: S. Parnell & E. Pieterse, eds. *Africa's Urban Revolution*. London: Zed Books Ltd, pp. 1-17.

Pike, I. L. & Patil, C. L., 2006. Understanding Women's Burdens: Preliminary Findings on Psychosocial Health Among Dataga and Iraqw Women of Northern Tanzania. *Culture, Medicine and Psychiatry*, pp 299-330

Pirie, G., 2014. Transport pressures in urban Africa: practices, policies, perspectives. In: S. Parnell & E. Pieterse, eds. *Africa's Urban Revolution*. London: Zed Books Ltd, pp. 133-147.

Polit, D. F. & Beck, C. T., 2006. The content validity index: Are you sure you know what's being reported? Critique and recommendations. *Research in Nursing & Health*, 29(5), pp. 489-497.

Potts, D., 1985. Capital relocation in Africa: The case of Lilongwe in Malawi. *The Geographical Journal*, 151(2), pp. 182-196.

Potts, D., 2008. The urban informal sector in sub-Saharan Africa: from bad to good (and back again?). *Development Southern Africa*, 25(2), pp. 151-167.

Probst, P., 2002. Expansion and Enclosure: Ritual Landscapes and the Politics of Space in Central Malawi. *Journal of Southern African Studies*, 28(1), pp. 179-198.

- Punch, K., 2005. *Introduction to social research: quantitative and qualitative approaches*. London: Sage Publications.
- Rakodi, C., 2014. Religion and social life in African cities. In: S. Parnell & E. Pieterse, eds. *African Urban Revolution*. London: Zed Books Ltd, pp. 82-109.
- Raphael, D., Renwick, R., Brown, I. & Rootman, I., 1996. Quality of Life Indicators and Health: Current Status and Emerging Concepts. *Social Indicators Research*, 39(1), pp. 65-88.
- Rapley, M., 2003. *Quality of Life Research: A critical introduction*. London.:SAGE.
- Rice, L., 2019. The nature and extent of healthy architecture: the current state of progress. *International Journal of Architecture Research*, 13(2), pp. 244-259.
- Riege, A. M., 2003. Validity and reliability tests in case study research: a literature review with "hands-on" applications for each research phase. *Qualitative Market Research: An International Journal*, 6(2), pp. 75-86.
- Riise, T., Moen, B. E. & Nortvedt, M. W., 2001. Health-Related Quality of Life and Occupation. *International Society of Quality of Life Research*, 10(3), p. 243.
- Robinson, J., 2006. Post-colonialising urban studies. In: *Ordinary Cities: Between Modernity and Development*. Oxon: Routledge, pp. 1-13.
- Romice, O., Thwaites, K., Porta, S., Greaves., 2016. Urban Design and Quality of Life. In: G. Fleury-Bahi, E. Pol & O. Navarro, eds. *Handbook of Environmental Psychology and Quality of Life Research*. New York: Springer, pp. 241-274.
- Rubio, D. M., Berg-Weger, M., Tebb, S., Lee, S., Rauch, S. 2003. Objectifying content validity: Conducting a content validity study in social work research. *Social Work Research*, 27(2), pp. 94-104.
- Salama, A., 2015. *Spatial Design Education*. Surrey: Ashgate Publishing Limited.
- Salama, A. M., 2019. Methodological research in architecture and allied disciplines. Philosophical positions, frames of reference and spheres of inquiry. *IJAR: International Journal of Architecture Research*, 13(1), pp. 8-24.
- Salama, A. M., 2020. Coronavirus questions that will not go away: interrogating urban and socio-spatial implications of COVID-19 measures. *Emerald Open Press*, 2(14), pp. 1-12.

Salama, A. M. & Azzali, S., 2014. Examining attributes of urban open spaces in Doha. *Urban Design and Planning*, 162(2), pp. 1-13.

Salama, A. M., Remali, A. M. & MacLean, L., 2017. Characterisation and systematic assessment of urban open spaces in Glasgow city centre. *Spatium*, 37(2), pp. 22-33.

Salama, A. M., Remali, A. M. & MacLean, L., 2017. Deciphering urban life: a multi-layered investigation of St. Enoch square, Glasgow. *I-JAR- International Journal of Architecture Research*, 11(2), pp. 137-158.

Salama, A. M. & Wiedmann, F., 2013. Dynamics of population and the urban environment of Doha. In: *Demystifying Doha. On Architecture and urbanism in an emerging city*. Surrey: Ashgate Publishing Limited, pp. 157-202.

Sambira, J., 2013. Africa's mobile youth drive change. *Africa Renewal*, May, 27(1), pp. 19-20.

Sandru, M. I. V., 2012. Quality of life assessment in urban environment using a geographic information systems model. Case study: Braila City. *Romanian Review of Regional Studies*, VIII(2), pp. 25-33

Sanoff, H., 1991. *Visual Research Methods in Design*. London: Routledge

Schalock, R. L., Brown, A., Brown, R., Cummins, R., Felce, D., Matikka, L., Keith, K., Parmenter, T., 2002. Conceptualisation, measurement and application of quality of life for persons with intellectual disabilities: report of an international panel of experts. *Mental Retardation*, 40(6), pp. 457-470.

Schalock, R. L., Keith, K. D., Verdugo, M. A. & Gomez, L. E., 2010. Quality of Life Model Development and Use in the Field of Intellectual Disability. In: R. Kober, ed. *Enhancing the Quality of Life of People with Intellectual Disabilities. From Theory to Practice*. Dordrecht Heidelberg London New York: Springer, pp. 17-32.

Schwartz, S. H., 2012. An Overview of the Schwartz Theory of Basic Values. *Online Reading in Psychology and Culture*, 2(1), pp. 3-20

Shafer, C. S., Lee, B. K. & Turner, S., 2000. A tale of three greenway trails: User perceptions related to quality of life. *Landscape and Urban Planning*, 49(3), pp. 163-178.

- Shek, 2010. Introduction: Quality of Life of Chinese People in a Changing World. *Social Indicators Research*, 95(3), pp. 357-361.
- Shenker, J., 2020. Cities after coronavirus: how covid-19 could radically alter urban life. *The Guardian*, 26 March.
- Simone, A., 2010. The social infrastructure of city life in contemporary Africa. *The Nordic Africa Institute*, Volume 51, pp. 5-33.
- Sirgy, M. J. & Cornwell, T., 2002. How neighbourhood features affect quality of life. *Social indicators research*, Volume 59, pp. 79-114.
- Smith, J. & Lee, K., 2018. From colonisation to globalisation: a history of state capture by the tobacco industry in Malawi. *Review of African Political Economy*, 45(156), pp. 186-202.
- Sommers, M., 2012. Urban youth in Africa. *Environment & Urbanization*, 22(2), pp. 317-332.
- Stiglitz, J., Sen, A. & Fitoussi, J., 2009. *Report by the commission on the measurement of economic performance and social progress*, Paris: www.stiglitz-sen-fitoussi.fr.
- Stimson, R. & Marans, R. W., 2011. Objective measurement of quality of life using secondary data analysis. In: R. W. Marans & R. J. Stimson, eds. *Investigating quality of urban life. Theory, methods and empirical research*. Dordrecht Heidelberg London New York: Springer, pp. 33-76.
- Takane, T., 2008. Customary Land Tenure, Inheritance Rules and Smallholder Farms in Malawi. *Journal of Southern African Studies*, 34(2), pp. 269-291.
- Taylor, B., Fernando, P., Bauman, A., Williamson, A., Craig, J., Redman, S., 2011. Measuring the quality of public open space using google earth. *American Journal of Preventive Medicine*, 40(2), pp. 105-112.
- Tibbalds, F., 1992. *Making people-friendly towns: Improving the public environment in towns and cities*, Harlow: Longman.
- Tuan, Y.-F., 2001. *Space and Place. The perspective of experience*. Minnesota: University of Minnesota Press.
- Tonkiss, F., 2005. Space, the city and social theory. In: *The politics of space: social movements and public space*. Cambridge: Polity Press, pp. 59-79.

Tov, W. & Diener, E., 2007. Culture and Subjective Well-Being. In: S. Kitayama & D. Cohen, eds. *Handbook of cultural psychology*. New York: Guilford, pp. 691-713.

UN-Habitat, 2007. *Enhancing Urban Safety and Security*, Nairobi: UN-Habitat.

UN-Habitat, 2010. *Malawi urban housing sector profile*, Nairobi: UN-Habitat.

UN-Habitat, 2011. *Malawi: Lilongwe Urban Profile*, Nairobi: United Nations Human Settlements Programme.

Vasconcellos, E. A., 2001. Introduction. In: *Urban Transport, Environment and Equity*. Oxon: Earthscan Publications Ltd, pp. 3-10.

Verdugo, M., Schalock, R., Keith, K. & Stancliffe, R., 2005. Quality of life and its measurements: important principles and guidelines. *Journal of Intellectual Disability Research*, 49(10), pp. 707-717.

Weziak-Bialowolska, D. & Mcneely, E., 2018. A new approach to the well-being of factory workers in global supply chains: Evidence from apparel factories in Mexico, Sri Lanka, China and Cambodia. In: *COMPENDIUM- Selected papers on measuring the impacts of business on well-being and sustainability*. s.l.:OECD, pp. 130-154.

Westaway, M. & Gumede, T., 2001. Satisfaction with personal and environmental quality of life: a black South African informal settlement perspective. *Curationis*, 24(2), pp. 213-220.

Witmer, B. G., Bailey, J. H. & Knerr, B. W., 1996. Virtual spaces and real world places: transfer of route knowledge. *Int. J. Human-Computer Studies*, Volume 45, pp. 413-428.

Whyte, W., 1980. *The Social Life of Small Urban Spaces*. Washington DC: The Conservation Foundation.

Wiles, R., Clark, A. & Prosser, J., 2011. Visual Research Ethics and the Crossroads. In: E. Margolis & L. Pauwels, eds. *The SAGE Handbook of Visual Research Methods*. London: SAGE Publications Ltd, pp. 685-706.

World-Bank, 2019. *The World Bank in Malawi*. [Online]
Available at: <https://www.worldbank.org/en/country/malawi/overview>
[Accessed 31st March 2020].

World-Bank, 2020. *Malawi Country Profile*. [Online]

Available at:

https://databank.worldbank.org/views/reports/reportwidget.aspx?Report_Name=CountryProfile&Id=b450fd57&tbar=y&dd=y&inf=n&zm=n&country=MWI

[Accessed 21 July 2020].

Yin, R. K., 2017. *Case Study Research and Applications Design and Methods*. Thousand Oaks, Calif: SAGE Publications.

Zaman, K., Ahmad, A., Hamzah, T. A. A. T. & Yusoff, M., 2016. Environmental Factors Affecting Health Indicators in sub-Saharan African Countries: Health is Wealth. *Social Indicators Research*, 129(1), pp. 215-228.

Zeisel, J., 2016. Chapter 8: Observing environmental behavior. In: *Inquiry by design: tools for environment-behaviour research*. Monterey: Brooks/Cole Publishing Company, pp. 111-136.

Zhang, L., Sun, L., Wang, W. & Liu, J., 2018. Unlocking the door to mobile social VR: Architecture, experiments and challenges. *IEEE Network*, 32(1), pp. 160-165.

Zietz, S., Hoop, J. d. & Handa, S., 2018. The role of productive activities in the lives of adolescents: Photovoice evidence from Malawi. *Children and Youth Services Review*, Volume 86, pp. 246-255.

Appendix 1:
Expert Assessment Accompanying Booklet

Domains and Indicators for Assessing Quality of Urban Life in Lilongwe



QUALITY OF URBAN LIFE HISTORY

Quality of life research has developed as an academic discipline in its own right after the launch of the scientific journal 'Social Indicators Research' in 1974. This was part of the Social Indicators Movement, which developed over the 1960s and 1970s due to the belief that economic indicators alone were not enough to fully demonstrate the quality of life of cities and nations.

Quality of life is now a fast growing discipline, embraced by governments as a means of measuring well-being within and between communities, cities, regions and nation states. Up until the 1970s, the majority of reports were non-spatial despite an interest in area based social indicators. However, an urban trend began emerging in the 1990s in an attempt to give context to quality of life studies, making them more applicable to policymakers and planners.

Interest in the relationship between people and their everyday environment and the degree of satisfaction involved is known as a quality of urban life study.

WHO IS A QUALITY OF URBAN LIFE STUDY FOR?

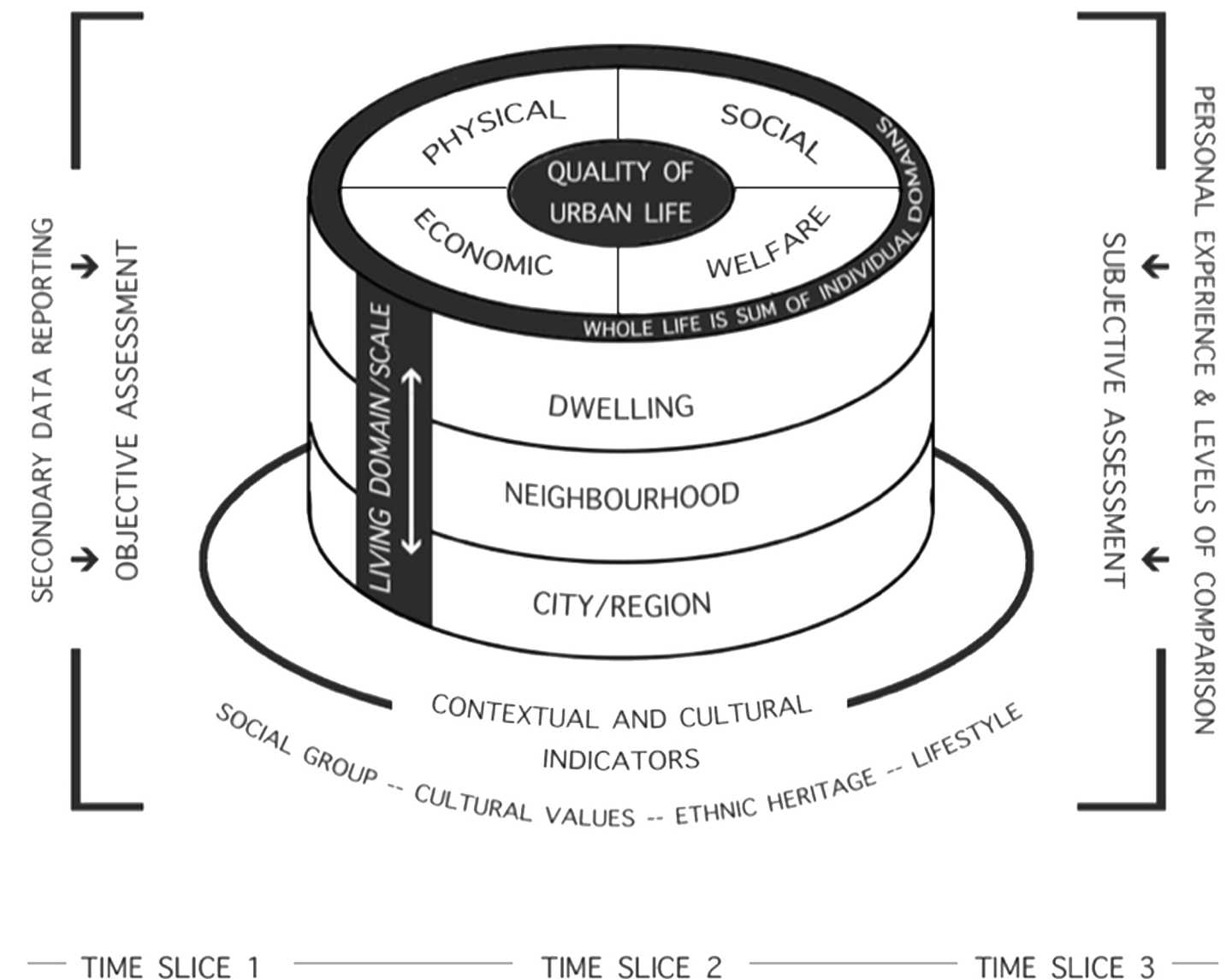
Increasing knowledge and investigating quality of urban life is important as the data produced can be used by policy makers and planners to assess the effectiveness of their urban areas and determine areas for improvement. Quality of urban life data can therefore be used to influence urban policies, thus directly improve the liveability of a city for its residents.

A quality of urban life study should be used to measure relative performances over time, as opposed to for a comparison between cities. Each city should be evaluated separately, using context specific indicators that relate to the urban conditions of that environment, for maximum impact. This booklet has derived a set of indicators for evaluating quality of urban life in Lilongwe, Malawi.

OUTPUTS OF VALUE TO SOCIAL SCIENTISTS AND POLICY MAKERS

- Production of baseline measures of well-being against which comparisons can be made over time
- Knowledge of how satisfactions and dissatisfactions are distributed through society and across space
- Understanding the structure and dependence or interrelationship of various life concerns
- Understanding how people combine their feelings about individual life concerns into an overall evaluation of quality of life
- Achieving a better understanding of the causes and conditions which lead to individuals' feelings of well-being, and of the effects of such feelings on their behaviour
- Identifying problems meriting special attention and possible societal action
- Identification of normative standards against which actual conditions may be judged in order to inform effective policy formation
- Monitoring the effects of policies on the ground
- Promoting public participation in the policy making process

(Pacione, 2003)



Quality of Urban Life Model. MacLean & Salama, 2019.

Domains and Indicators for Assessing Quality of Urban Life in Lilongwe



4 DOMAINS OF URBAN LIFE

This research categorises quality of urban life under 4 headings:
Physical Urban Life
Social Urban Life
Economic Urban Life
Well-Being Urban Life

24 INDICATORS OF URBAN LIFE

This research has sub-categorised the domains into 6 indicators each:

- Physical Urban Life:
Urban form, Building & House Quality; Density & Privacy; Transport & Accessibility; Urban Infrastructure; Ecological Quality
- Social Urban Life:
Culture & Identity; Place Attachment; Sense of Community; Personal Relationships; Public Meeting Spaces; Local Governance
- Economic Urban Life:
Poverty Rates; Tenure & Ownership; (In)Formal Work Status; Education Status; Labour Migration; Income & Expenditure
- Well-Being Urban Life:
Physical Well-Being; Emotional Well-Being; Health Services; Environmental Services & Basic Infrastructure; Urban Safety; Natural Disasters

55 ATTRIBUTES OF URBAN LIFE

The research has then provided 55 attributes that define the indicators of urban life. These are described in more detail on subsequent pages.

The booklet will now discuss the 4 domains of urban life as they relate to Lilongwe.

1.1 URBAN FORM & NEIGHBOURHOOD TYPOLOGIES

1.2 BUILDING AND HOUSING QUALITY

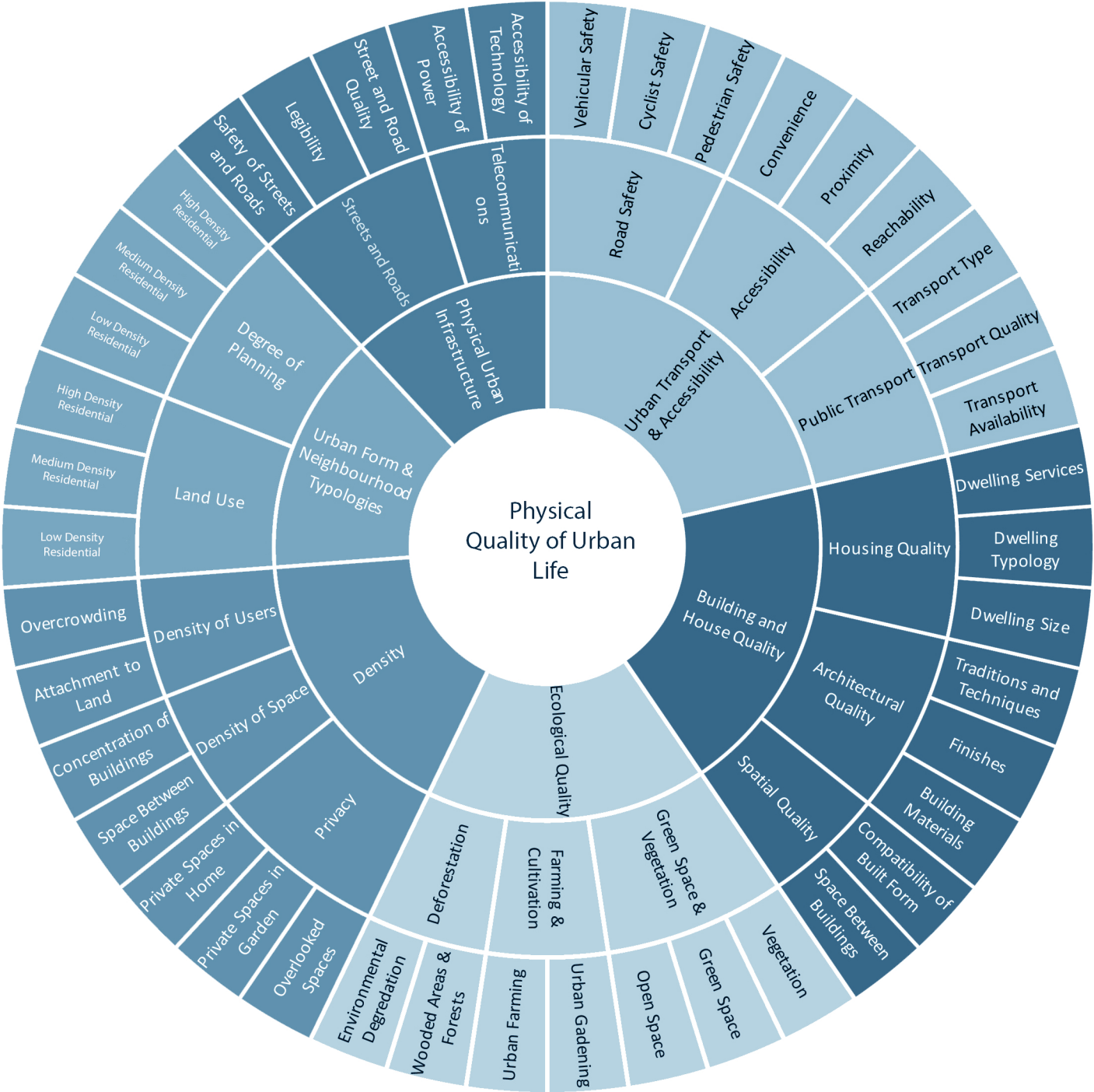
1.3 DENSITY & PRIVACY

1.4 URBAN TRANSPORT & ACCESSIBILITY

1.5 PHYSICAL URBAN INFRASTRUCTURE

1.6 ECOLOGICAL QUALITY

Physical Quality of Urban Life



1.1 URBAN FORM & NEIGHBOURHOOD TYPOLOGIES

Neighbourhoods in Malawi have separate classifications. These were previously described as being across three categories; traditional housing area 'THA' formally planned area, and squatter settlements. THA's were laid-out neighbourhoods with some basic services and infrastructure. The Malawi Housing Corporation (MHC) allocated plots to families for 33, 66 or 99 years, and residents were expected to construct a dwelling within 6 months. This was the planned framework used to construct their home according to their needs and tastes. This classification is no longer seen as appropriate, instead 3 main classifications are used: low density, medium density and high density residential.

a) Degree of Planning
High density
Medium density
Low density

b) Land Use
High density
Medium density
Low density

1.2 BUILDING AND HOUSING QUALITY

The building materials used in Lilongwe today are a mixture of traditional and modern. Permanent materials, including iron sheet and cement floors, are becoming more common. The majority of houses use an indigenous house form.

House typology retain important traditional aspects of house design including separation of lived and functional spaces seeing cooking and sanitation areas found external parts of the home. Verandas remain a significant part of the house typology.

a) Architectural Quality
Traditions,
techniques
Building materials
Finishes

b) Housing Quality
Dwelling size
Dwelling typology
Dwelling services

c) Spatial Quality
Space between
buildings
Compatibility of built
form

1.3 DENSITY & PRIVACY

Density and privacy are complex issues that relate to the physical layout of the neighbourhood, as well as the social implications of private life. Malawians have strong attachment to land for privacy and cultivation purposes. However, as neighbourhoods become congested, their density increases, reducing the available space between buildings. This has negative implications for privacy, health and sanitation.

a) Density of Users
Overcrowding
Attachment to land

b) Density of Space
Concentration of
buildings
Space Between
Buildings

c) Privacy
Private spaces in
home
Private spaces in
garden
Overlooked spaces

1.4 URBAN TRANSPORT & ACCESSIBILITY

Urban transport and accessibility relate to a resident's ability to reach various economic and social facilities including, work, healthcare and leisure facilities.

In ESA, the three most important transport types are walking, cycling and public transport. In Malawi, public transport is characterised by the mini-bus taxi. Transport can be expensive which affects poor populations mobility.

Cycling can be a popular option, however a significant restraint on bicycle use is safety.

a) Public Transport
Transport availability
Transport quality
Transport type

b) Accessibility
Reachability
Proximity
Convenience

c) Road Safety
Pedestrian safety
Cyclist safety
Vehicular safety

1.5 PHYSICAL URBAN INFRASTRUCTURE

The outline design of a street is hugely important for neighbourhoods and cities because they are permanent features which cannot be easily altered.

Common issues with streets and roads include insufficient lighting, potholes, poor road markings and slow response to accidents. Introduction of pedestrian crossings, walkways and cycle routes can improve the quality of streets and roads.

Improved telecommunications can reduce demand on surface traffic as residents do not have to travel to converse.

a) Streets and Roads
Street and road
quality
Legibility
Street and road
safety

b) Telecommunication
Accessibility of
technology
Accessibility of
power

1.6 ECOLOGICAL QUALITY

Lilongwe has greenery and trees integrated within the city design. It has two natural forests; the botanical gardens and the nature sanctuary. Lilongwe has a number of green and open spaces, particularly towards the north and south-east of the city's outskirts.

Deforestation has been a growing concern in Malawi as charcoal is one of the predominant energy typologies for urban residents.

The vast majority of Malawians are farmers. Residents farm both for commercial and personal use.

a) Green Space & Vegetation
Open space
Green space
Vegetation

b) Deforestation
Environmental
degradation
Wooded areas and
forests

c) Farming & Cultivation
Urban farming
Urban Gardening

2.1 CULTURE AND IDENTITY

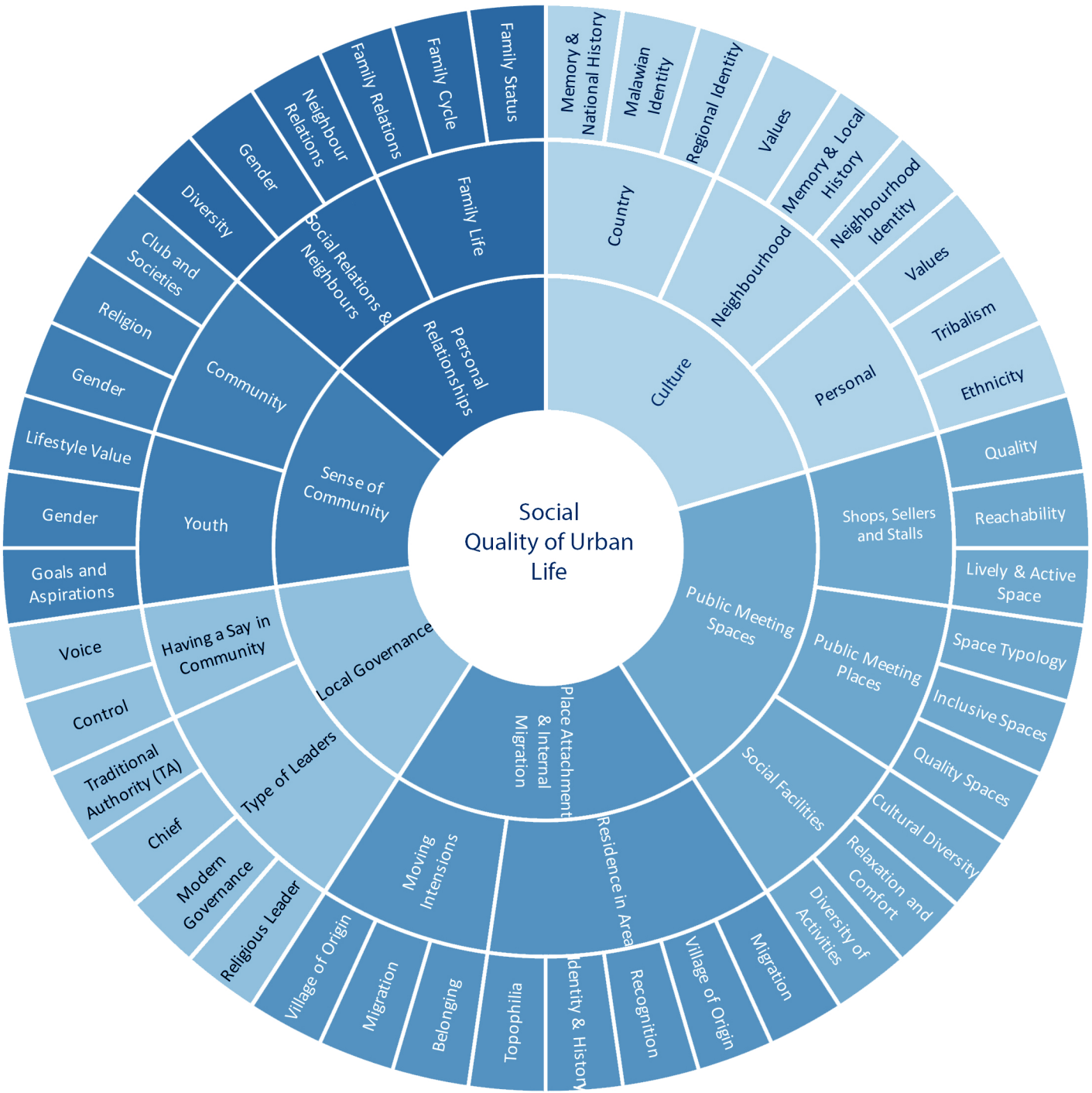
2.2 PLACE ATTACHMENT & MIGRATION

2.3 SENSE OF COMMUNITY

2.4 PERSONAL
RELATIONSHIPS

2.5 PUBLIC MEETING
SPACES

2.6 LOCAL GOVERNANCE



Social Quality of Urban Life

2.1 CULTURE AND IDENTITY

Each culture retains unique qualities, which are important to daily urban life. Different public spaces have their own logic; therefore, residents adapt social behaviour in those spheres. As such, residents mobilise numerous fluid identities.

Ethnicity is often regarded as the primary source of identity in ESA cities, forming the main social web in which people are embedded. Tribal ethnicity is important aspect of life in Malawi, as tribes have annual festivals and cultural displays. Regionalism is a further form of identity in Malawi, be that north, centre or southern. Country-wide culture and identity is also important

a) Personal

*Ethnicity
Tribalism
Values
Identity*

a) Neighbourhood

*Neighbourhood
identity
Memory & local
history
Values*

c) Country

*Regional identity
Malawian identity*

2.2 PLACE ATTACHMENT & MIGRATION

The majority of colonial cities in ESA were posited on circular migration. Residents had an open-ended nature and continued to have close connections to their village of origin. There also remained a significant population to ultimately planned to return to their home village.

Recent trends are starting to change, with second and third generations being born in cities, their attachment to rural ties are beginning to thin. Many residents no longer return to rural homes, and instead are permanent urban dwellers. This is partly due to economic advantages, and partly to modernity that cities provide.

a) Moving Intentions

*Village of origin
Migration
Belonging*

b) Residence in Area

*Topophilia
Identity & history
Recognition
Village of origin
Migration*

2.3 SENSE OF COMMUNITY

People interact and socialise within a number of different groups, be that family, school or work groups, and peer groups. Sense of community therefore important aspect of daily lived-in life.

Being a member of a religious groups is more common than any other organisation. It is thought to influence peoples world-views, their values, behaviours and sense of identity.

Other common societies and groups are youth groups, tribal societies, sports clubs and neighbourhood protection groups.

Being part of a community group positively affects QOUL.

a) Community

*Clubs & societies
Religion
Gender*

b) Youth

*Lifestyle Values
Gender
Goals and
Aspirations*

2.4 PERSONAL RELATIONSHIPS

Urban residents are linked by complex webs of social relationships. These have been evolving from well-defined and regulated to more vague and informal relationships in recent years.

Strong community ties are often formed between people who have close friendships and high levels of trust, however primary social responsibility in Malawi is to the extended family. Neighbours help one another in times of need.

Links and obligations between extended family remain at the heart of many urban households. Marriages are thought to be between extended family, as well as the husband and wife.

a) Family life

*Family status
Family cycle
Family relations*

b) Social Relations & Neighbours

*Neighbour relations
Gender
Diversity*

2.5 PUBLIC MEETING SPACES

Public meeting places are a crucial arena for social relations in cities. They can take many forms. This includes plazas, parks, stadiums, and theatres, as well as, the street, verandas or pipe stand which hold significant meaning to those who use them.

The routes people take often become stages of social interaction. Streets are a space for communities to share and can radiate collective enjoyment and sense of common identity. Verandas are the transitional space between public street and private home and host numerous activities. Stalls are frequented by sellers, and friends who drop by to converse making them lively part of urban life.

a) Social Facilities

*Diversity of activities
Relaxation and
comfort
Cultural diversity*

b) Public Meeting Places

*Quality spaces
Inclusive spaces
Space Typology*

c) Shops, sellers and stalls

2.6 LOCAL GOVERNANCE

Malawi gained independence from Britain in 1964 after almost seventy years of colonialism. This was followed by thirty years of one-party politics until 1994, then multi-party politics which is the system in place today.

Within a community, there are numerous leaders including the traditional authority and chiefs, modern governments, and the religious leaders. Each have a role to play in governing cities and neighbourhoods in ESA.

a) Types of Leaders

*Traditional Authority (TA)
Chief
Modern governance
Religious leaders*

b) Having a Say in Community

*Voice
Control*

3.1 POVERTY RATES

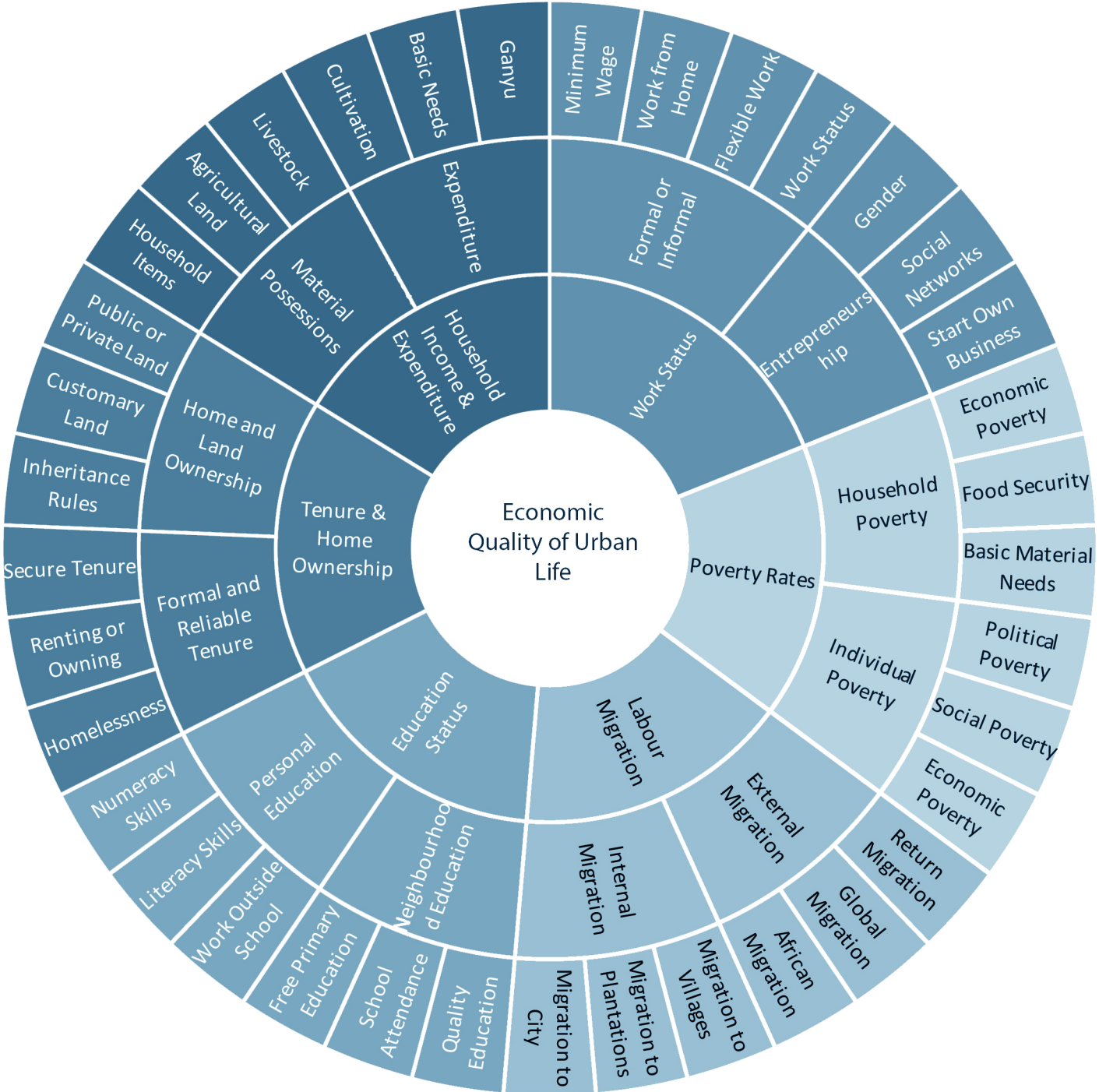
3.2 TENURE & OWNERSHIP

3.3 FORMAL & INFORMAL
WORK STATUS

3.4 EDUCATION STATUS

3.5 LABOUR MIGRATION

3.6 HOUSEHOLD INCOME &
EXPENDITURE



Economic Quality of Urban Life

3.1 POVERTY RATES

Income and consumption are only two measures of poverty; however, poverty cannot be isolated as a purely economic phenomenon. Other factors include lack of; political power, services, facilities, and infrastructure including schools, housing, water points, health centres and roads. There are various social political and historical conditions that combine to create poverty.

Poverty in Malawi is widespread and deep, in terms of economics Malawi is among the 10 poorest countries in the world. As such, around 60% of the population cannot meet basic daily requirements. Household and neighbourhood poverty may refer to different basic needs. Household may include; food, drinking water, shelter and clothes. Neighbourhood level may include; lack of infrastructure and services.

- a) **Individual Poverty**
Economic poverty
Social poverty
Political poverty
- b) **Neighbourhood Poverty**

3.2 TENURE & OWNERSHIP

The only characteristic of a ‘slum’ put forward by the UN that is not related to the physical urban environment is ‘secure tenure’. An overwhelming number of urban dwellers lack legal security of tenure in the form of a deed or title to the property. Renters are identified as the most powerless and invisible informal settlement dwellers. Lack of secure tenure can cause anxiety and stress for urban residents, therefore make it difficult for families to establish a sense of belonging. Forced evictions can happen to those with insecure tenure, which causes a range of negative social and economic impacts. Land rights and ownership rules are fundamental for economic QOUL. Land in Malawi is classified in three categories; public, private and customary land.

- a) **Home and Land Ownership**
Public or private land
Customary land
Inheritance rules
- b) **Formal and Reliable Tenure**

3.3 FORMAL & INFORMAL WORK STATUS

A main characteristic of the postcolonial city is the emergence of the ‘informal’ economy. These provide the livelihoods for millions. Although the formal and informal economies exhibit different characteristics, this does not mean that they do not feel the same economic forces. In fact, the two strands often work together and are strongly linked. The growth of the informal sector can partly be attributes to the rapid urbanisation without significant growth in formal sector jobs. The economy of Lilongwe includes informal industry and entrepreneurs. These are important aspects of urban life and can be difficult to measure through secondary data sources. Many combine entrepreneurial work with domestic life, or work around the family.

- a) **Formal or Informal Work Status**
Work status
Flexible work
Working from home
Minimum wage
- b) **Entrepreneurship**
Start own business

3.4 EDUCATION STATUS

Education is an important driver for a country’s economic potential and performance. Access to education, as well as quality education are fundamental for a society. Education is found to highly correlate with improvements in health and is economically and socially desirable. Malawi introduced free primary education in 1994 which resulted in a dramatic enrolment increase. Until that time, education was not widespread. Increased education put strain on the existing services, compromising quality. Children who attend school often work additional hours either domestic or income generation work.

- a) **Personal Education**
Numeracy skills
Literacy skills
Work outside school
- b) **Neighbourhood Education**
Free primary education
School attendance
Quality education

3.5 LABOUR MIGRATION

The Malawian population has been very mobile, both internally and externally since the pre-colonial period. This has economic routes as migrants often move to find work. Urban areas continue to offer pull factors for the rural dwellers. Malawi’s two main cash crops are tobacco and sugar, which are both very labour intensive. Many residents move from their home to work on the plantations. Estimates propose as much as 25% of Malawi’s male labour force was exported during the 1970s.

- a) **Internal Migration**
Migration to city
Migration to plantations
Migration to villages
- b) **External Migration**
African migration
Global migration
Return migration

3.6 HOUSEHOLD INCOME & EXPENDITURE

The majority of Malawians rely on land-based resources for livelihood. Maize is the main staple food in Malawi. Many households cultivate maize. The agricultural base for the counties economy often results in food insecurity and struggles to sustain economic growth. Cultivation and agricultural land are therefore important assets and material possessions for urban dwellers. Livestock are also a desirable possession. Many youths engage in Ganyu which is informal labour outside the home. This brings in money for basic needs including clothes, groceries and soap. Malawi does not have an extravagant expense culture.

- a) **Expenditure**
Ganyu
Basic needs
Cultivation
- b) **Material possessions**
Livestock
Agricultural land
Household with extravagant items

4.1 PHYSICAL WELL-BEING
(PWB)

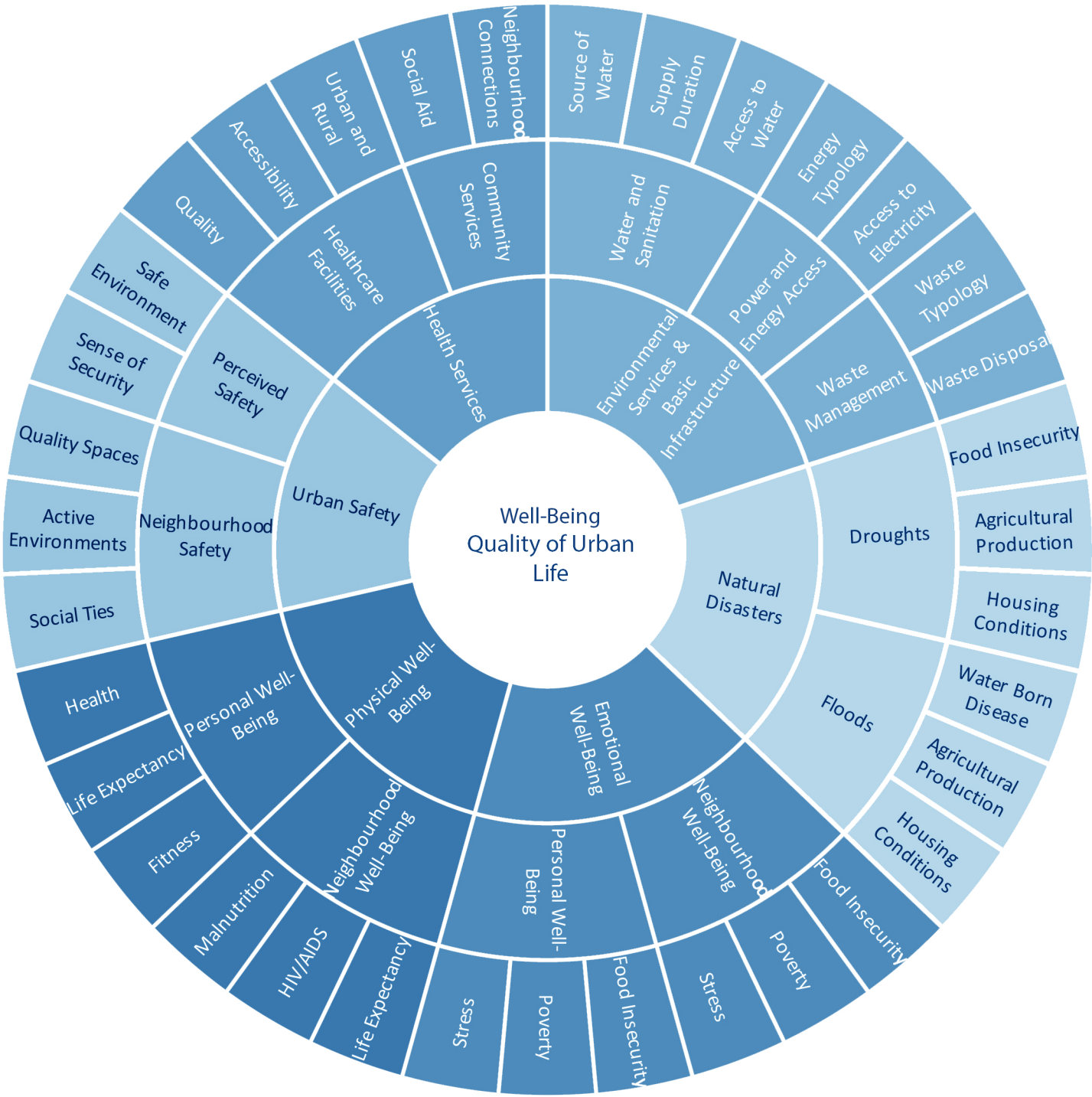
4.2 EMOTIONAL
WELL-BEING (EWB)

4.3 HEALTH SERVICES

4.4 ENVIRONMENTAL
SERVICES & BASIC
INFRASTRUCTURE

4.5 URBAN SAFETY

4.6 NATURAL DISASTER



Well-Being Quality of Urban Life

4.1 PHYSICAL WELL-BEING (PWB)

Physical health is fundamental for a person's QOUL.

Life expectancy in Malawi from birth is 61 for men and 67 for women. There are a number of health concerns that are widespread across the country. HIV/AIDS remains the number one killer in the Malawi, followed by acute respiratory infections, and Malaria is third.

Water related diseases are commonplace in Malawi, discussed further in section 4.4

Malnutrition is a major health problem. These relate to climactic problems discussed in section 4.6.

- a) **Personal Well-Being**
Health
Life Expectancy
Fitness
- b) **Neighbourhood Well-Being**
Malnutrition
HIV/AIDS
Life Expectancy

4.2 EMOTIONAL WELL-BEING (EWB)

The quality of community spaces and the home both affect an individual's physical health and safety, but also emotional and social well-being.

Poverty is a chronic stressor that can lead to poor mental and physical health. Aspects relating to poverty are not purely economic (discussed in section 3.1). Stress can be related to food insecurity and household deaths

Living in poverty can have negative effects on a person's EWB, thus detrimental to QOUL.

- a) **Personal EWB**
Stress
Poverty
Food insecurity
- b) **Neighbourhood EWB**
Stress
Poverty
Food insecurity

4.3 HEALTH SERVICES

The assumption that urban dwellers have a higher standard of health than rural is not always the case for the urban poor. This is because they lack locational position and purchasing power to access adequate sanitation or health facilities.

Urban dwellers support one another through neighbourhood connections, kinship and religious means. Different social groups meet and contribute when members suffer hardship and sickness, thus help to provide services for neighbours in need. This provides an important health service.

- a) **Healthcare Facilities**
Urban and rural
Accessibility
Quality
- b) **Community Services**
Neighbourhood connections
Social aid

4.4 ENVIRONMENTAL SERVICES & BASIC INFRASTRUCTURE

Provision of water, sanitation, drainage and waste removal are essential for improving a person's QOUL as it affects their life across numerous strands, including health and free-time.

Many basic services are not found or are inadequately located in high density residential neighbourhoods. This effects the majority of Lilongwe's urban dwellers

There can be issues with contaminated water. Many wells are erected too close to pit latrines, causing death and disease among residents, particularly youth. Urban layout therefore important for health in informal settlements.

- a) **Waste Management**
Waste disposal
Waste typology
- b) **Water and Sanitation**
Access to water
Supply duration
Source of water
- c) **Power and Energy Access**
Access to electricity

4.5 URBAN SAFETY

In everyday urban environments people face a mixture of threats including; crime, terrorism, fast moving vehicles, air pollution, water contamination and natural disasters.

If neighbourhoods lack safe environments, the use of public realm is threatened.

Quality urban spaces influence social interaction and contribute to the safety felt by residents. Layout of urban environment can contribute to feeling of safety. For example, laying eyes on the street makes it feel safer through building orientation, or mixed-use neighbourhoods encourages users onto the street, thus increasing safety. Well-lit areas also reduce crime. As do strong social ties.

- a) **Perceived Safety**
Safe environment
Sense of community
- b) **Neighbourhood Safety**
Quality spaces
Active environments
Social ties

4.6 NATURAL DISASTERS

Malawi has experienced a number of climactic hazards including; intense rainfall, floods, seasonal droughts, multi-year droughts, dry spells, cold spells, strong winds, thunderstorms, landslides, hailstorms, mudslides and heat waves.

Many informal settlements are located at the periphery of the city and on areas which are prone to multiple hazards. This therefore poses a significant risk to the urban poor as even moderate storms can cause river flows which produce wetlands and damage homes and infrastructure. This is significant as natural disasters can leave people homeless and they can lose loved ones. Neighbourhood location requires planning and thought to minimise risk of destruction

- a) **Floods**
Housing conditions
Neighbourhood location
Agricultural production
Water born disease
- b) **Droughts**
Housing conditions

Towards A Framework For Evaluating Quality of Urban Life in Lilongwe, Malawi



For more information or to get involved with the project please contact:

Laura MacLean
laura.a.maclea@strath.ac.uk

Appendix 2:
Expert Consent Form

Participant information sheet for experts

Name of department: Department of Architecture

Title of the study: Quality of urban life in Lilongwe

Introduction

My name is Laura MacLean, I am a doctoral student from Scotland. This investigation is part of a research cluster involved with architecture and urbanism in cities of the Global South (CRAUCGS) at the University of Strathclyde, Glasgow.

What is the purpose of this research?

The aim of this questionnaire is to prioritise, add or subtract indicators that are important for investigating quality of urban life in the context of Lilongwe, and thus validate the indicators that have been derived from the literature review. The results of this expert survey will directly impact the fieldwork questionnaire that will be used to gain the perspective of Lilongwe's residents.

Do you have to take part?

It is your own decision to take part in the investigation or not. You may choose to withdraw from participation at any time without notice. Refusing to participate or withdrawing will not affect any other aspect of the way you are treated.

What will you do in the project?

You will be asked to complete one short online survey about quality of urban life in Lilongwe. The questionnaire is short and should take no longer than 10 minutes to complete.

Why have you been invited to take part?

You were invited to take part in this investigation because you are:

- an academic based at an academic institution in Malawi
- and/or work with an NGO in Malawi
- and/or are involved with decision making in Malawi
- and/or are involved with urban governance, urban planning or public spaces in Malawi

What information is being collected in the project?

The questions are about the different indicators that are important to urban dwellers in Lilongwe. This is not personal information, but the opinions of experts on different aspects of life that affect the general urban dweller. This will be used to design a questionnaire for residents of Lilongwe.

The place of useful learning

The University of Strathclyde is a charitable body, registered in Scotland, number SC015263

Who will have access to the information?

The information from this survey will remain confidential. I will personally process the information therefore it will not be passed to any third parties.

Where will the information be stored and how long will it be kept for?

The information will be collected and stored on Qualtrics, the online questionnaire software. It will be deleted once the PhD is complete (expected 2020)

Thank you for reading this information – please ask any questions if you are unsure about what is written here.

What happens next?

If you are happy to be involved in the project, you will be asked to sign a consent form to confirm this. If you do not want to be involved, we thank you for your attention.

After the investigation is complete, the researchers will provide feedback to participants through a medium of their choice. You are encouraged to provide us with feedback also on this occasion or on any other moment. The results from this investigation are expected to be published in scientific journals.

Researcher contact details:

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Chief Investigator details:

Prof. Ashraf Salama
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75 Montrose Street G1 1XJ, Glasgow, Scotland
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Telephone: +44 (0) 141 548 3097

The place of useful learning

The University of Strathclyde is a charitable body, registered in Scotland, number SC015263

This research was granted ethical approval by the University of Strathclyde Ethics Committee.

If you have any questions/concerns, during or after the research, or wish to contact an independent person to whom any questions may be directed or further information may be sought from, please contact:

Secretary to the University Ethics Committee
Research & Knowledge Exchange Services
University of Strathclyde
Graham Hills Building
50 George Street
Glasgow
G1 1QE

Telephone: 0141 548 3707

Email: ethics@strath.ac.uk

Consent Form for [name of group] *CI should alter this form to fit with the requirements of each individual study, pay particular attention to highlighted text*

Name of department:

Title of the study:

- I confirm that I have read and understood the Participant Information Sheet for the above project and the researcher has answered any queries to my satisfaction.
- I confirm that I have read and understood the Privacy Notice for Participants in Research Projects and understand how my personal information will be used and what will happen to it (i.e. how it will be stored and for how long).
- I understand that my participation is voluntary and that I am free to withdraw from the project at any time, up to the point of completion, without having to give a reason and without any consequences.
- I understand that I can request the withdrawal from the study of some personal information and that whenever possible researchers will comply with my request. This includes the following personal data:
 - [DELETE AND EDIT AS APPROPRIATE]
 - video recordings of physical tests that identify me;
 - audio recordings of interviews that identify me;
 - my personal information from transcripts.
- I understand that anonymised data (i.e. data that do not identify me personally) cannot be withdrawn once they have been included in the study.
- I understand that any information recorded in the research will remain confidential and no information that identifies me will be made publicly available.
- I consent to being a participant in the project.
- I consent to being audio and/or video recorded as part of the project (delete as appropriate, if recording is optional, allow the participant to indicate their choice by including a 'Yes / No').

Where human biological samples are taken e.g. blood samples or biopsy samples then the following wording should be included: I consent to the taking of biological samples from me, and understand that they will be the property of the University of Strathclyde. [This has to be agreed with insurance services.]

Where it is proposed to carry out DNA analysis of material in any samples then the following statement should be included in the consent form: I consent to DNA in the samples being analysed.

For research where it has been decided that "no fault compensation" cover will be provided, the following wording needs to be included: In agreeing to participate in this research, I am aware that I may be entitled to compensation for accidental bodily injury, including death or disease, arising out of the research without the need to prove fault. However, such compensation is subject to acceptance of the Conditions of Compensation, a copy of which is available on request.

The place of useful learning

The University of Strathclyde is a charitable body, registered in Scotland, number SC015263

(PRINT NAME)	
Signature of Participant:	Date:

Appendix 3:
Expert Questionnaire

Expert Questionnaire

Thank you for taking part in this short survey. This research has used a literature review to establish 24 primary indicators that are important for investigating quality of urban life in Lilongwe. The research is using exploratory sequential design to validate and test the indicators to design a quality of urban life measurement framework. The first step in the validation process is to gain the opinions of experts (including yourself) to prioritize, add or remove indicators as required. The results of this expert survey will then directly impact the fieldwork stage helping to shape and design the framework for evaluating quality of urban life in Lilongwe.

Q1. Please state your name and professional occupation:

Q2. Would you prefer for your name to be anonymous if this research is used in future papers?
(Delete tick/cross as appropriate)

Yes ✓ / X

No ✓ / X

The following sections are going to ask you to rate indicators of quality of urban life in Lilongwe from 1-4. These have been separated into physical, social, economic and welfare categories, each with 6 indicators. These relate to the conditions of the average resident of Lilongwe and not your personal life.

Q3. How important are each of the following physical indicators in the daily life of Lilongwe's residents?
Please put a cross where appropriate

Physical quality of urban life indicators	Not at all Important	Less Important	Somewhat Important	Most Important
1.1 Building and House Quality This includes the materials used, dwelling size, and overall quality of home				
1.2 Physical Urban Infrastructure This includes the quality, safety and legibility of neighborhood streets and roads				
1.3 Density This includes if the neighborhood is overcrowded, the concentration of buildings and privacy felt in residents home/outside space				
1.4 Urban Form & Typology This includes if the neighborhood is high density, medium density, low density or a quasi-residential area.				
1.5 Urban Transport & Accessibility includes availability, quality and type of transport, as well as neighborhood proximity to work & city				
1.6 Ecological Quality This includes the green and open space in the neighborhood, for recreation and events, as well as the families farming and cultivation.				

Q3b. Having reviewed the 6 physical quality of urban life indicators, do you feel that there are any missing that should be added to this investigation?

Q4. How important are each of the following social indicators in the daily life of Lilongwe's residents?

Please put a cross where appropriate

Social quality of urban life indicators	Not at all Important	Less Important	Somewhat Important	Most Important
2.1 Personal Relationships Including family life, family cycle and neighborhood relations				
2.2 Sense of Community Including clubs, groups & societies, youth interaction and lifestyle values				
2.3 Place Attachment Including moving intentions, residence in area, village of origin and sense of belonging				
2.4 Public Meeting Spaces Including quality spaces for social interaction, inclusive spaces that are accessible, and the shops/sellers/stalls in neighborhood				
2.5 Local Governance Including the types of leaders, feeling as if you have a voice in community & knowing who to turn to				
2.6 Culture and Identity Including tribalism, ethnicity, values, local and national history. Also includes if there is space for cultural events in neighborhood				

Q4b. Having reviewed the 6 social quality of urban life indicators, do you feel that there are any missing that should be added to this investigation?

Q5. How important are each of the following economic indicators in the daily life of Lilongwe's residents?
Please put a cross where appropriate

Economic quality of urban life indicators	Not at all Important	Less Important	Somewhat Important	Most Important
3.1 Household Income and Expenditure Including ability to meet basic needs, & material possessions				
3.2 Tenure & Home Ownership Including formal and reliable tenure & land/property ownership				
3.3 Work Status Including entrepreneurship, formal or informal work, flexibility of work and availability of work				
3.4 Education Status Including quality of education, educational attainment, and attendance & access to education				
3.5 Labor Migration Including if resident has ever migrated for work				
3.6 Poverty Rates Including economic poverty, social poverty, individual and neighborhood economic poverty				

Q5b. Having reviewed the 6 economic quality of urban life indicators, do you feel that there are any missing that should be added to this investigation?

Q6. How important are each of the following well-being indicators in the daily life of Lilongwe's residents?
Please put a cross where appropriate

Welfare quality of urban life indicators	Not at all Important	Less Important	Somewhat Important	Most Important
4.1 Physical Well-Being Including their health, fitness and life expectancy				
4.2 Emotional Well-Being Including factors such as stress, anxiety and happiness				
4.3 Health Services Including availability & access to healthcare facilities & community services				
4.4 Environmental Services & Basic Infrastructure Including waste management, water & sanitation and access to energy				
4.5 Urban Safety Including how safe residents perceive their neighborhood to be				
4.6 Natural Disasters Including floods, droughts and their effects on housing conditions and agricultural production				

Q6b. Having reviewed the 6 welfare quality of urban life indicators, do you feel that there are any missing that should be added to this investigation?

Thank you for completing this section. The following section would like to determine how you would gain this information. This is across all 24 indicators.

Q9. Who would you contact to gain information on these indicators? Put an X at any/all that are appropriate

	Primary Data Sources				Secondary Data Sources				
	Residential survey	Academics	Chief or T/A	Member of Council	Government Data	Census Data	Academic Literature	Reports	Other (please specify)
Building and House Quality									
Physical Urban Infrastructure									
Density									
Urban Form & Neighborhood Typologies									
Urban Transport & Accessibility									
Ecological Quality									
Personal Relationships									
Sense of Community									
Place Attachment									
Public Meeting Spaces									
Local Governance									
Culture & Identity									

Q9. Continued...

	Primary Data Sources				Secondary Data Sources				
	Residential survey	Academics	Chief or T/A	Member of Council	Government Data	Census Data	Academic Literature	Reports	Other (please specify)
Household Income & Expenditure									
Tenure & Home Ownership									
Formal/Informal Work Status									
Education Status									
Labor Migration									
Poverty Rates									
Physical Well-Being									
Emotional Well-Being									
Health Services									
Environmental Services & Basic Infrastructure									
Urban Safety									
Natural Disasters									

Q10. Any other comments or suggestions for the investigation? Please feel free to provide any thoughts or comments on the indicators.

Appendix 4:
Expert Summary Report

Domains and Indicators for Assessing Quality of Urban Life in Lilongwe



Summary report for expert panel

Thank you for taking the time to feed into the expert panel. This has been an insightful element of the PhD which has helped to prioritise research focus. The expert panel includes eleven individuals from a range backgrounds including academics, members of council, statisticians as well numerous NGO staff from various organisations. The diverse range of expertise has provided knowledge from different perspectives which has helped to see the topic from different angles. For the purpose of this report, experts have been grouped into two categories: academics and government officials (A&GO) or staff at NGOs

This report covers a summary of the results from the expert panel. You are invited to send responses and comments based on the analysis if you have any.

Report structure:

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Inter-rater Agreement (IRA)

Before evaluating which indicators were deemed important, the researcher assessed the inter-rater agreement (IRA). This is to understand how representative the average score is for each indicator. The original 4-point scale is dichotomized, seeing the value of 1-2 combined, and 3-4 combined. The number of times respondents rate an indicator within the more dominant grouping is summed, and then divided by the number of responses to gain an IRA score. Due to the subjective nature of the subject, it is to be expected that there will be some indicators that experts do not fully agree on.

Table 1: Inter-rater Agreement:

Indicators	Inter-rater Agreement	1-2 or 3-4	As a percentage	(Un) Acceptable
Building & House Quality	11	3-4	100%	Acceptable
Household Income & Expenditure	11	3-4	100%	Acceptable
Physical Urban Infrastructure	11	3-4	100%	Acceptable
Urban Transport & Accessibility	11	3-4	100%	Acceptable
Work Status	11	3-4	100%	Acceptable
Density	10	3-4	91%	Acceptable
Environmental Services & Basic Infrastructure	10	3-4	91%	Acceptable
Health Services	10	3-4	91%	Acceptable
Physical Well-Being	10	3-4	91%	Acceptable
Tenure & Home Ownership	10	3-4	91%	Acceptable
Urban Form & Neighbourhood Typology	10	3-4	91%	Acceptable
Sense of Community	9	3-4	82%	Acceptable
Urban Safety	9	3-4	82%	Acceptable
Local Governance	8	3-4	82%	Acceptable
Education Status	8	3-4	73%	Acceptable
Emotional Well-Being	8	3-4	73%	Acceptable
Poverty Rates	8	3-4	73%	Acceptable
Public Meeting Spaces	8	3-4	73%	Acceptable
Ecological Quality	7	3-4	64%	Unacceptable
Natural Disasters	7	3-4	64%	Unacceptable
Personal Relationships	7	3-4	64%	Unacceptable
Place Attachment	7	3-4	64%	Unacceptable
Culture & Identity	6	1-2	55%	Unacceptable
Labour Migration	6	Either	55%	Unacceptable
Overall Agreement Across the Survey	9		81%	Acceptable

The acceptable inter-rater agreement suggested in the literature ranges from 70-80%. Due to the subjective content, this research is using the lower suggested agreement level of 70% as shown in the table. Eighteen of the twenty-four indicators, representing 75%, have an acceptable IRA. Overall, across the full survey this is an acceptable IRA, therefore the work can progress to the next stage.

Table 2: Average results for each indicator. Quantitative assessment:

Indicators	1-Not important	2- Less Important	3- Somewhat important	4- Most important	Average Score
Household Income & Expenditure	0	0	0	11	4
Work Status	0	0	2	9	3.8
Health Services	0	1	1	9	3.7
Building & House Quality	0	0	3	8	3.7
Physical Urban Infrastructure	0	0	3	8	3.7
Urban Transport & Accessibility	0	0	3	8	3.7
Physical Well-Being	0	1	2	8	3.6
Urban Safety	0	2	1	8	3.5
Environmental Services & Basic Infrastructure	0	1	3	7	3.5
Density	0	1	4	6	3.5
Urban Form & Neighbourhood Typology	0	1	4	6	3.5
Tenure & Home Ownership	0	1	4	6	3.5
Local Governance	0	3	2	6	3.3
Personal Relationships	0	4	0	7	3.3
Education Status	0	3	3	5	3.2
Poverty Rates	1	2	3	5	3.1
Public Meeting Spaces	1	2	3	5	3.1
Emotional Well-Being	2	1	3	5	3
Natural Disasters	1	3	2	5	3
Ecological Quality	0	4	3	4	3
Sense of Community	0	2	8	1	2.9
Place Attachment	0	4	5	2	2.8
Labour Migration	2	3	3	3	2.6
Culture & Identity	3	4	3	1	2.2

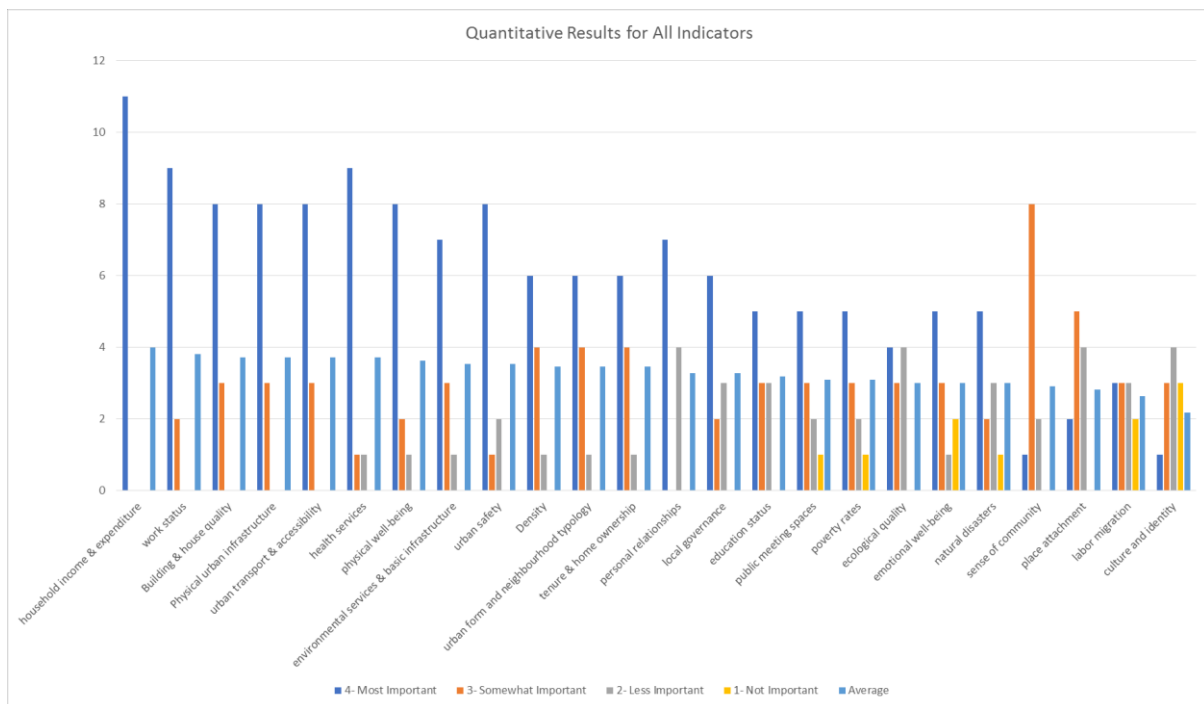
This table presents the quantitative assessment aiding to rank the indicators from most to least important. This includes how many times each indicator was scored each number, and an overall average for that indicator.

Twenty of the twenty-four indicators gained a score of three out of four or higher. This validates their importance as essential elements of urban life in Lilongwe and as such, they should be included in the fieldwork.

The bottom four indicators; sense of community, place attachment, labour migration and culture & identity have a lower score, thus placing them in an invalidated category.

From looking graph 1 (below) it can be seen that sense of community has a high number of experts who ranked it as '3 Somewhat Important'. While it only gained an average score of 2.9, its mode score is 3. This therefore brings into question the validity of this indicator, as perhaps it is an important aspect of urban life in Lilongwe. Although this indicator has not been fully validated, it remains an interesting aspect of QOUL that may be considered in future work.

Graph 1: Quantitative results for all indicators



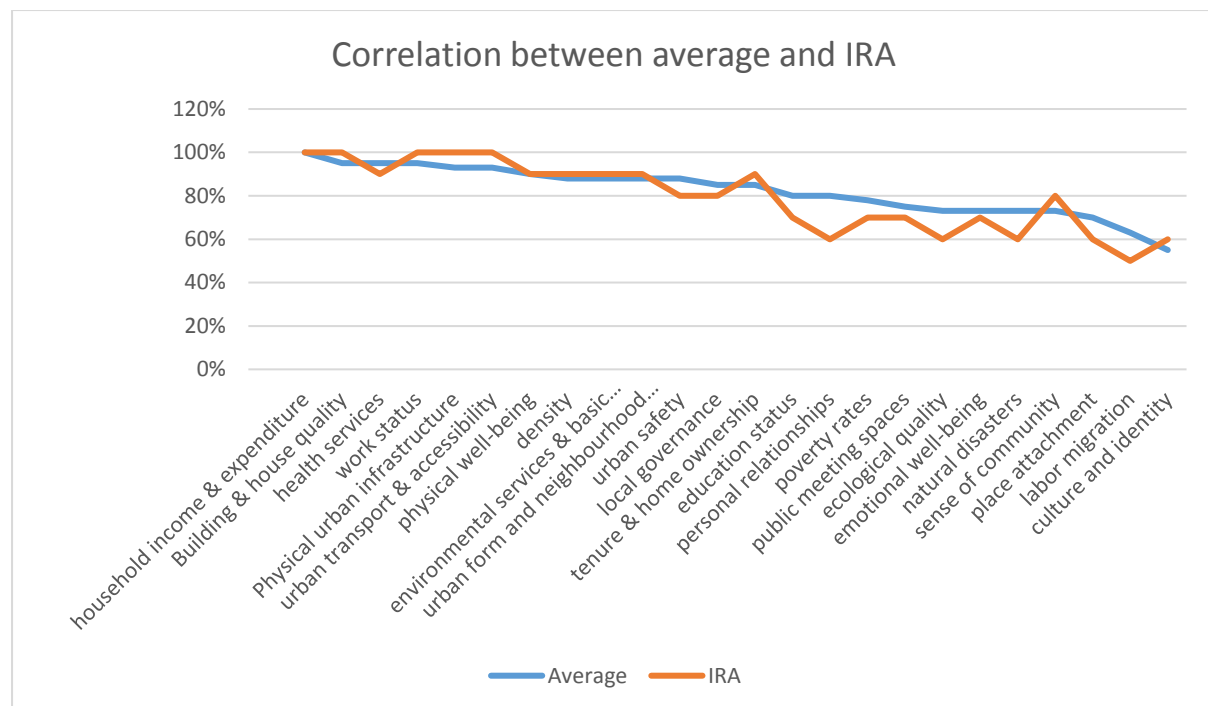
The remaining three indicators have lower scores, which range from 1-4 depending on the assessor. As it has not been possible to fully validate these indicators, they will not be used in the PhD fieldwork.

Table 3: Retained and removed indicators:

Physical Indicators	Social Indicators	Economic Indicators	Well-Being Indicators
<ul style="list-style-type: none"> -Building and House Quality -Physical Urban Infrastructure -Urban Transport & Accessibility -Density -Urban Form & Neighbourhood Typology -Ecological Quality 	<ul style="list-style-type: none"> -Local Governance -Personal Relationships -Public Meeting Spaces 	<ul style="list-style-type: none"> -Household Income & Expenditure -Work Status -Tenure & Home Ownership -Education Status -Poverty Rates 	<ul style="list-style-type: none"> -Health Services -Physical Well-Being -Environmental Services & Basic Infrastructure -Urban Safety -Emotional Well-Being -Natural Disasters
Removed Indicators			
	<ul style="list-style-type: none"> -Sense of Community -Place Attachment -Culture & Identity 	<ul style="list-style-type: none"> -Labour Migration 	

Of the four indicators that gained scores below 3, three are from the social category, and one is from the economic category. The social domain of urban life has thus been considered least important, with the physical and well-being domains being highest ranked.

Graph 2: Comparison of average and IRA:



An interesting observation is that the average score and the IRA appear to have a strong correlation. This shows that the indicators that have a lower average, also have disagreement between experts. This is significant as it suggest that even the lower ranking indicators are deemed important to some panel members. It is this subjective element of a QOUL study that makes it vital to gain knowledge from experts. The process provides numerous opinions as opposed to leaving the decision to a single professional.

Table 4: Themed responses, qualitative assessment.

Themed responses		
Relating to physical domain	Response Question	Professional Group
Urban parks	3b	A&GO
Consider area of impact of migration on physical parameters of quality of urban life	8	NGO
Relating to social domain		
Social amenities like schools and hospitals	3b	NGO
Relations in terms of culture, status between poor and rich people	4b	A&GO
Relating to economic domain		
Number of children who are working (the assumption is that other would be better off if they have people who assist them economically)	5b	NGO
Probably land tenure issues, most urban dwellers are renting	6b	NGO
Economic indicators of people (average urban dweller)	3b	NGO
The investigation should also include retailers of merchandises such as groceries so as to determine the expenditure levels in different locations	8	NGO
Relating to well-being domain		
Something to do with amenities like availability of water and electricity	3b	A&GO
Access to water and energy are also important elements	3b	A&GO
You might wish to consider delivery of utility services (water, electricity, communication)	3b	NGO
Waste pollution	3b	NGO
Summary		
Investigation seems to be of high quality.	8	NGO
The indicators have been well developed and cover a wide set of parameters	8	A&GO
I think the indicators are good enough to know about urban life	8	NGO

Collecting expert's comments for judgement is a further important part of the survey. The written feedback has been summarised and split into five main themes depending if they relate to physical, social, economic, well-being or summary sections. The table then includes which question they were in response too, and which professional group the expert was a member of.

Each of these responses is enlightening and will be considered in the design of the QOUL toolkit.

Table 5: Methods to gain information:

	Indicators	Primary Data				Secondary Data				Other (please specify)
		Residential Survey	Academics	Chief/TA	Member of Council	Government Data	Census Data	Academic Literature	Reports	
Physical	Building & house quality	4	4	1	6	4	4	4	3	
	Physical urban infrastructure	2	2		5	5	2	2	3	
	Density	3	4	2	4	6	5	1	3	
	urban form and neighbourhood typology	3	3	3	3	2	3	3	2	
	urban transport & accessibility	2	1	1	3	4	4	2	1	
	ecological quality		5		1	3		6	5	
Social	personal relationships	3	2	4		1		2	1	Social Organisations
	sense of community	4	1	5	2		1	2	3	
	place attachment	3	3	3	1	2	3	2	2	
	public meeting spaces	2	2	5	4	3	2	1	1	
	local governance	1	3	3	4	6	1	3	5	
	culture and identity	2	3	4	1	2	3	4	1	
Economic	household income & expenditure	6	1	1	1	3	3		5	
	tenure & home ownership	3	3	2	6	3		4	2	
	work status	4	1	4	4	2	5	2	2	
	education status	5	2	1	1	3	4	4	4	
	labor migration	1	2	1	2	4	4	2	3	
	poverty rates	4	2	2	2	6	5	1	4	
Well-Being	physical well-being	4	2	1	1	2	2	3	1	Health Institutions
	emotional well-being	4	1	3	1	2		3	2	
	health services	4	3	3	4	6	4	2	3	
	environmental services & basic infrastructure	2	2	1	5	6	3	1	3	
	urban safety	4	1	6	4	4	2	3	2	
	natural disasters	1	4	4	4	6	1	4	3	
		71	57	60	69	85	61	61	64	
		42%	34%	36%	41%	51%	36%	36%	38%	

The final section of the survey aimed to understand how the experts would recommend sourcing data in this context. Of the eleven experts surveyed, seven were able to complete this question in full. This is likely to be due to the way the question was formatted on the online survey.

The results suggest that the two most frequently recommended methods for gaining information are to review government data, or utilise a residential survey. This provides a primary and secondary data collection technique to provide both subjective and objective data on QOUL. This information will be strongly considered for designing the QOUL toolkit.

The results also illustrate the wide range of methods which may be used for each indicator, showing that there are numerous ways to conduct a survey on QOUL in Lilongwe.

Conclusion: Refining, revising and reconstructing the Indicators:

Having reviewed and analysed the qualitative and quantitative data, the research can now begin to design a residential survey for use in the PhD fieldwork based on the results from the experts.

It is desirable that the questionnaire is not too long to allow a higher response rate from residents. The questionnaire should include questions regarding each of the retained indicators to get the subjective opinion of the residents. Each of the indicators can then be investigated via government data, census data and reports to gain the objective condition of that indicator. The two data sources will then be compared to provide a full picture of QOUL in Lilongwe.

Table 6: Retained and removed indicators:

Physical Indicators	Social Indicators	Economic Indicators	Well-Being Indicators
-Building and House Quality -Physical Urban Infrastructure -Urban Transport & Accessibility -Density -Urban Form & Neighbourhood Typology -Ecological Quality	-Local Governance -Personal Relationships -Public Meeting Spaces	-Household Income & Expenditure -Work Status -Tenure & Home Ownership -Education Status -Poverty Rates	-Health Services -Physical Well-Being -Environmental Services & Basic Infrastructure -Urban Safety -Emotional Well-Being -Natural Disasters
Removed Indicators			
	-Sense of Community -Place Attachment -Culture & Identity	-Labour Migration	

This report is part of a PhD on quality of urban life in Lilongwe by a student at the University of Strathclyde, Scotland. The fieldwork will take place 29th July-3rd August in Lilongwe. If you would like to get involved in the fieldwork please reply via email.

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Appendix 5: Neighbourhood Profiles

1. Neighbourhood Profile for Area 18

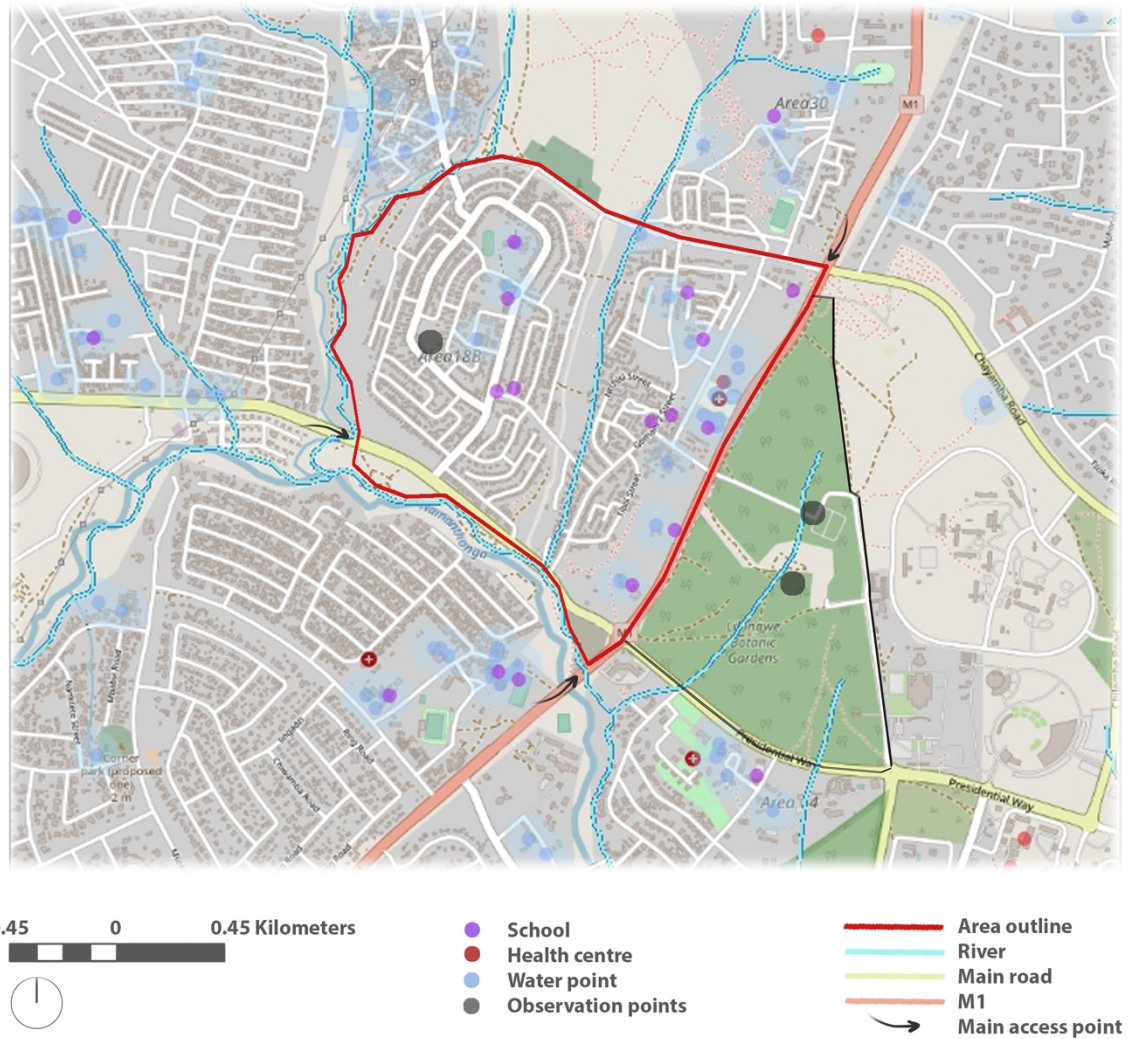


Figure 6.1 Map of amenities in Area 18

2.1 Objective Data Profile:

Area 18 is classified as 'permanent high and open space' neighbourhood (UN-Habitat, 2011). The land area is 214.466 HA (UN-Habitat, 2011), therefore it is the smallest neighbourhood that is investigated by this study. According to the 2018 census, the population in Area 18 is 8,718 (National-Statistics-Office, 2018). Of this population, around 72% of the population of Area 18 are over the age of 18. This forms a density of 4065 people/km². The distribution of male to female is relatively even as 3,883 are male and 4,835 are female (National-Statistics-Office, 2018).

An interesting observation is that it appears that the population of this neighbourhood has decreased between 2008 and 2018. However, it should be noted that the 1998-2008 population were provided by (UN-Habitat, 2011) while the 2018 population is from (National-Statistics-Office, 2018).

The population distribution graph demonstrates that residents in Area 18 peak at around the age of 20-24. Approximately 72% of the population is over the age of 18, which implies that residents move to this neighbourhood when they are a bit older, and perhaps when they can afford to do so. Figure

6.2 sees a significant decrease in those over the age of 55. This suggests that the older residents are retiring elsewhere, as discussed in Chapter Five: Section 2.5.

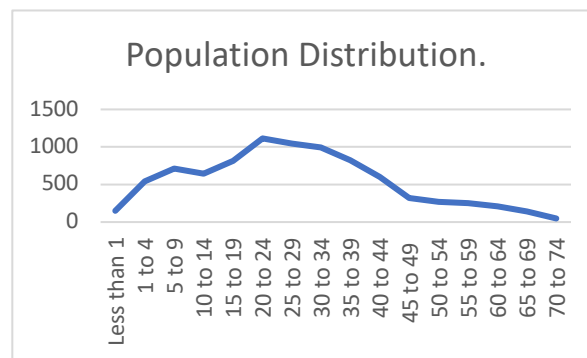


Figure 6.2 Population distribution in Area 18

The maps in Figures 6.1, 6.8 and 6.16 have been created using a mixture of ArcGIS, Open Street Maps, and Adobe Photoshop. The ArcGIS map was provided by a colleague in the civil engineering department at the University of Strathclyde for all three case-study neighbourhoods. It provides the location of the schools, health centres and water points across the city. The base-map has been taken from Open Street Maps, and the additional information has been added using Adobe Photoshop.

From looking Figure 6.1, it can be seen that Area 18 is connected to transport links including the M1 via the north-south access and 'Presidential Way' along the south of the neighbourhood. The M1 directed North is the main link between Lilongwe and Mzuzu, which is the city of Malawi's northern region; therefore, Area 18 is part of the route between Lilongwe and Mzuzu.

The east edge of the neighbourhood borders with the Lilongwe Botanical Gardens. While they are not directly included in the zoning classification of this neighbourhood, they have been included as observation points as they are considered a well-used recreational area for Area 18 due to the close proximity.

Figure 6.1 illustrates that there are good education facilities available, with thirteen schools displayed in the neighbourhood. Area 18 also hosts a health centre and a reasonable number of water points. Many residents in Area 18 likely have water piped into or near to their homes, therefore do not require a large number of neighbourhood water points. This will be investigated in the residential questionnaires in the subsequent chapter. Area 18 also has a police station; namely 'Lingadzi' station (UN-Habitat, 2011). There are four police stations in Lilongwe which are in Areas 3, 25, 7 and 18. Area 18 also borders Area 30 which is a government area that houses many government staff, as well as the police headquarters. Provision of a police station is often associated with safety as discussed in Chapter Five Section 4.3 Urban Safety.

It can be seen in Figure 6.1 that the Namanthanga river that run around the south and west edges of the neighbourhood, as well as directly through the centre of the neighbourhood. This natural resource may play a role in the border outline of Area 18 and is an asset to the residents of the area.



Figure 6.3 Noll map of streets in Area 18

Figure 6.3 is a Noll map for a zoomed extent of Area 18. The extent was selected at random to provide a generic image of Area 18. The researcher created the Noll map using Open Street Maps with Adobe Photoshop. Here, it can be seen that the neighbourhood is relatively low density and that the street pattern uses a mixture of cul-de-sacs and connecting streets. This street design is good for slow moving traffic, thus it is likely that the roads feel safe despite traffic. The image presents that the neighbourhood is well organised and planned. Buildings are of a relatively similar scale, and there is a good amount of space between buildings.

2.2 Subjective Profile -Walkthrough Technique:

As discussed in Chapter Three: 'Research Design', to complement the objective data, the researcher also conducted 'walkthrough analysis' of each of the neighbourhoods. This involves an assessment of the urban quality by experiencing the environment while walking through it.

The walkthrough analysis was conducted by the PhD researcher and a colleague from a Malawian community group. Together, they toured the neighbourhood several times, both on a weekday and a weekend. This technique is semi-structured and involved fieldwork sketches and photographs. To ensure that each of the neighbourhoods was comparably observed, this can be broken into five main headings; domestic buildings; street landscaping; streetscape; street life, commercial spaces and recreational areas. Together, this provides an image of the neighbourhood. The commercial and recreational areas have been observed in further detail in Section 6, therefore, are discussed separately.

2.3 Domestic Buildings:



Figure 6.4 Domestic buildings in Area 18

The houses in Area 18 are mostly made from permanent materials, with a smaller number being combination dwellings. Many of the houses are behind walls and gates as displayed in Figure 6.4 A, however, there are others which are open to the street such as Figure 6.4 B. As discussed in chapter Five, Section 1.5 'Density'; it is often found that walls, fences and gates reflect a desire for privacy by enclosing the plot. Figure 6.4 B presents a building which has sidewalls, but is open to the street; this implies a desire for privacy as opposed to safety as it was stated that residents are likely to build side garden walls first if they desire privacy, however, are likely to build front walls first if they are seeking a feeling of safety. This, therefore, suggests that the neighbourhood has a secure atmosphere as residents do not feel the need for front walls initially. Chapter Five: Section 4.3 'urban safety' discusses the fact that safe and supportive neighbourhoods are imperative for good QoUL as safety positively affects mental health and attachment to an urban area.

2.4 Landscaping:



Figure 6.5 Landscaping in Area 18

An appealing aesthetic feature found in Area 18 is that it has large areas of green landscaping. These are found along the streets and are often outside houses. Both Figure 6.5 A and B are outside homes in Area 18. Much of the landscaping in Area 18 is formal, with deliberate and planned garden areas. This implies that the residents of these homes take pride in their dwelling and their surroundings, which suggests a secure feeling of place attachment. Chapter Five: Section 2.5 'Place Attachment' discusses that if a resident believes that they are temporary, they may be less likely to invest in their

neighbourhood. Thus, the examples provided show permanent residents who are positively engaged in the social life of their community.

2.5 Street life:

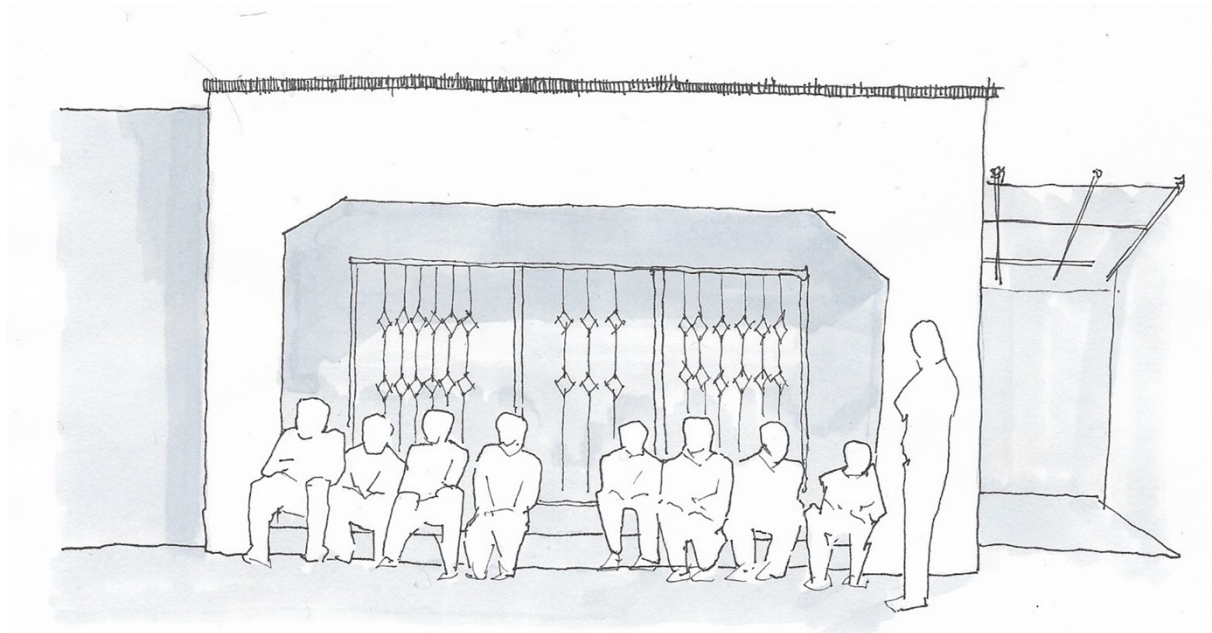


Figure 6.6 Fieldwork sketch of street life in Area 18

Area 18 has a good sense of community found in the street life. The sketch in figure 6.6 is of a group of nine men who have stopped to dwell in a shaded area of the street. Here they gather, spending time sat on the concrete steps of the neighbourhood shop. Shaded shop fronts are seen as a collective space in the neighbourhood for communities to share, which positively promotes street life and neighbouring to provide a strong sense of community.

2.6 Streetscape:



Figure 6.7 Streetscape in Area 18

2.7 Summary of Area 18:

Due to the demographic, high-quality buildings and the proximity to the government offices, it is likely that this Area 18 is home to many professionals. The neighbourhood is calm and peaceful with excellent social amenities such as schools, a health centre and police station. Although the atmosphere is calm, it is clear that there is a strong sense of community with neighbours positively engaging with one another. This is evident through physical gestures such as landscaping, as well as visible social engagement.

2. Profile for Area 36

Area 36 is a quasi-density area, classified as 'permanent high/traditional high/agriculture/institutional' (UN-Habitat, 2011). The land area is 926.348 hectares (UN-Habitat, 2011), therefore a close second in size to area 49, however, it has a much larger population of 92,733 (National-Statistics-Office, 2018). Of this population, around 54.6% of the population are over the age of 18. This means Area 36 is over twice as dense as Area 18 with 10010 people/km². The distribution of male to female is relatively even with 46,684 being male, and 46,049 are female (National-Statistics-Office, 2018).

As discussed in Chapter Three, Section 4.6, the population of Area 36 has changed dramatically over the past twenty years; in 1998 the population was 16,164; in 2008 this increased to 45,991; and the 2018 census puts it to 92,733 (National-Statistics-Office, 2018). This dramatic population change is likely to put a strain on the existing infrastructure of the neighbourhood, thus negatively affect residential QoUL. As such, this neighbourhood is thought to have active urban sprawl beyond its southern borderlines, which is at the most southern point of Lilongwe (Government, 2013*) Urban development master plan (2010).

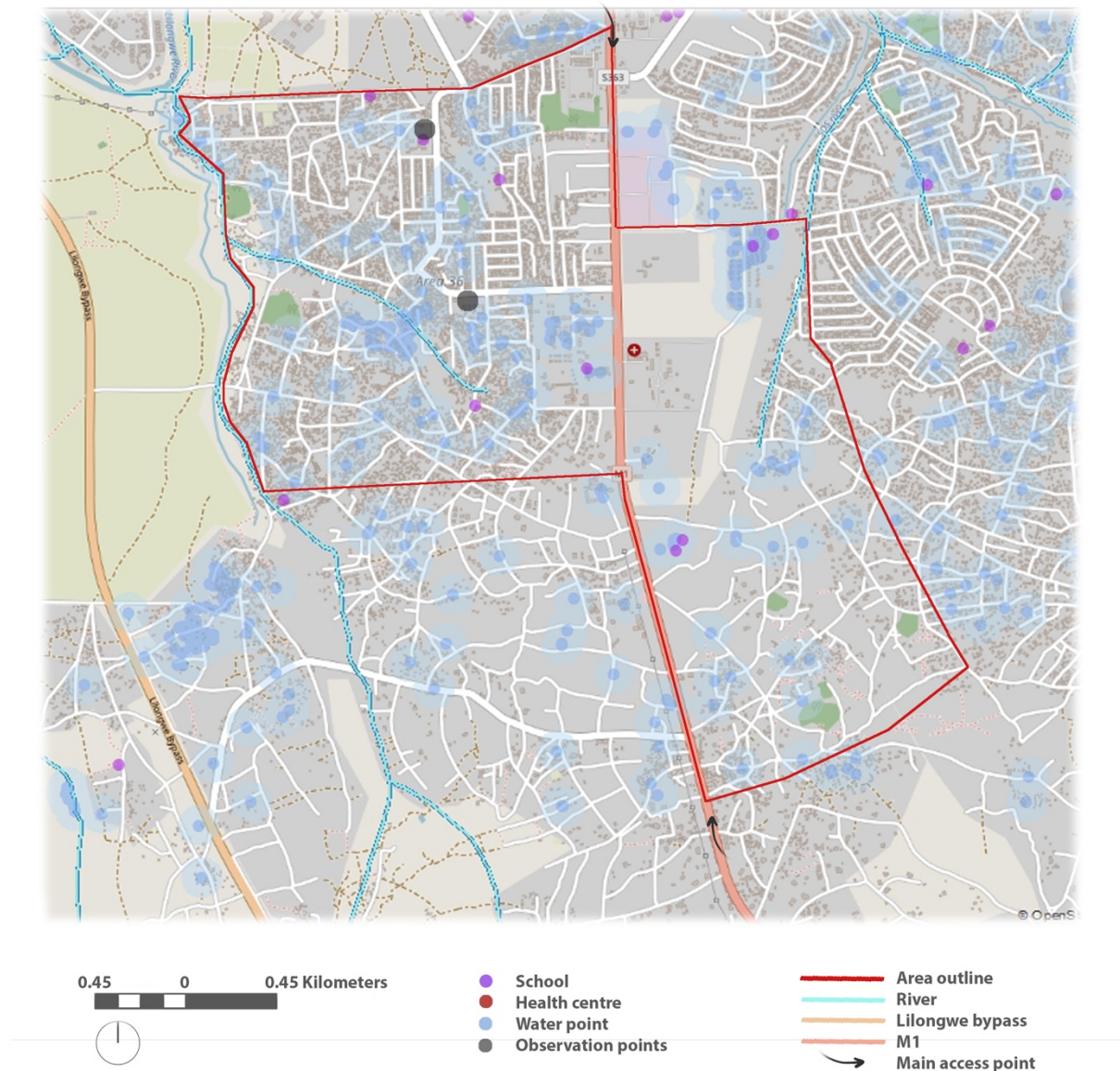


Figure 6.8 Map of amenities in Area 36

The population distribution graph in Figure 6.9 illustrates that it is a young population that reside in Area 36, with only 54.6% of the population being over the age of 18. Very few residents are over the age of 40. This suggests that older residents move elsewhere when they retire. There is a high percentage of youth in the neighbourhood which suggests that residents are born here, and perhaps many residents have young families.

Figure 6.8 displays that Area 36 is well connected via the main motorway intersecting the centre of the neighbourhood. It can also be seen that the Lilongwe bypass is close by, to the west of Area 36. The M1 heading south from Lilongwe is the main link to the Southern region of Malawi, thus connects to both Zomba and Blantyre. Area 36 is thus to the periphery of the city as it is one of the most southern neighbourhoods.

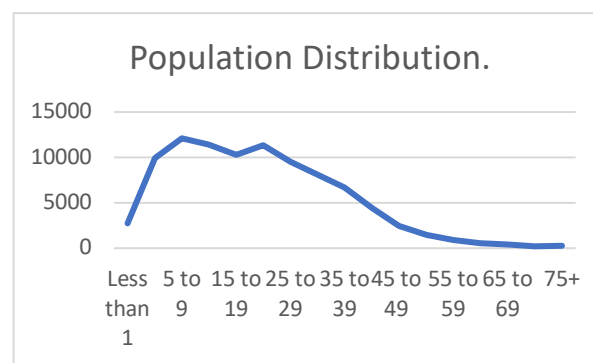


Figure 6.9 Population distribution Area 36

From reviewing Figure X*, it can be seen that there are seven schools in Area 36, which is less than Area 49 despite having a considerably larger population. Education facilities are thus low in this neighbourhood. The map suggests that there is one health point located towards the centre of Area 36, and, no police stations. A tributary of the Lilongwe river is located on the western edge of the neighbourhood, which forms a natural border. The map displays that there are a large number of water points in Area 36. Residents likely use communal water points as opposed to having water piped into the home. In an article discussing access to water in Lilongwe, Alda-Vidal et al., (2018) state that over their study period and eight months prior, Area 36 had only received water at night. This situation is not uncommon for lower-income areas of Lilongwe (Alda-Vidal, et al., 2018) however it is likely to have a negative impact on QoUL as residents may have to travel to access drinking water.



Figure 6.10 Nolli map of Area 36

Figure 6.10 is a Nolli map for a random selection of Area 36 to provide a generic image for the residential layout of the neighbourhood. It can be seen that the neighbourhood is high density, with an organic street layout. The buildings are a relatively similar scale, however, in some parts, there is a low amount of space between buildings, and buildings are close to roads.

3.1 Walkthrough Technique:

Using the same method as Area 18, the researcher, accompanied by aforementioned colleague, again conducted a walkthrough technique of the neighbourhood. The results are presented below.

3.2 Domestic Buildings





Figure 6.11 Domestic buildings in Area 36

The houses in Area 36 are mostly made using traditional materials and techniques such as the mud-brick. That being said, there are homes in the neighbourhood that now use 'combination' materials, where the walls are made from the mud-brick, however, they also utilise concrete floor slabs and metal sheet roofing. With regards to the building typology, all the homes viewed by the researchers were detached bungalows. This was the case when Lilongwe was designed and is the common house typology throughout the country.

Figures 6.11 C and D show homes which have verandas, while figures 6.11 A and B do not have verandas. Verandas are important structures as they provide a transitional space between the public street life and the private home life. While conducting the walk-through technique, a resident stated that the reason many homes in the city do not have verandas is due to the lack of space. There is less space between buildings in Area 36 than was felt in Areas 18 and 49 particularly notable in Figures 6.11 C. It can also be seen that many homes do not have fences or walls to partition between themselves and their neighbours. Figure 6.11 C illustrates a wooden fence along the border of the plot. This allows the potholders to dictate the edge of their garden, however, it does not provide privacy or safety. Due to the lack of walls, fences or vegetation, residents in this neighbourhood will likely feel their life is more public than is experienced in the other case study sites. Due to the lack of clear boundaries between plots, spaces between homes may appear communal; this is often associated with a residents perceiving a lack of identity and control over the space, which has negative implications for safety (Newman, 1996*). It is also predicted that the neighbourhood will feel less safe due to the high density and lack of walls or fences. This will be investigated in the residential questionnaires in the subsequent chapter.

3.3 Landscaping:

Area 36 has less notable aesthetic landscaping than is found in Areas 18 and 49. That being said, there are trees which provide shade for the neighbourhood as illustrated in Figures 6.12.

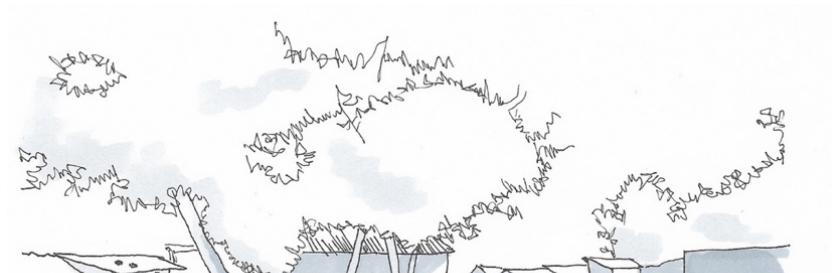


Figure 6.12 Landscaping in Area 36

3.4 Street

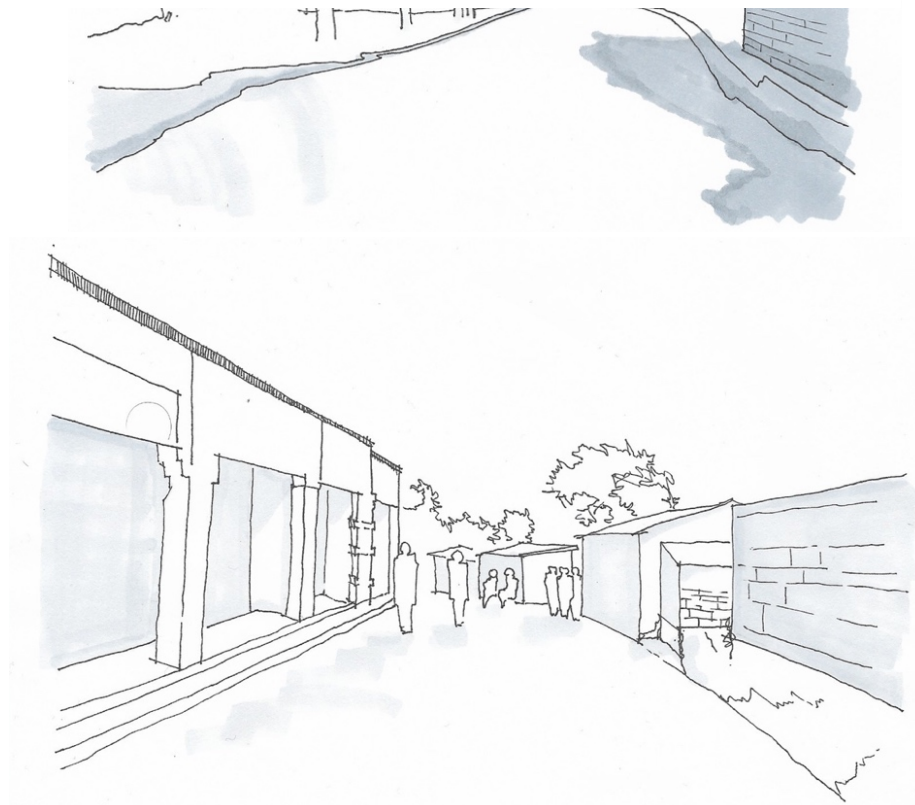


Figure 6.13 Streetscape in Area 36

Figure 6.13 is a fieldwork sketch which illustrates a typical commercial street in Area 36. Here it can be seen that the streets typically have people on them during the day. All the buildings are similar heights, and the domestic structures on the left of the street have verandas which provide shade for those using the space.

3.5 Street life



Figure 6.14 Street life in Area 36

Area 36 has a vibrant street life and a strong sense of community. The streets are full of residents spending time together, as illustrated in Figures 6.14 A and B. The streets in Area 36 are active and engaging with neighbours positively interacting with one another, stopping to converse and smiling as they pass. Figure 6.14 A displays a mixed demographic using a space. The children at the front of the image may be related to the adults who are using the space to sell goods. This suggests that families and neighbours are tightknit as they spent many hours a day together. Figure 6.14 B is of two men enjoying a board game, bawo, together. There are often groups and clubs who gather to play games such as this weekly which promotes a strong sense of community through engaging in the social stage of the neighbourhood.



Figure 6.15 Street life in Area 36

Figure 6.1
the women are braiding hair while the children play. The streets of Area 36 radiate warmth and collective enjoyment of neighbours and kin.

35. Here

3.6 Summary of Area 36

Area 36 is home to a young population, perhaps many young families with children. The neighbourhood is towards the periphery of the city therefore less accessible for those to work in the city centre of CBD. It is, therefore, likely that residents live and work in Area 36, which will be investigated in the residential questionnaires. The neighbourhood has fewer social amenities than are found in the other case study sites which, due to the large youth population, may put a strain on services such as schools. The streets are active and engaging, with a robust perceived sense of community throughout.

3. Profile for Area 49

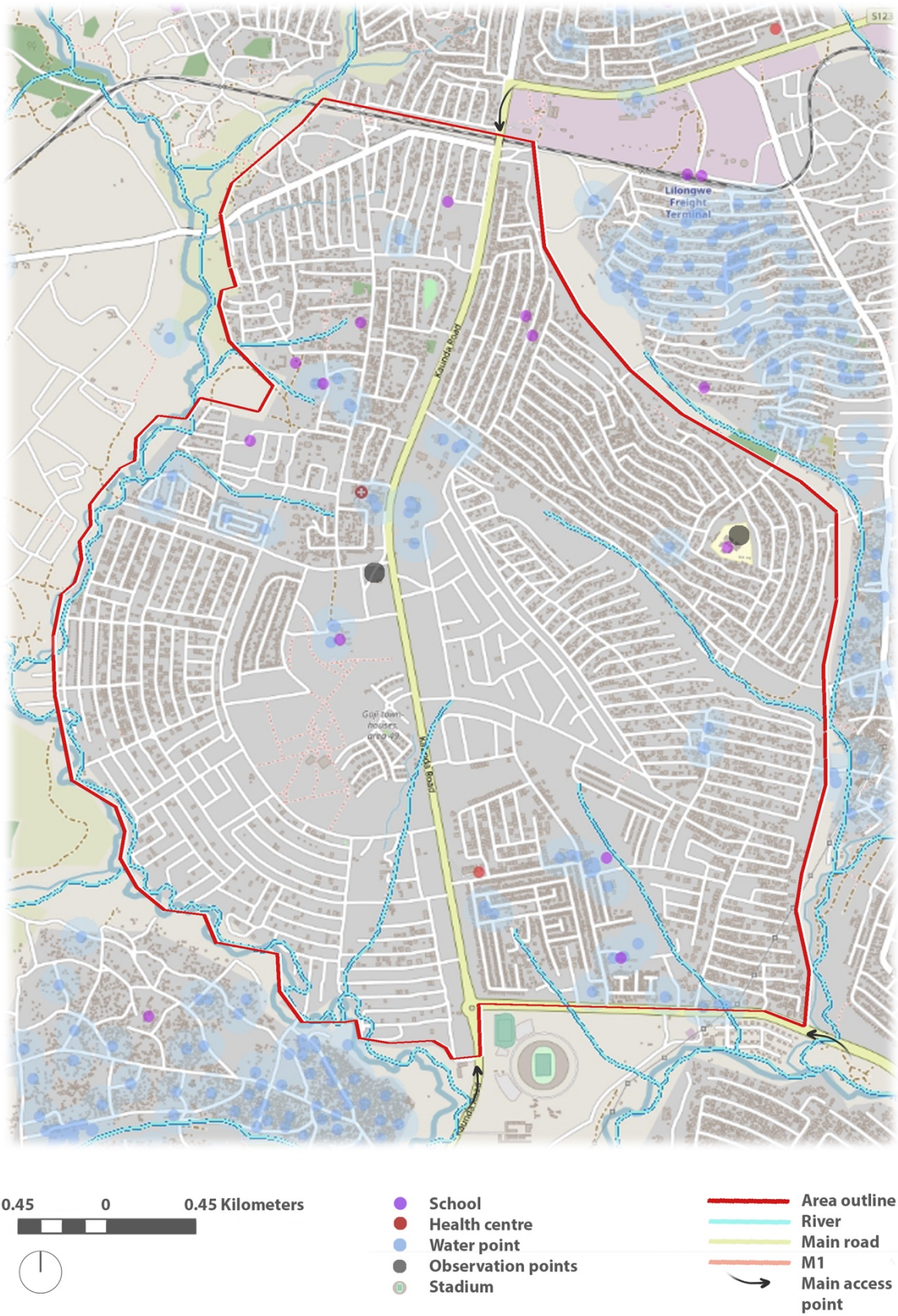


Figure 6.16 Amenities map in Area 49

Area 49 is classified as a ‘traditional high density’ neighbourhood (UN-Habitat, 2011). The land area is 964.496 HA (UN-Habitat, 2011), thus is physically the largest neighbourhood that is investigated in the study. The 2018 census states that the total population of Area 49 is 52,915 (National-Statistics-Office, 2018). Of that, around 60% are over the age of 18. As such, the density of the neighbourhood is 5486 people/km². The distribution of male to female is reasonably similar with 25,868 males to 27,047 females. The population distribution of Area 49 presents a relatively young neighbourhood; however, still the majority of residents are over 18. There is a large number of children which suggests families live in this neighbourhood.

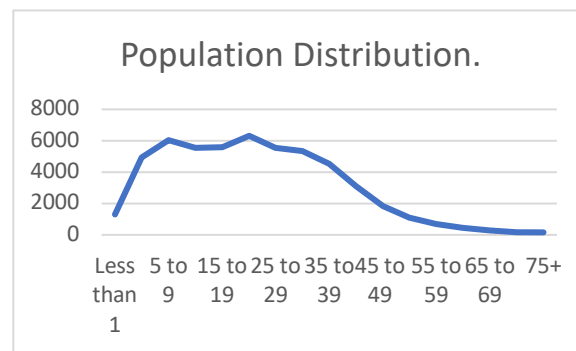


Figure 6.17 Population distribution in Area 49

By reviewing the map in Figure 6.16, it can be seen that Area 49 has a main road that intersects it through the centre, namely ‘Kaunda Road’. This is the main link from Area 49 to the city centre. The northern border of Area 49 is the Lilongwe Freight Line. Freight traffic for Malawi is predominantly exports of sugar, tobacco, pigeon peas and tea. The southern edge of Area 49, there is Lilongwe’s Bingu National Stadium. This is the city’s main football stadium which was opened in January 2017. This is a large iconic building which was designed by the Beijing Institute of Architectural Design.

Figure 6.16 discloses that there are suitable education facilities across Area 49, with 11 schools scattered throughout the neighbourhood. There are also two central health faculties as illustrated on the map, and a reasonable number of water points can be seen distributed across the neighbourhood. Similar to Area 18, is it likely that residents of Area 49 have water piped into or near to their plot, therefore, there is less requirement for neighbourhood waterpoints. Again, similarly to Area 18, Area 49 is within close proximity to the police headquarters which are located in Area 30 which helps to create a feeling of safety; however, there are no police stations in the neighbourhood. The Namanthanga river borders the west, east and southern edges of Area 49. The river may be responsible for the shape of the neighbourhood as it forms a natural border.



Figure 6.18 Nolli map for streets in Area 49

Figure 6.18 is a Figure-ground map that provides a zoomed extent of Area 49. The extent was again selected at random to provide a generic image of Area 49. Here, it can be seen that the neighbourhood is reasonably low density. The street pattern is very structured with straight roads and squares, which shows that the neighbourhood has areas which have been planned. The image demonstrates that Area 49 is well organised and that the majority of buildings are similar scale. The image further demonstrates that there is a good amount of space between buildings.

4.1 Walkthrough Technique:

Using the same methodology as in the previous two case studies, a walkthrough technique was conducted at various times of the day and week in Area 49.

4.2 Domestic Buildings





Figure 6.19 Domestic buildings in Area 49

Housing in Area 49 is a mixture of typologies and building techniques. Figure 6.19 C shows an area of new development which are all permanent good quality buildings. It can be seen that all the houses are bungalows and generally detached dwellings. The new houses which are being erect are, however, semi-detached buildings. This is relatively new in Lilongwe, as currently the majority of residents reside in detached homes. In Gerke & Viljoen (1968) masterplan, they state that bungalows with gardens are appropriate socially for three reasons; because Malawians have a secure attachment to land, that they are likely to use gardens for cultivation, and that there is a resistance to semi-detached or multi-storey flats. The new semi-detached building typology suggests that the culture is changing and that people are welcoming this change.

It was noted that Area 49 has less gated dwellings than were found in Area 18, however, some are behind walls as shown in Figure 6.19 A. The images also present residents in Area 49 have gardens which are again pressing for a feeling of safety and privacy. Additionally, gardens are seen to grow crops as illustrated in Figure 6.19 B suggesting that they provide functional as well as recreational space for residents.

4.3 Landscaping



Figure 6.20 Landscaping in Area 49

Area 49 has some areas with beautiful landscaping, as illustrated in Figure 6.20 A. This illustrates that the residents take pride in their home and garden, which suggests place attachment and that occupants have resided in the dwelling for a reasonable number of years. Furthermore, high-quality landscaping shows that residents choose to invest in their neighbourhood, therefore, are engaged in the community social life.

Figure 6.20 B has been included as it presents shaded areas which are created under the canopy of trees. Trees and vegetation are often used to create natural borders between plots instead of walls and fences, as well as spots for residents to dwell under the awning of shade.

4.4 Street scape:



Figure 6.21 Street scape in Area 49

Figure 6.21 is a fieldwork-sketch of a commercial street in Area 49. The streets are busy and full of life. The majority of buildings are the same height despite being commercial or domestic. The commercial street has electricity lines which suggests that the neighbourhood has access to power.

4.5 Street life:



Figure 6.22 Street Life in Area 49

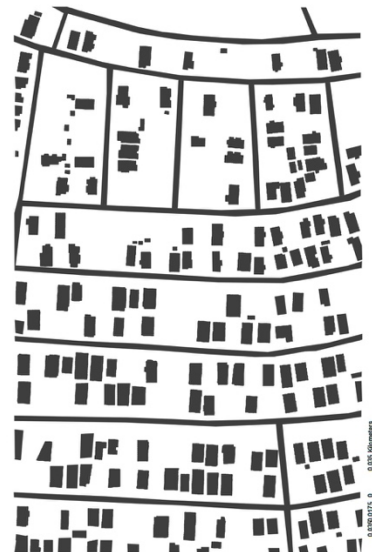
The street life in Area 49 is active and positive. The fieldwork sketch in Figure 6.22 is of a group of children who are using the trees in a garden to play with a skipping rope. The sense of community is strong in this neighbourhood where groups of various ages are seen meeting and spending time together. Chapter Five: Section 2.3 'Public Spaces' considers the fact that public spaces are not necessarily formal but are often informal spaces that are well known to residents of the neighbourhood. In this discussion, Whyte (1980) discusses that it is often assumed that children use the street to play because there is not a playground space, however, in fact, many children play in the street because they like too. The street often has all the elements of a successful play space; it has shade, friends and is close to the home for refreshments. This will be investigated in detail in the subsequent chapter to understand if residents perceive these as good quality spaces that support their urban life.

During the walk-through method, the colleague mentioned that Area 49 have an excellent community group who work together to raise funds for projects that they feel are needed in their neighbourhood. This reiterates the strong sense of community found in Area 49.

4.6 Summary of Area 49:

Area 49 is a large neighbourhood to the north of Lilongwe city. It has good transport links, and good social amenities and infrastructure. The neighbourhood has an iconic landmark building, the Bingu Stadium which is an attractive feature for residents. There has been a large number of new builds in the area; thus, the neighbourhood is physically expanding to meet the demand of the new residents moving to the city. The sense of community and street life appear positive and engaged.

4. Conclusion on Space Profiles



Area 18		Area 36		Area 49	
Zoning Classification	Permanent high and open space	Zoning Classification	Quasi density	Zoning Classification	Traditional high density
Area	214.466 HA	Area	926.438 HA	Area	964.496 HA
Population	8,718	Population	92,733	Population	52,915
Over age 18	72%	Over age 18	54.6%	Over age 18	60%
Density	4065 people/km ²	Density	10010 people/km ²	Density	5486 people/km ²
Male/Female	55.5%/44.5 %	Male/Female	50%/50%	Male/Female	51.1%/48.9 %
Proximity to centre	3.5km	Proximity to centre	9.6km	Proximity to centre	7.2km
Schools	13	Schools	7	Schools	11
Healthfacility	1	Healthfacility	1	Healthfacility	2

PoliceStation	1	PoliceStation	0	PoliceStation	0
Open space	Excellent	Open space	Poor	Open space	Good
Iconicbuilding		Iconicbuilding		Iconicbuildin g	Bingu Stadium

Figure 6.23 Summary on three case-study neighbourhoods

This research has selected three distinctly different neighbourhoods which was discussed in Chapter Three: Section 6.4. By so doing, it will be possible to compare the residents perceived QoUL in the subsequent two chapters and reflect how the objective urban environment is affecting this. This is important as it allows a convergence of the objective and subjective QoUL as advocated in chapter Two. The following section will now investigate neighbourhood open spaces in detail to comprehend the quality of these settings and how they enhance residential QoUL.

Appendix 6:
Walking Tour Fieldwork Sheet

The Walking Tour Observation.



Walking Tour. Information Sheet

What is it?	<p>The walking tour has been designed to provide the researchers opinion of factors of the neighbourhood. This has been developed in a manner that allows researchers performing the tour to take a structured walk-through in an urban open space such as streets, markets, squares etc.</p> <p>The tool is designed using two checklists. Each list has 12 questions with a scoring system on a 4-point scale. Scores are assigned against each factor, final score is an average of the 12 scores.</p>
What can it be used for?	This has been designed to facilitate an understanding of the physical and social attributes of neighbourhoods in Lilongwe. This can be used to assess the quality of the space via the checklist.
When to use it?	<p>The tools should be used at various times of the day including peak and off-peak times. It should be repeated at different times of the week to view weekends with weekdays.</p> <p>Ideally it should be repeated seasonally.</p>
What does it tell you?	The walking tour provides the researchers opinion of the conditions of the neighbourhood. It should allow analysts to determine if a space is high or low quality, as well as areas for improvement or attention.
What indicators does it address?	Personal relationships; public meeting spaces; urban safety; culture and identity; sense of community; place attachment; architectural quality; urban infrastructure; transport and accessibility; density and privacy; ecological quality
Complementary tools	Behavioural snapshot; Contemplating settings; Space profiles; Attitude survey
Key elements	This is a simple tool that is easy to adopt at neighbourhood level. Fieldworkers will be on site observing the conditions of a particular setting using the provided checklists
Data/information required	This is an information gathering exercise. The only prior information required is a key informant advice on identifying appropriate snapshot spaces.
Time?	Approx. 20 minutes to allow researchers time to contemplate their answers
Limitations?	The tool only takes into account the observable situation and features. This should be complemented by resident's attitude survey to gain their personal perspective of the space.
Procedure	The walking tour should be repeated at a number of locations within the neighbourhood. This should include a public space, such as market area, as well as 2-3 domestic streets.

AREA 36



Area 36. Recreational Space: The school. *Analytical Description*

Date: 29 th July	Day: Monday	Time: 9:30am then 12:30pm
Weather: 22° to 26° and sunny with 0% precipitation	Notable smells: none	Notable sounds: youth playing

The school grounds are an area in the neighbourhood used by youth as a sport and recreational space. During the observation, it was the school holidays, therefore the space was performing similar to how it would at weekends.

The school buildings have a good quality external finishes and are made from permanent materials. They are visually compatible, as they are similar heights and materials used throughout with adequate space between buildings. The only exception to this was the church, which is a tent structure. The ground in the school area is reasonable quality. The verandas are made from concrete which are good quality, however the football pitch is a bit bumpy. That being said, it looked as though it had been recently swept, which keeps it in respectable. Any cars that access the space are kept to the edge where they part, therefore the space feels safe from vehicles. There is public transport links directly outside the school grounds, therefore it is well connected and accessible to the wider neighbourhood and city.

This space is essential for the neighbourhood as it provides an important large recreational space for youth to gather and play sports. The majority of the space is flat, with slopes connecting various areas together, meaning that it is accessible to all users, including disabled. Despite the majority of the area being open, there are smaller gathering spaces for those who would prefer privacy. These can be seen in the verandas of the classrooms, as well as the space under the tree displayed in photograph 3. This is a quiet secluded space with concrete bench that circles the tree. The tree provides shade thus the space can be used for a good length of time without being uncomfortable. The verandas and edges of classrooms also have shade which make them desirable spaces for residents to sit and enjoy watching their friends and neighbours play sports whilst shaded from the sun.

The space is very large, therefore despite the large number of visitors, it did not feel densely populated. There was still plenty of space for people to get around and enjoy. In terms of landscaping elements, the space has the concrete veranda paths which provide seating for those watching the sports, there are also goals for the sports fields. The tree area has a concrete bench which provides private seating area.

The school grounds were occupied by a large number of residents during the morning observation, however it was quiet over the lunch visit. It is likely that during the peak heat of the day, residents decide not to play sports, but to go somewhere else in the neighbourhood for their lunch. They are likely to return to the space mid to late afternoon when the temperature drops again. The space is used by a large number of youth, this may include siblings, however, it is not used by parents with children. There is nothing that would exclude others from using the space, nevertheless the space is dominated by youth.

While there is not food and drink available directly in the school grounds, there are stalls straight outside the gate. This provides refreshments for the users of the space. There are areas for diverse social activities to take place; both football and netball are being played on the grounds as it is large enough to accommodate both sports. Then there are those who are sitting, relaxing and chatting at the verandas. These spaces have a large number of users who are gathered informally enjoying the grounds. The bench under the tree was occupied by teachers working on their lesson plans during the observation. Teacher's houses are located on the school site, therefore this is a close-by space for them to meet together to work during school holidays.

The high number of youth enjoying spending time, playing and chatting loudly made the space feel active and vibrant. This is mostly a daytime space, and there is not night lighting available. It would be used after school hours, in early evening, but unlikely to be used into the evening.

There is a strong sense of community that is shown through the active social contact, informal gathering, and youth playing, laughing and joking together. The grounds lack litter or broken items, and the ground had been recently swept, which indicates that residents take pride in the area.

Area 36. Recreational Space: The school. Morning visit

Date: 29th July

Day: Monday

Time: 9:30am

Weather: 22° and sunny with 0% precipitation

Notable smells: none

Notable sounds: youth playing



Area 36. Recreational Space: The school. Morning visit

Date: 29 th July	Day: Monday	Time: 9:30am
Weather: 22° and sunny with 0% precipitation	Notable smells: none	Notable sounds: youth playing

Social Aspects of the Public Space		1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes	
Personal Relationships	Do you see members of the public space interacting with one another? (greeting, smiling chatting etc.)				✓	There are lots of youth playing football and netball together This space is more for youth than families, however many may be siblings Plenty of space for play
	Do you see many families? (children with parents, couples etc.)		✓			There are stalls directly outside the gate to the school
	Are there spaces for children to play under supervision of adults?				✓	There are two sports being played, also groups gathering to watch, and teachers marking in separate area.
Public Meeting Spaces	Is there food or drink available in the public space?			✓		Space is primarily used by youth & teachers but no reasons others couldn't join
	Does the space accomodate diverse social activities?				✓	Informal gathering to watch sports
	Is the space inclusive to all users? (different ages, genders etc.)			✓		Space is active and vibrant, youth are loudly shouting as they play sport
	Does the space include multiple gathering settings? (these could be both formal and informal)				✓	Unfortunately, no street lighting available, however it is more of a daytime space for sports
Urban Safety	Does the space feel vibrant? (think active commercial properties, well populated etc.)				✓	This space feels Malawian
	Is the public space well-lit at night?	✓				There is active social contact, informal gathering and people are playing, laughing joking together. People could tell we were strangers
Culture and Identity	Does the character of this public space reflect the identity of Malawi?				✓	The area is lacking in litter, no items broken to see and ground recently swept. Appears construction is happening
Sense of Community	Do you feel as though there is a strong sense of community in this neighbourhood? (This can be seen through active social contact, residents recognising one another, informal gathering, hearing nicknames etc.)				✓	
Place Attachment	Is the public space well-maintained? (This can be seen through lack of litter, lack of broken items etc.)				✓	
Total =sum/12		3.5				Space for sketching or note taking

Area 36. Recreational Space: The school. Morning visit

Date: 29 th July	Day: Monday	Time: 9:30am
Weather: 22° and sunny with 0% precipitation	Notable smells: none	Notable sounds: youth playing

Physical Aspects of the Public Space		1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes	
Architectural Quality	Are the majority of buildings in this public space made from good quality materials?				✓	The school buildings are all good quality with good external finishes. The overall school can be considered a landmark structure as residents should know it
	Are there any iconic or landmark buildings/structures?				✓	
	Are the buildings in the space visually compatible? (think heights, materials, space between buildings)				✓	The buildings in school grounds all the same style, material, height etc. except from the church which is a tent structure The ground is reasonable quality. Verandas around the school is good quality, but the football pitch is a bit lumpy /bumpy There is no traffic as cars park at edge
Infrastructure	Is the ground in this space good quality? (think, materials, maintenance, age)			✓		
	Does the space feel safe despite vehicular traffic (Low levels of traffic, slow moving vehicles etc.)				✓	Public transport comes just outside the school grounds therefore it is well connected The space is essential as a large recreational space The space is relatively flat therefore accessible to all
Transport & Accessibility	Is the public space connected to public transport links?				✓	
	Is this public space essential to the surrounding urban context?				✓	
	Is the space accessible to all users (including disabled) in terms of topography and physical barriers?				✓	There are private areas (seen in use by teachers) for those who want them During the morning the space was used by a high number of people, however due to size it is not dense
Density & Privacy	Does the public space have private areas for those who want them?				✓	
	Is the space densely populated at peak times of the day?			✓		There are paths around the classrooms, which provide seating for observers of the sports Shade provided by buildings and under tree
Ecological Quality	Is there good quality landscape elements in the space? (such as street furniture or paths)				✓	
	Is there a good presence of shade in the public space?				✓	
Total =sum/12				3.7		Space for sketching or note taking

Area 36. Recreational Space: The school. Afternoon visit

Date: 29th July

Day: Monday

Time: 12:30pm

Weather: 26° and sunny with 0% precipitation

Notable smells: none

Notable sounds: none



Area 36. Recreational Space: The school. Afternoon visit

Date: 29 th July	Day: Monday	Time: 12:30pm
Weather: 26° and sunny with 0% precipitation	Notable smells: none	Notable sounds: youth playing

Social Aspects of the Public Space		1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes	
Personal Relationships	Do you see members of the public space interacting with one another? (greeting, smiling chatting etc.)	✓				Revisiting the space at 12:30 when the temperature was at the peak heat of the day provided a different view of the space.
	Do you see many families? (children with parents, couples etc.)	✓				
	Are there spaces for children to play under supervision of adults?				✓	
Public Meeting Spaces	Is there food or drink available in the public space?			✓		It was now empty, this could partly be that the residents had gone home for lunch, or that the area was now too hot for sports.
	Does the space accomodate diverse social activities?				✓	
	Is the space inclusive to all users? (different ages, genders etc.)			✓		
	Does the space include multiple gathering settings? (these could be both formal and informal)				✓	
Urban Safety	Does the space feel vibrant? (think active commercial properties, well populated etc.)	✓				The space therefore felt much less vibrant, and did not illustrate the same strong sense of community that was witnessed in the morning.
	Is the public space well-lit at night?	✓				
Culture and Identity	Does the character of this public space reflect the identity of Malawi?				✓	
Sense of Community	Do you feel as though there is a stong sense of community in this neighbourhood? (This can be seen through active social contact, residents recognising one another, informal gathering, hearing nicknames etc.)	✓				
Place Attachment	Is the public space well-maintained? (This can be seen through lack of litter, lack of broken items etc.)				✓	
Total =sum/12		2.6				Space for sketching or note taking

Area 36. Commercial Space: The shops. *Analytical Description*

Date: 29 th July	Day: Monday	Time: 9:30am then 12:30pm
Weather: 22° to 26° and sunny with 0% precipitation	Notable smells: none	Notable sounds: youth playing

The shopping area is an area in the neighbourhood that is used by a mixture of ages and genders as a commercial space. This was observed both in the morning and afternoon during lunch hour on a typical weekday.

The buildings in the area are all made from permanent materials, including tiles, concrete, and glass windows. The buildings are very compatible; they are terraced therefore the same height, with similar materials and colours used throughout. The overall area can be considered a landmark as residents would know where you're referring to, however nothing stands out strongly from one another due to visual compatibility. The ground is made from concrete slab which is in good condition. Despite the fact that cars use the space to park, they are slow moving, thus the space feels safe despite vehicular traffic. There are public transport links connected to the road, which makes it accessible to a wide number of residents of the neighbourhood. The shopping area is essential space for residents, as it provides shops, space to eat and space to relax. That being said, there is a market a few moments down the road which many residents may prefer to shop at.

The area has a flat terrain with no physical barriers, therefore is accessible to all including disabled users. There are minimal private spaces as the area is quite open without trees or vegetation to provide privacy. A user could choose to sit away from anyone else, which, due to the size of the space could provide a bit of privacy, but in general the space is very public. Despite constant foot flow, due to the size of the space it does not appear to get densely populated. There is a concrete wall with metal fencing on it that borders the space. This is good quality and provides visual landscaping for the space. There is a raised pavement bordering the shops, and a gazebo at the end of the space to provide some shade. That being said, there is no vegetation or trees available.

There are three primary types of users identified through observation; those who work in the shops and restaurant, those who use the facilities, and those who are transiting through the space. Transit users are often in groups passing through the space as part of their route through the neighbourhood. This category sees friends, family, couples as well as individuals transiting through the space, however they do not stop to use the facilities. The people stopping to use the space are a mixed demographic. The final category are the employees of the space. During the observation, they moved to where the largest area of shade was. They sat outside preparing food for the restaurants, creating life in the space.

While the space is safe for users of all ages, children do not appear to use it for play. This could be due to the lack of large shaded areas for relaxation as the shaded areas are mostly occupied by the employees of the spaces. People are seen gathering in any shade available. The space has diverse social activities available, including shopping, eating, walking or relaxing. There is a constant through traffic of people, and a strong sense of community. Neighbours and residents are seen conversing, stopping to greet one another, and having informal conversations as they use the space. This active social contact suggests that this is a community space used by local residents. The space is well maintained, as it is lacking in litter or broken items. This suggests residents take pride in their neighbourhood proposing place attachment.

Area 36. Commercial Space: The shops. Morning visit

Date: 29th July

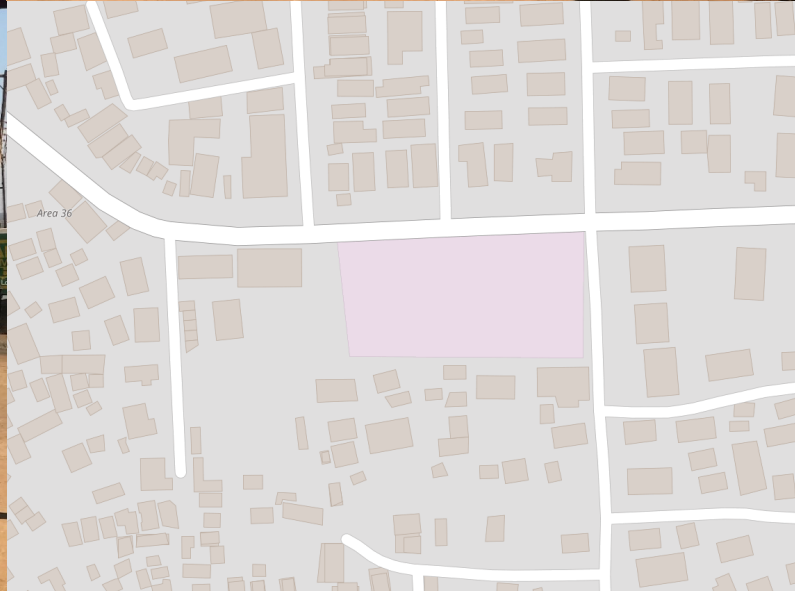
Day: Monday

Time: 9:30am

Weather: 22° and sunny with 0% precipitation

Notable smells: none

Notable sounds:



Area 36. Commercial Space: The shops. Morning visit

Date: 29 th July	Day: Monday	Time: 9:30am
Weather: 22° and sunny with 0% precipitation	Notable smells: none	Notable sounds:

Social Aspects of the Public Space		1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes	
Personal Relationships	Do you see members of the public space interacting with one another? (greeting, smiling chatting etc.)			✓		Members of public use this space as groups. It is often used as a route along the street
	Do you see many families? (children with parents, couples etc.)			✓		There are mothers with babies, parents with children passing through the space
	Are there spaces for children to play under supervision of adults?		✓			While it is used by families, they tend to pass through or use shops rather than stop to play.
Public Meeting Spaces	Is there food or drink available in the public space?				✓	There are shops and restaurants on site providing hot and cold food and drinks
	Does the space accomodate diverse social activities?			✓		People can use the space to shop, eat/drink, walk. Three are those using it to relax with friends
	Is the space inclusive to all users? (different ages, genders etc.)				✓	People are seen gathering in spots of shade, however it could benefit from more shaded areas
	Does the space include multiple gathering settings? (these could be both formal and informal)			✓		The space is busy, constant through traffic of people, with commercial properties
Urban Safety	Does the space feel vibrant? (think active commercial properties, well populated etc.)			✓		Unfortunately no street lighting available
	Is the public space well-lit at night?	✓				
Culture and Identity	Does the character of this public space reflect the identity of Malawi?				✓	
Sense of Community	Do you feel as though there is a stong sense of community in this neighbourhood? (This can be seen through active social contact, residents recognising one another, informal gathering, hearing nicknames etc.)			✓		Sense of community is strong in this neighbourhood, felt through active social contact, informal gathering and general informal conversations
Place Attachment	Is the public space well-maintained? (This can be seen through lack of litter, lack of broken items etc.)				✓	No litter or broken items to note
Total =sum/12		3.1				Space for sketching or note taking

Area 36. Commercial Space: The shops. Morning visit

Date: 29 th July	Day: Monday	Time: 9:30am
Weather: 22° and sunny with 0% precipitation	Notable smells: none	Notable sounds:

Physical Aspects of the Public Space		1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes	
Architectural Quality	Are the majority of buildings in this public space made from good quality materials?				✓	<p>Buildings in this area are made from permanent materials, including tiles and glass windows</p> <p>The overall area would be known to residents as a landmark, however nothing stands out strongly from each other</p> <p>Buildings are visually compatible, similar heights, materials and are terraced</p> <p>Ground is made from concrete slab which is in good condition, no pot holes etc.</p> <p>Although cars park in this area, they are moving slowly so space still feels safe</p> <p>Public transport is connected to the road at this space</p> <p>This is an essential space for residents, as it provides shops and space to eat and relax. Others may choose to use market etc. for shopping</p> <p>The space is flat with no physical barriers therefore accessible to all</p> <p>There are not great private spaces as the area is quite open without trees etc. you could choose to sit away from anyone else which is somewhat private</p> <p>Despite constant foot flow, due to size of space it is not densely populated</p> <p>The wall bordering the road is good quality, and there is a raised pavement, however no vegetation or trees.</p>
	Are there any iconic or landmark buildings/structures?			✓		
	Are the buildings in the space visually compatible? (think heights, materials, space between buildings)				✓	
Infrastructure	Is the ground in this space good quality? (think, materials, maintenance, age)				✓	
	Does the space feel safe despite vehicular traffic (Low levels of traffic, slow moving vehicles etc.)				✓	
Transport & Accessibility	Is the public space connected to public transport links?				✓	
	Is this public space essential to the surrounding urban context?			✓		
	Is the space accessible to all users (including disabled) in terms of topography and physical barriers?				✓	
Density & Privacy	Does the public space have private areas for those who want them?		✓			
	Is the space densely populated at peak times of the day?		✓			
Ecological Quality	Is there good quality landscape elements in the space? (such as street furniture or paths)		✓	✓		
	Is there a good presence of vegetation in the public space?	✓				
Total =sum/12		3.1				Space for sketching or note taking

Area 36. Commercial Space: The shops. Afternoon visit

Date: 29th July

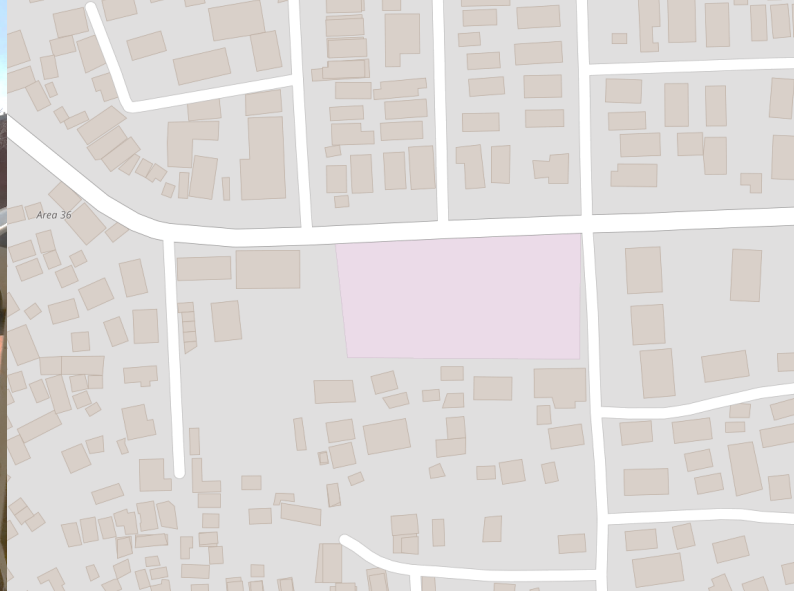
Day: Monday

Time: 12:30pm

Weather: 26° and sunny with 0% precipitation

Notable smells: BBQ cooking

Notable sounds:



Area 36. Commercial Space: The shops. Afternoon visit

Date: 29 th July	Day: Monday	Time: 12:30pm
Weather: 26° and sunny with 0% precipitation	Notable smells: BBQ cooking	Notable sounds:

Social Aspects of the Public Space		1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes	
Personal Relationships	Do you see members of the public space interacting with one another? (greeting, smiling chatting etc.)			✓		This area is well populated and used at all times of the day. It has a restaurant which draws in residents at meal times, helping to bring in foot flow.
	Do you see many families? (children with parents, couples etc.)			✓		
	Are there spaces for children to play under supervision of adults?		✓			
Public Meeting Spaces	Is there food or drink available in the public space?				✓	There are kitchen workers who are sitting together in the shade preparing food and conversing happily. They move from one space to another depending on where the shade is The lunch food is being cooked on an outside BBQ. The smell of which is drawing in residents and customers
	Does the space accomodate diverse social activities?			✓		
	Is the space inclusive to all users? (different ages, genders etc.)				✓	
	Does the space include multiple gathering settings? (these could be both formal and informal)			✓		
Urban Safety	Does the space feel vibrant? (think active commercial properties, well populated etc.)			✓		
	Is the public space well-lit at night?	✓				
Culture and Identity	Does the character of this public space reflect the identity of Malawi?				✓	
Sense of Community	Do you feel as though there is a strong sense of community in this neighbourhood? (This can be seen through active social contact, residents recognising one another, informal gathering, hearing nicknames etc.)			✓		
Place Attachment	Is the public space well-maintained? (This can be seen through lack of litter, lack of broken items etc.)				✓	
Total =sum/12		3.1				Space for sketching or note taking

AREA 18



Area 18. Recreational Space: The Botanical Gardens. *Analytical Description*

Date: 30th July

Day: Tuesday

Time: 9:30am then 12:30pm

Weather: 22° to 26° and sunny with 0% precipitation

Notable smells: none

Notable sounds: none

The botanical gardens are a large green space that connects Area 18 to Capital Hill. Capital Hill is the location of Lilongwe's government offices, therefore this space is used by government employees over their lunch hour, as well as residents from surrounding neighbourhoods such as Area 18.

The botanical gardens are mostly grass, trees and vegetation, however it has a few notable structures throughout including a church, offices, relaxation huts and a toilet block. The offices and toilet blocks are made from good quality permanent materials, and the huts and church are made from high quality traditional materials and techniques. Each building is a stand alone object that sits well as a jewel in the landscape. The main paths of the botanical gardens are good quality, which appear to be swept for leaves often. That being said, they can be bumpy in parts.

Vehicles park out with the gardens therefore there is no traffic in the space. There is public transport by local mini-buses that connect the space to the wider city, therefore it is accessible to many users. It is also accessible to all users in terms of topography and physical barriers as it is a large flat space. A large recreational space such as this is essential for the neighbourhood as it provides a sanctuary from busy city life. It can be observed that the space is essential due to the high number of occupants who visit throughout the day for prayers.

Due to the size of the gardens, there are plenty of solitary and private spaces scattered throughout for those who want them, hidden within the trees. During observations we spotted residents throughout who were sat under trees reading books, studying, working, or praying in private. Although the size of the park means that it does not become densely populated, it was observed that there are peak times of day where the space becomes busy, including lunch hour. This is despite the fact that the gardens do not have refreshments available besides one mendaze seller. The majority of users appear to bring a packed lunch, notable from some of the litter scattered in the park which food are wrappers or packets. The park is well landscaped throughout, with paths, benches and beautiful flowers.

The observations took place once in the morning and again in the afternoon. The morning saw a quiet space with a few scattered residents sitting alone on benches enjoying the quiet space, and one group gathered having a meeting in a quiet secluded space. From observation we believed this was likely a church or community group having a meeting. There is plenty of space for children to play, which they do at weekends with parents. There are multiple gathering settings, some with benches, others under trees or beside bushes and fences depending on the activity taking place. The space is very beautiful and calm throughout the day. Even during peak use at lunch hour, there remains a calm energy in the gardens. There is no street lighting available, therefore space is used throughout the day rather than evenings or night hours.

During the morning observation, the majority of users were individuals who were using the space independently for quiet and tranquillity. However lunch hour sees a large influx of residents, many who visit in groups. This reflects the sense of community coming together to use the space. Many visitors were using the gardens to pray and visit the church. On viewing the visitor's book, it could be seen that the majority of visitors state 'prayers' as their reason for visit. The gardens are well maintained aside from the small amount of litter from packed lunches. The employees of the park were sweeping leaves across the grass areas, gathering them in piles which may later be used as compost. There were no broken items to be seen which indicates people taking pride in the gardens and not vandalising them.

Area 18. Recreational Space: The Park/Botanical Gardens. Morning visit

Date: 30th July

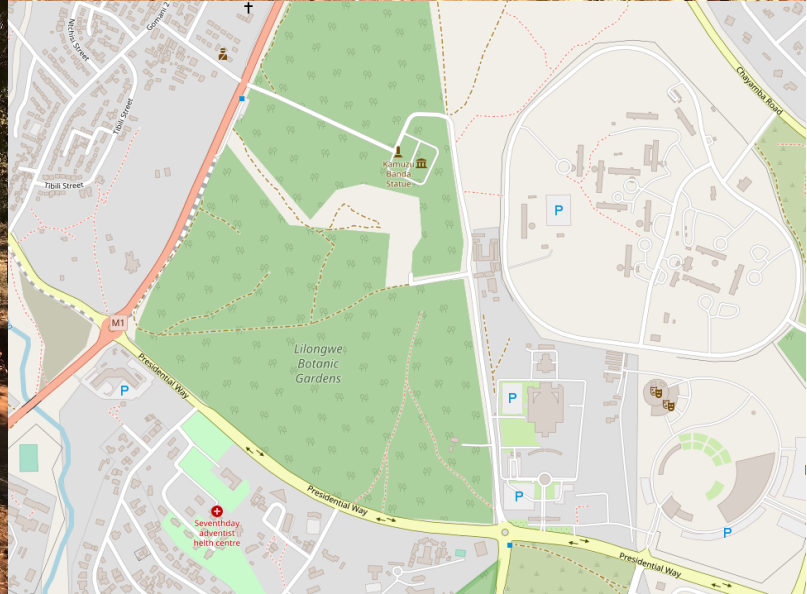
Day: Tuesday

Time: 09:30am

Weather: 21° and sunny with 0% precipitation

Notable smells:

Notable sounds:



Area 18. Recreational Space: The Park/Botanical Gardens. Morning visit

Date: 30 th July	Day: Tuesday	Time: 09:30am
Weather: 21° and sunny with 0% precipitation	Notable smells:	Notable sounds:

Social Aspects of the Public Space		1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes	The morning visit to the botanical gardens the space was quiet with some residents sitting alone on benches enjoying the quiet space, and one group gathered having a meeting in a quite secluded space
Personal Relationships	Do you see members of the public space interacting with one another? (greeting, smiling chatting etc.)		✓			There are spaces for children to play, however informant stated that this happens mostly at the weekend
	Do you see many families? (children with parents, couples etc.)		✓			The majority of users bring a packed lunch if they want food. At the entrance, there is a man selling mendaze, but not a great deal available on site
	Are there spaces for children to play under supervision of adults?				✓	
Public Meeting Spaces	Is there food or drink available in the public space?		✓	✓		The park is large with multiple gathering settings, some with benches, others under trees or by bushes etc.
	Does the space accomodate diverse social activities?				✓	
	Is the space inclusive to all users? (different ages, genders etc.)				✓	The space is very beautiful and calm during the morning. The flowers and plants are pretty
	Does the space include multiple gathering settings? (these could be both formal and informal)				✓	No street lighting available
Urban Safety	Does the space feel vibrant? (think active commercial properties, well populated etc.)		✓	✓		The flowers are native Malawian
	Is the public space well-lit at night?	✓				During the morning visit the visitors were mostly individuals, however there was one group gathered who looked like a church group having a meeting which reflects community groups in the area
Culture and Identity	Does the character of this public space reflect the identity of Malawi?				✓	
Sense of Community	Do you feel as though there is a stong sense of community in this neighbourhood? (This can be seen through active social contact, residents recognising one another, informal gathering, hearing nicknames etc.)		✓			The space is mostly well maintained, however there were some examples of litter from picnics. The path had been swept for leafs, and there were people working on gathering leafs in the grass areas making large piles of leafs that may be used for compost
Place Attachment	Is the public space well-maintained? (This can be seen through lack of litter, lack of broken items etc.)			✓		
Total =sum/12			3.1			Space for sketching or note taking

Area 18. Recreational Space: The Park/Botanical Gardens. Buildings/Paths

Date: 30th July

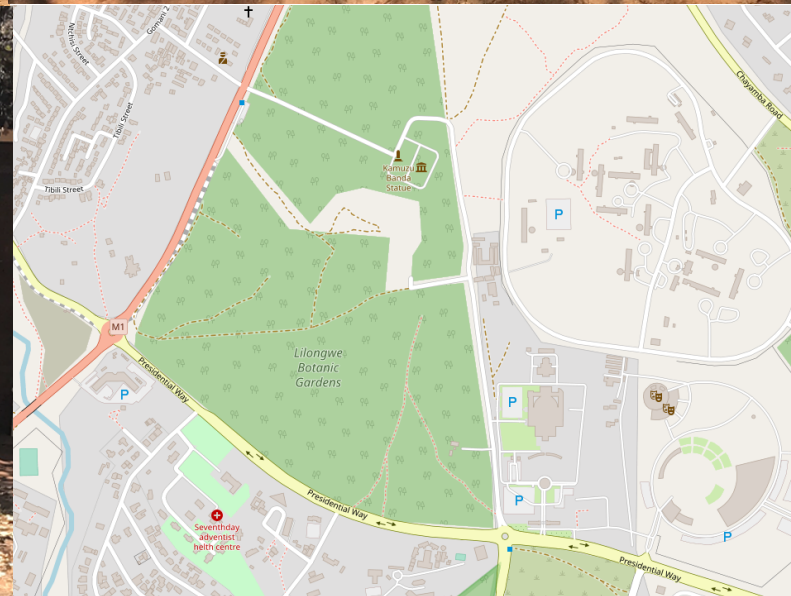
Day: Tuesday

Time: 12:30pm

Weather: 26° and sunny with 0% precipitation

Notable smells:

Notable sounds:



Area 18. Recreational Space: The Park/Botanical Gardens. Morning visit

Date: 30 th July	Day: Tuesday	Time: 09:30am
Weather: 21° and sunny with 0% precipitation	Notable smells:	Notable sounds:

Physical Aspects of the Public Space		1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes	
Architectural Quality	Are the majority of buildings in this public space made from good quality materials?			✓		<p>The botanical gardens are mostly grass, trees, flowers and vegetation. However there are a few notable structures throughout including the church, the offices, huts and toilet blocks.</p> <p>The offices and toilet blocks are made from good quality permanent materials, and the huts and church are well made from traditional methods.</p> <p>Each building is a stand alone object that sits well in the landscape</p> <p>The main paths are good quality, however can be bumpy in parts. They seem to be swept for leafs often which keeps them clear</p> <p>Traffic parks out with the botanical gardens therefore no traffic in the space</p> <p>Public transport mini buses come by the botanical gardens</p> <p>A large recreational space such as this is essential as it provides a sanctuary from busy city life. Also considered essential that it is commonly used throughout the day for prayers</p> <p>Due to the size of the park, there are plenty of solitary and private spaces for those who want them, hidden within trees etc.</p> <p>Due to the size of the park, it does not become densely populated, however it does get busy</p> <p>The paths are well landscaped, and there are benches in the park for relaxation</p> <p>Large amount of vegetation and flowers</p>
	Are there any iconic or landmark buildings/structures?			✓		
	Are the buildings in the space visually compatable? (think heights, materials, space between buildings)			✓		
Infrastructure	Is the ground in this space good quality? (think, materials, maintenance, age)			✓		
	Does the space feel safe despite vehicular traffic (Low levels of traffic, slow moving vehicles etc.)				✓	
Transport & Accessibility	Is the public space connected to public transport links?				✓	
	Is this public space essential to the surrounding urban context?				✓	
	Is the space accessible to all users (including disabled) in terms of topography and physical barriers?				✓	
Density & Privacy	Does the public space have private areas for those who want them?				✓	
	Is the space densly populated at peak times of the day?					
Ecological Quality	Is there good quality landscape elements in the space? (such as street furniture or paths)				✓	
	Is there a good presence of vegetation in the public space?				✓	
Total =sum/12						Space for sketching or note taking

Area 18. Recreational Space: The Park/Botanical Gardens. Afternoon visit

Date: 30th July

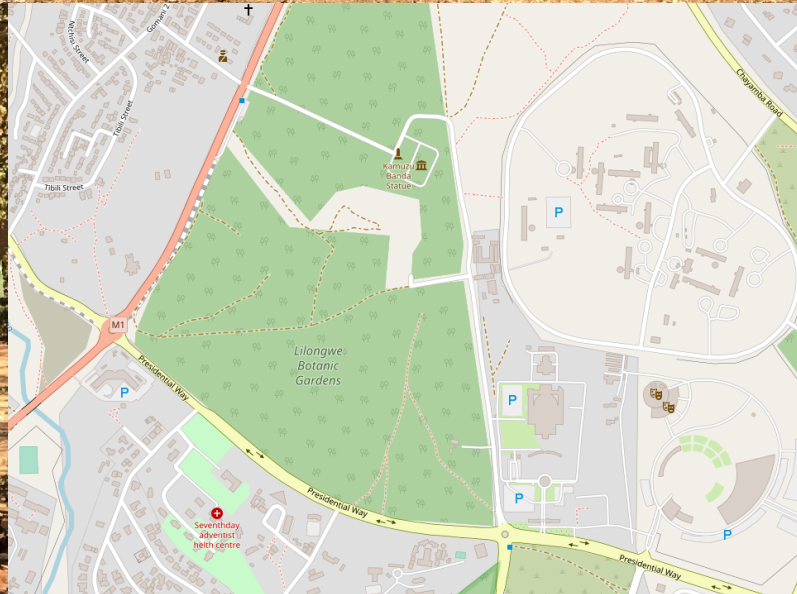
Day: Tuesday

Time: 12:30pm

Weather: 26° and sunny with 0% precipitation

Notable smells:

Notable sounds:



Area 18. Recreational Space: The Park/Botanical Gardens. Afternoon visit

Date: 30 th July	Day: Tuesday	Time: 12:30pm
Weather: 26° and sunny with 0% precipitation	Notable smells:	Notable sounds:

Social Aspects of the Public Space		1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes	
Personal Relationships	Do you see members of the public space interacting with one another? (greeting, smiling chatting etc.)				✓	The botanical gardens become very popular during lunch hours. There is a church that is used by residents and people who work close by. There are also those coming to use the space for lunch Mostly adults using the space at this time, however families do come at the weekend
	Do you see many families? (children with parents, couples etc.)			✓		
	Are there spaces for children to play under supervision of adults?				✓	
Public Meeting Spaces	Is there food or drink available in the public space?		✓	✓		Space feels much more vibrant at lunch hour due to large influx of people
	Does the space accomodate diverse social activities?				✓	
	Is the space inclusive to all users? (different ages, genders etc.)				✓	
	Does the space include multiple gathering settings? (these could be both formal and informal)				✓	
Urban Safety	Does the space feel vibrant? (think active commercial properties, well populated etc.)				✓	Sense of community is reflected by those coming to meet, lunch and pray in groups. There are mixture of genders and some groups/couples using the space
	Is the public space well-lit at night?	✓				
Culture and Identity	Does the character of this public space reflect the identity of Malawi?				✓	
Sense of Community	Do you feel as though there is a strong sense of community in this neighbourhood? (This can be seen through active social contact, residents recognising one another, informal gathering, hearing nicknames etc.)				✓	
Place Attachment	Is the public space well-maintained? (This can be seen through lack of litter, lack of broken items etc.)			✓		
Total =sum/12		3.1				Space for sketching or note taking

Area 18. Recreational Space: The Monument Square. *Analytical Description*

Date: 30 th July	Day: Tuesday	Time: 9:30am then 12:30pm
Weather: 22° to 26° and sunny with 0% precipitation	Notable smells: none	Notable sounds: none

The monument square with tower is an iconic space directly adjacent to Area 18, that provides a connection from Area 18 to Capital Hill. Capital Hill is the location of Lilongwe's government offices, therefore this space is used by government employees over their lunch hour, as well as residents from surrounding neighbourhoods such as Area 18.

The square has one large iconic building, the tower which is in memory of those who fought in World War 1, and a statue of previous president of Malawi. Both of these structures are made from good quality permanent materials and are landmarks which stand out from the surrounding context. The only other structure on the site is the tourist office which is used by local guides. While the three structures are quite different, they are acceptably compatible due to their iconic nature.

The ground is high quality cobble stones in the majority of the square, with nice paving surrounding the tower. Traffic moves slowly around the square, and parks at the edges therefore square feels safe despite vehicles. Notably most cars try to park within the shade if possible as the space gets very hot. This square is a unique space within Lilongwe, which makes it essential as there are not others like it. During the observation time, there were numerous activities taking place which are not seen in other areas of the neighbourhoods including; a group of men filming a music video in the iconic space, and an individual using the quiet road to learn to drive.

There is a landscaped ramp that connects the upper tower space to ground level, making it accessible to all users including disabled. One of the predominant issues with the space is the lack of shaded areas. During the peak heat of the day, the square becomes too hot for residents to relax in it. There are some small areas of shade, such as the grass next to the tower, however this is not very much.

Although there are not clear formal private areas, one can find solidarity in spaces. For example, if there are people occupying the square, one could sit next to the tower, as it is at a different height it provides privacy from the lower level. Due to the size of the square, it is not often densely populated. Also noted during our observation period that residents do not appear to stay too long. This is likely due to the lack of shade and refreshments available. That being said, the landscaping is high quality with flower beds and good quality paths and railings. The stairs provide a satisfactory seating area. A great asset to this space is that it has street lighting available, thus making it usable at all hours of the day.

This square is a very aesthetic, however the lack of shaded areas makes it a quiet space, predominantly used by pedestrians transiting through the space. There is currently no food or drink available at the space, however discussions with the local guide stated that they hope this will come in near future. The space feels unique and unusual for Malawi. It was commissioned by the former president, and an informant stated that everyone was surprised when it was built. People appear to like the space, however agree that shade would be beneficial. The square is well maintained, noticeable through the lack of litter or broken items.

Area 18. Recreational Space: The Monument Square. Morning visit

Date: 30th July

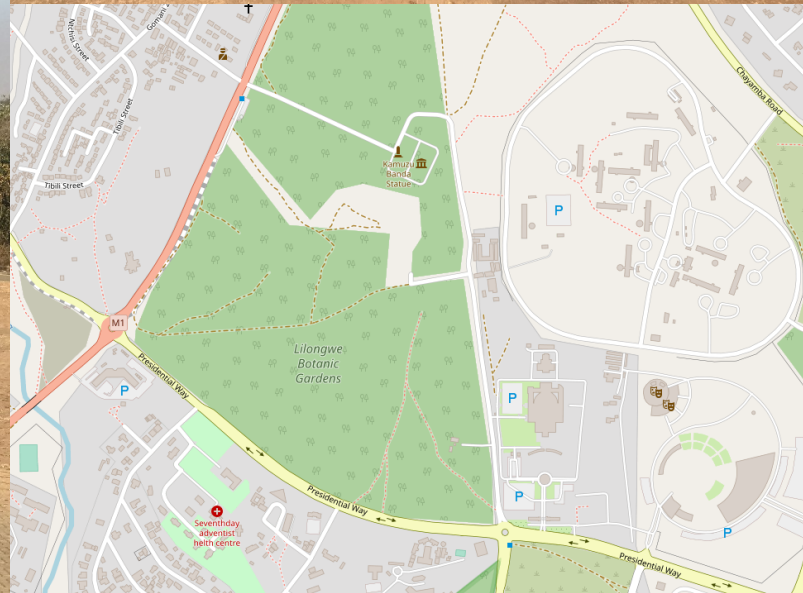
Day: Tuesday

Time: 09:30am

Weather: 21° and sunny with 0% precipitation

Notable smells:

Notable sounds:



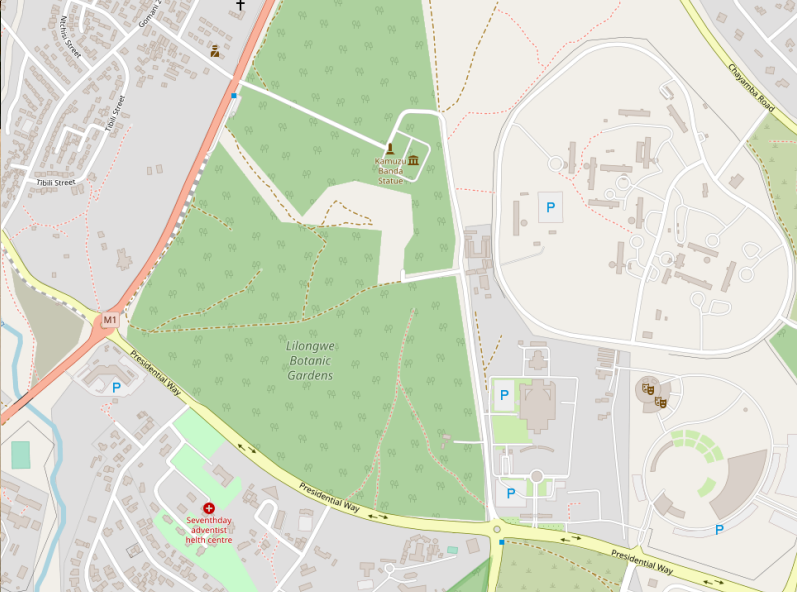
Area 18. Recreational Space: The Monument Square. Morning visit

Date: 30 th July	Day: Tuesday	Time: 10:30am
Weather: 22° and sunny with 0% precipitation	Notable smells:	Notable sounds:

Social Aspects of the Public Space		1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes	
Personal Relationships	Do you see members of the public space interacting with one another? (greeting, smiling chatting etc.)		✓			<p>During the morning visit, the space was quite quiet. It is used by pedestrians as a route from area 18 to capital hill.</p> <p>There was also a group of 5 men who were recording a music video showing the space is used for diverse social activities</p> <p>There is plenty of space for children to play, and informant stated that children like to play football at weekends</p> <p>No food or drink available, however the site guide stated that this may come in the future</p> <p>Space is large enough for multiple gathering settings, e.g. by the statue or by the tower</p> <p>Space didn't feel too vibrant, possibly due to low number of people stopping to spend time. Perhaps more vibrant at weekends</p> <p>There is lighting available</p> <p>This is an unusual space for Malawi, it was commissioned by the former president and informant claimed that everyone was surprised by it when it was built</p> <p>Space is well maintained noticeable through lack of litter or broken items</p>
	Do you see many families? (children with parents, couples etc.)		✓			
	Are there spaces for children to play under supervision of adults?				✓	
Public Meeting Spaces	Is there food or drink available in the public space?	✓				
	Does the space accomodate diverse social activities?			✓	✓	
	Is the space inclusive to all users? (different ages, genders etc.)				✓	
	Does the space include multiple gathering settings? (these could be both formal and informal)			✓		
Urban Safety	Does the space feel vibrant? (think active commercial properties, well populated etc.)		✓			
	Is the public space well-lit at night?				✓	
Culture and Identity	Does the character of this public space reflect the identity of Malawi?		✓			
Sense of Community	Do you feel as though there is a strong sense of community in this neighbourhood? (This can be seen through active social contact, residents recognising one another, informal gathering, hearing nicknames etc.)		✓	✓		
Place Attachment	Is the public space well-maintained? (This can be seen through lack of litter, lack of broken items etc.)				✓	
Total =sum/12						Space for sketching or note taking

Area 18. Recreational Space: The Monument Square. Morning visit Buildings/Paths

Date: 30 th July	Day: Tuesday	Time: 09:30am
Weather: 21° and sunny with 0% precipitation	Notable smells:	Notable sounds:



Area 18. Recreational Space: The Monument Square. Morning visit

Date: 30 th July	Day: Tuesday	Time: 10:30am
Weather: 22° and sunny with 0% precipitation	Notable smells:	Notable sounds:

Physical Aspects of the Public Space		1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes	
Architectural Quality	Are the majority of buildings in this public space made from good quality materials?				✓	The monument and statue are both made from good quality permanent materials The tower and statue are both landmarks which stand out from surrounding context
	Are there any iconic or landmark buildings/structures?				✓	As they are the only structures, besides the tourist office, they are not incompatible
	Are the buildings in the space visually compatible? (think heights, materials, space between buildings)				✓	Ground is good quality, cobble stones in the majority of the space, and nice paving surrounding the tower
Infrastructure	Is the ground in this space good quality? (think, materials, maintenance, age)				✓	Traffic parks at the edge therefore space feels safe. Majority of users are on foot
	Does the space feel safe despite vehicular traffic (Low levels of traffic, slow moving vehicles etc.)				✓	Minibus comes right up to the square
Transport & Accessibility	Is the public space connected to public transport links?				✓	This is a unique space, which makes it essential. During observation, an individual used the space to learn to drive showing that it is used for a mixture of activities
	Is this public space essential to the surrounding urban context?				✓	There is a ramp connecting the upper tower space to the ground level making it accessible to all
	Is the space accessible to all users (including disabled) in terms of topography and physical barriers?				✓	The space is large and has minimal shade which is an issue. Due to the size of the space and change in height there are more private spaces if one wants
Density & Privacy	Does the public space have private areas for those who want them?			✓		Due to size of the space, it is not often densely populated. Also noted that people do not stay too long, this could be due to lack of shade and food/drink available at square therefore too hot to stay in.
	Is the space densely populated at peak times of the day?		✓			Landscaping is good quality, nice flower beds and good quality paths and railings.
Ecological Quality	Is there good quality landscape elements in the space? (such as street furniture or paths)				✓	Stairs make a satisfactory seating area, however again shade is an issue throughout square
	Is there a good presence of vegetation in the public space?			✓		
Total =sum/12						Space for sketching or note taking

Area 18. Recreational Space: The Monument Square. Morning visit

Date: 30th July

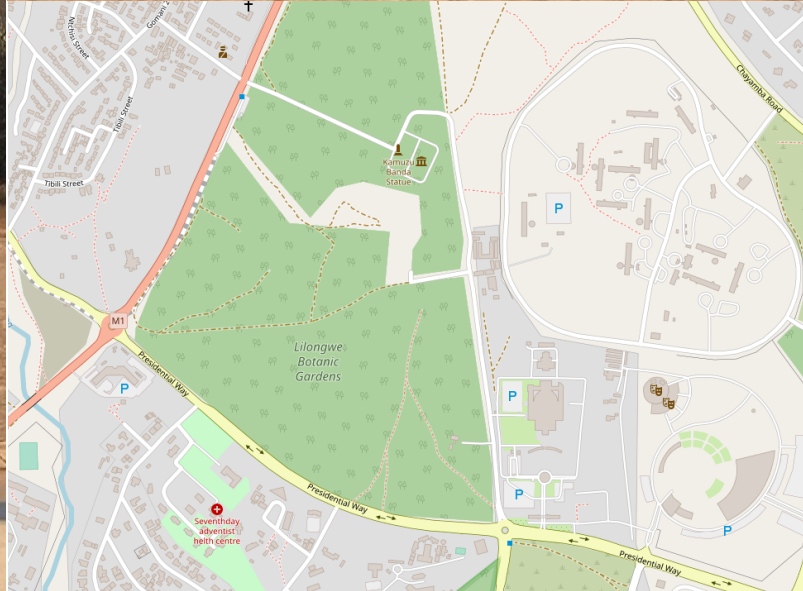
Day: Tuesday

Time: 09:30am

Weather: 21° and sunny with 0% precipitation

Notable smells:

Notable sounds:



Area 18. Recreational Space: The Monument Square. Afternoon visit

Date: 30 th July	Day: Tuesday	Time: 12:30pm
Weather: 26° and sunny with 0% precipitation	Notable smells:	Notable sounds:

Social Aspects of the Public Space		1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes	
Personal Relationships	Do you see members of the public space interacting with one another? (greeting, smiling chatting etc.)			✓		
	Do you see many families? (children with parents, couples etc.)		✓			
	Are there spaces for children to play under supervision of adults?				✓	
Public Meeting Spaces	Is there food or drink available in the public space?	✓				
	Does the space accomodate diverse social activities?			✓	✓	
	Is the space inclusive to all users? (different ages, genders etc.)				✓	
	Does the space include multiple gathering settings? (these could be both formal and informal)			✓		
Urban Safety	Does the space feel vibrant? (think active commercial properties, well populated etc.)		✓			
	Is the public space well-lit at night?				✓	
Culture and Identity	Does the character of this public space reflect the identity of Malawi?		✓			
Sense of Community	Do you feel as though there is a strong sense of community in this neighbourhood? (This can be seen through active social contact, residents recognising one another, informal gathering, hearing nicknames etc.)		✓	✓		
Place Attachment	Is the public space well-maintained? (This can be seen through lack of litter, lack of broken items etc.)				✓	
Total =sum/12		3.1				Space for sketching or note taking

Area 18. Commercial Space. The Shops. *Analytical Description*

Date: 30 th July	Day: Tuesday	Time: 9:30am then 12:30pm
Weather: 22° to 26° and sunny with 0% precipitation	Notable smells: none	Notable sounds: none

This is a commercial shopping and restaurant space in Area 18. It is used by residents of the neighbourhood, and also people who work nearby, such as government employees of Captial Hill.

All the buildings in the setting are permanent structure, which are concrete with painted finish. They are visually compatible as they are terraced buildings which use a similar colour scheme, materials and similar heights. The ground is average quality. It has been recently swept, however is lumpy in parts. Although there is vehicle access to the area, it is used for parking, therefore vehicles move slowly thus the space still feels safe despite vehicular traffic.

The facilities are used by local people throughout the day, particularly during lunch hour and weekends. At lunch hour the space saw a large influx of visitors, especially to the restaurant spaces. This therefore makes it an essential space for the neighbourhood. While a large portion of the space would be accessible to all users, there are some areas which are upstairs which would be difficult for elderly or disabled users to access. Some commercial properties would be accessible but not all.

During the observation, there were groups gathering in the shaded areas, using the stairs as seating. One space was being used by men, and a second space was being used by a group of women. The stairs are located under a veranda, therefore have shade. Inside the restaurant both men and women gathered to eat lunch. The landscaping in the space is reasonable but minimal; there are elements such as steps for seating, however no vegetation or formal street furniture.

Members of the public use this area to visit shops and restaurants, and to relax and communicate with friends. There are groups using the space to relax, and parents with children are seen passing through using the facilities as they go. While families are welcome to use the space, there are ones which suit families better within the neighbourhood so it is more commonly used by adults or teenagers. There is food and drink available in the space from the shops and restaurant. Some occupants are using the space to shop, or eat, while others use it to relax and converse with friends.

While spaces are not adversely private, there are multiple gathering settings for those who want them. This can be seen through the different groups sitting separately, at different heights using the steps provided by the space. During lunch hour, the space felt vibrant due to the number of users in the space. The space feels typically Malawian, reflected by the local food, drink and architecture used by the space. The area reflects a strong sense of community which is notable from the groups sitting together, and by passers-by greeting one another. It is likely that people feel attached to the space reflected in the lack of litter or broken items in the space.

Area 18. Commercial Space: The shops. Morning Visit

Date: 30th July

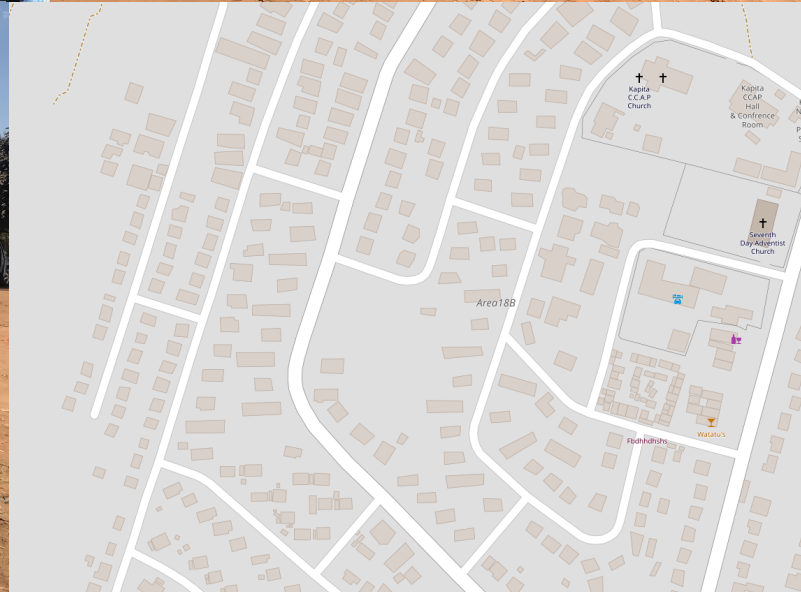
Day: Tuesday

Time: 11:00am

Weather: 21° and sunny with 0% precipitation

Notable smells:

Notable sounds:



Area 18. Commercial Space: The shops. Morning Visit

Date: 30 th July	Day: Tuesday	Time: 10:30am
Weather: 22° and sunny with 0% precipitation	Notable smells:	Notable sounds:

Social Aspects of the Public Space		1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes	
Personal Relationships	Do you see members of the public space interacting with one another? (greeting, smiling chatting etc.)				✓	<p>Members of the public use this area to visit shops, restaurants and relax.</p> <p>There are groups of men and women in the space, and there were those with children passing through using the facilities</p> <p>Children can use the space, however may find there are ones better suited to families within the neighbourhood</p> <p>Food and drink available in restaurant and shops. Some are using the space to shop, others to relax or eat/drink</p> <p>There are different areas for residents to spend time if they choose, such as women sitting on stairs, men sitting in veranda etc.</p> <p>The space appears vibrant with many users in the space</p> <p>This space feels typically Malawian with local food/drink</p> <p>Strong sense of community notable from the groups sitting together and passers by greeting one another</p> <p>Minimal litter or broken elements in space</p>
	Do you see many families? (children with parents, couples etc.)			✓		
	Are there spaces for children to play under supervision of adults?			✓		
Public Meeting Spaces	Is there food or drink available in the public space?				✓	
	Does the space accommodate diverse social activities?				✓	
	Is the space inclusive to all users? (different ages, genders etc.)				✓	
	Does the space include multiple gathering settings? (these could be both formal and informal)				✓	
Urban Safety	Does the space feel vibrant? (think active commercial properties, well populated etc.)				✓	
	Is the public space well-lit at night?	✓				
Culture and Identity	Does the character of this public space reflect the identity of Malawi?				✓	
Sense of Community	Do you feel as though there is a strong sense of community in this neighbourhood? (This can be seen through active social contact, residents recognising one another, informal gathering, hearing nicknames etc.)				✓	
Place Attachment	Is the public space well-maintained? (This can be seen through lack of litter, lack of broken items etc.)			✓		
Total =sum/12						Space for sketching or note taking

Area 18. Commercial Space: The shops. Morning Visit

Date: 30 th July	Day: Tuesday	Time: 10:30am
Weather: 22° and sunny with 0% precipitation	Notable smells:	Notable sounds:

Physical Aspects of the Public Space		1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes	
Architectural Quality	Are the majority of buildings in this public space made from good quality materials?				✓	The buildings are all permanent structures which have been painted and have concrete finish
	Are there any iconic or landmark buildings/structures?			✓		The area itself could be considered landmark as people would meet at particular shop or restaurant
	Are the buildings in the space visually compatible? (think heights, materials, space between buildings)			✓		All the buildings in the space are visually compatible as they are similar heights, and made from the same material
Infrastructure	Is the ground in this space good quality? (think, materials, maintenance, age)		✓	✓		The ground is not high standard. It is swept ground but is lumpy in parts
	Does the space feel safe despite vehicular traffic (Low levels of traffic, slow moving vehicles etc.)			✓		The area has a car park, therefore vehicle access, however as they are all there to park they are slow moving so space still feels safe
Transport & Accessibility	Is the public space connected to public transport links?				✓	
	Is this public space essential to the surrounding urban context?				✓	This space is essential as the facilities are used by many residents, particularly at lunch hour and weekends
	Is the space accessible to all users (including disabled) in terms of topography and physical barriers?		✓			Some areas would be accessible to all users, however there are parts which are up stairs which would be difficult for elderly or disabled users
Density & Privacy	Does the public space have private areas for those who want them?			✓		Groups can be seen gathering in groups separately from one another, providing private settings
	Is the space densely populated at peak times of the day?				✓	Minimal landscaping. Buildings are painted nicely, and there are stairs for residents to sit on
Ecological Quality	Is there good quality landscape elements in the space? (such as street furniture or paths)		✓	✓		Minimal vegetation. Trees are visible from space
	Is there a good presence of vegetation in the public space?		✓			
Total =sum/12						Space for sketching or note taking

Area 18. Commercial Space: The shops. Afternoon Visit

Date: 30th July

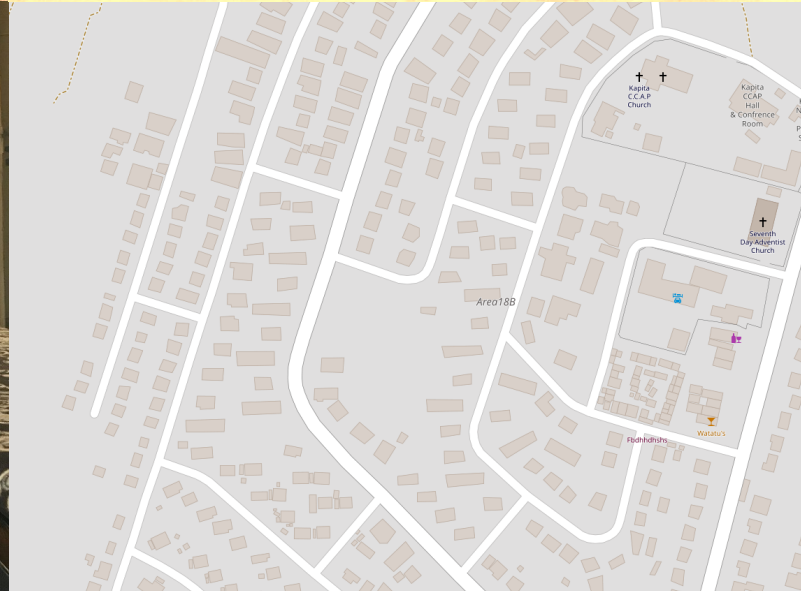
Day: Tuesday

Time: 12:30pm

Weather: 26° and sunny with 0% precipitation

Notable smells:

Notable sounds:



Area 18. Commercial Space: The shops. Afternoon Visit

Date: 30 th July	Day: Tuesday	Time: 12:30pm
Weather: 26° and sunny with 0% precipitation	Notable smells:	Notable sounds:

Social Aspects of the Public Space		1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes	
Personal Relationships	Do you see members of the public space interacting with one another? (greeting, smiling chatting etc.)				✓	During lunch hour the space becomes very busy and vibrant The restaurant is full of men and women getting lunch
	Do you see many families? (children with parents, couples etc.)			✓		
	Are there spaces for children to play under supervision of adults?			✓		
Public Meeting Spaces	Is there food or drink available in the public space?				✓	Community feels strong at lunch time with large numbers using space for food and drinks, gathering and chatting together
	Does the space accomodate diverse social activities?				✓	
	Is the space inclusive to all users? (different ages, genders etc.)				✓	
	Does the space include multiple gathering settings? (these could be both formal and informal)				✓	
Urban Safety	Does the space feel vibrant? (think active commercial properties, well populated etc.)				✓	
	Is the public space well-lit at night?	✓				
Culture and Identity	Does the character of this public space reflect the identity of Malawi?				✓	
Sense of Community	Do you feel as though there is a strong sense of community in this neighbourhood? (This can be seen through active social contact, residents recognising one another, informal gathering, hearing nicknames etc.)				✓	
Place Attachment	Is the public space well-maintained? (This can be seen through lack of litter, lack of broken items etc.)			✓		
Total =sum/12		3.1				Space for sketching or note taking

AREA 49



Area 49. Recreational Space: The School. *Analytical Description*

Date: 31 th July	Day: Wednesday	Time: 9:30am then 12:30pm
Weather: 22° to 26° and sunny with 0% precipitation	Notable smells: none	Notable sounds: none

This is a recreational space used by residents of Area 49. It is predominantly used by the youth of the neighbourhood as a space to play sports, and relax with friends.

The classroom buildings are mostly good quality, they are made from permanent materials and some have a concrete and painted finish, while others are exposed brick. The buildings are visually compatible as they are similar heights and styles with well-matched space between. The ground at this site is flat, natural ground. There are raised concrete verandas surrounding the school classrooms which are concrete which provide seating for users. The traffic stays at the edge of the area, therefore space feels safe from vehicles.

The school can be considered an essential public space for the neighbourhood, as it provides a large recreational space for sports, and a good quality space for youth to play and socialise. The grounds are mostly flat, and there are some small concrete ramps which connect grounds to classrooms for special needs users. There are private spaces within the grounds if desired, such as between or behind buildings, away from where the majority of users gather. Due to the large size of the grounds, users can find areas which suit them. However, due to the large size of the space, it does not get densely populated despite large number of visitors.

Although the school grounds do not have specific landscaping elements such as benches, people are seen to gather on the concrete verandas if watching their friends and neighbours play sports. Also note there are goal posts for sports which are landscaping. There is a lack of vegetation in the grounds, which can cause dust clouds.

The school grounds are a vibrant youth filled area, used by residents of the neighbourhood to chat, play sports and relax. There are large numbers of youths interacting together, which likely includes siblings, however not parents with children. While there is not food and drink available directly within the grounds, there are stalls adjacent to the space for youth to visit for their refreshments.

Although sports are the primary use of the space, others may use it to relax and chat at the side while watching others play. There are informal areas for residents to gather at the edge of classrooms. During the morning visit, the space was vibrant as it was full of youth playing sport, therefore well populated and lively/animated with the sound of youth playing together. The sense of community is reflected by the active social contact seen by residents playing sports and gathering together to watch the games.

The grounds are mostly well maintained, the ground had been recently swept with no litter. Only note one small bit of graffiti.

Observation re-visited the space in the afternoon during lunch hour and found it was empty from visitors. This is likely due to the heat of the day that residents have gone somewhere else (possibly home) for their lunch. Informant states that residents are likely to come back in the late afternoon and early evening before it gets dark. Space does not have lighting available for evenings.

Area 49. Recreational Space: The School. Morning Visit

Date: 31th July

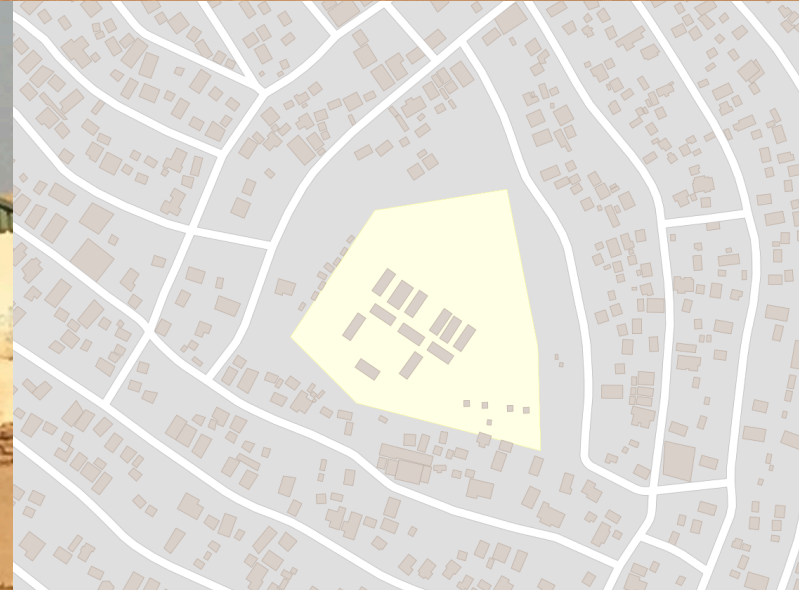
Day: Wednesday

Time: 10:30am

Weather: 22° and sunny with 0% precipitation

Notable smells:

Notable sounds: youth playing



Area 49. Recreational Space: The School. Morning Visit

Date: 31 th July	Day: Wednesday	Time: 10:30am
Weather: 22° and sunny with 0% precipitation	Notable smells:	Notable sounds: youth playing

Social Aspects of the Public Space		1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes	
Personal Relationships	Do you see members of the public space interacting with one another? (greeting, smiling chatting etc.)				✓	<p>The school grounds are a vibrant area used by youth as a place to play sports, chat with friends and relax. There are lots of youths interacting with one another, these could include siblings, however not parents and children as space is mostly used by youth.</p> <p>While food and drink is not within the school grounds, there are stalls directly outside the grounds for youth to visit for refreshments.</p> <p>Although sports are primary use of space, others may be watching, relaxing and chatting at the side of the grounds. There are areas to gather on classroom verandas as well as sport fields</p> <p>During the morning the space felt vibrant as it was full of youths playing sports therefore is well populated and has the sound of youth playing</p> <p>There is no street lighting</p> <p>The sense of community is reflected by the active social contact displayed by residents who are playing sport together and gathering to watch the games.</p> <p>The grounds are well maintained, they look recently swept and no litter to be seen</p>
	Do you see many families? (children with parents, couples etc.)			✓		
	Are there spaces for children to play under supervision of adults?				✓	
Public Meeting Spaces	Is there food or drink available in the public space?			✓		
	Does the space accomodate diverse social activities?				✓	
	Is the space inclusive to all users? (different ages, genders etc.)		✓	✓		
	Does the space include multiple gathering settings? (these could be both formal and informal)				✓	
Urban Safety	Does the space feel vibrant? (think active commercial properties, well populated etc.)				✓	
	Is the public space well-lit at night?	✓				
Culture and Identity	Does the character of this public space reflect the identity of Malawi?				✓	
Sense of Community	Do you feel as though there is a stong sense of community in this neighbourhood? (This can be seen through active social contact, residents recognising one another, informal gathering, hearing nicknames etc.)				✓	
Place Attachment	Is the public space well-maintained? (This can be seen through lack of litter, lack of broken items etc.)				✓	
Total =sum/12		3.1				Space for sketching or note taking

Area 49. Recreational Space: The School. Morning Visit

Date: 31 th July	Day: Wednesday	Time: 10:30am
Weather: 22° and sunny with 0% precipitation	Notable smells:	Notable sounds: youth playing

Physical Aspects of the Public Space		1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes	
Architectural Quality	Are the majority of buildings in this public space made from good quality materials?			✓		<p>The classroom buildings are mostly good quality, made from permanent materials. The school buildings themselves can be considered landmark buildings as people would know exactly where you are referring too.</p> <p>They are all similar heights, materials and there is visually compatible space between buildings.</p> <p>The ground is flat, natural material. There are raised verandas surrounding the school buildings, which are concrete, where people sit.</p> <p>Traffic stays at the edge of the school. None found at playing fields therefore space feels safe</p> <p>The school is an essential area as it provides a large recreational space for sports and place for youth to play/socialise</p> <p>The grounds are mostly flat, and there are concrete 'ramps' up to classrooms for those who need them. There are private spaces for those who want, between or behind buildings. Due to the size of the area, people can find areas that suit them</p> <p>The space is very busy at times of the day, however due to its size it does not become dense.</p> <p>There is not much vegetation in the grounds</p>
	Are there any iconic or landmark buildings/structures?				✓	
	Are the buildings in the space visually compatible? (think heights, materials, space between buildings)				✓	
Infrastructure	Is the ground in this space good quality? (think, materials, maintenance, age)			✓		
	Does the space feel safe despite vehicular traffic (Low levels of traffic, slow moving vehicles etc.)				✓	
Transport & Accessibility	Is the public space connected to public transport links?				✓	
	Is this public space essential to the surrounding urban context?				✓	
	Is the space accessible to all users (including disabled) in terms of topography and physical barriers?				✓	
Density & Privacy	Does the public space have private areas for those who want them?			✓		
	Is the space densely populated at peak times of the day?			✓		
Ecological Quality	Is there good quality landscape elements in the space? (such as street furniture or paths)		✓	✓		
	Is there a good presence of vegetation in the public space?		✓			
Total =sum/12						Space for sketching or note taking

Area 49. Recreational Space: The School. Afternoon Visit

Date: 31th July

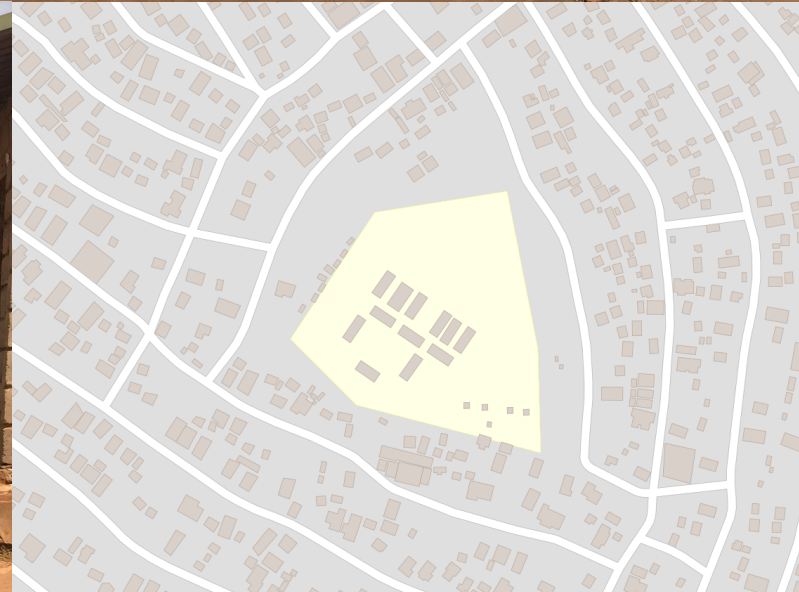
Day: Wednesday

Time: 12:30pm

Weather: 27° and sunny with 0% precipitation

Notable smells:

Notable sounds: youth playing



Area 49. Recreational Space: The School. Afternoon Visit

Date: 31 th July	Day: Wednesday	Time: 12:30pm
Weather: 27° and sunny with 0% precipitation	Notable smells:	Notable sounds: none

Social Aspects of the Public Space		1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes	
Personal Relationships	Do you see members of the public space interacting with one another? (greeting, smiling chatting etc.)	✓				<p>Re visiting the space at lunch hour provided a different view. In the peak-heat of the day it was now empty with no residents using the space.</p> <p>This could be due to the heat of the day, and that the residents have gone elsewhere for lunch. Informant stated that it would get busy again later in the afternoon to early evening</p> <p>When in the space at this time, a large dust cloud swept the area. This could be due to the space being large, flat and dusty with no wind breaks such as trees or vegetation</p>
	Do you see many families? (children with parents, couples etc.)	✓				
	Are there spaces for children to play under supervision of adults?				✓	
Public Meeting Spaces	Is there food or drink available in the public space?			✓		
	Does the space accomodate diverse social activities?				✓	
	Is the space inclusive to all users? (different ages, genders etc.)		✓	✓		
	Does the space include multiple gathering settings? (these could be both formal and informal)				✓	
Urban Safety	Does the space feel vibrant? (think active commercial properties, well populated etc.)	✓				
	Is the public space well-lit at night?	✓				
Culture and Identity	Does the character of this public space reflect the identity of Malawi?				✓	
Sense of Community	Do you feel as though there is a strong sense of community in this neighbourhood? (This can be seen through active social contact, residents recognising one another, informal gathering, hearing nicknames etc.)	✓				
Place Attachment	Is the public space well-maintained? (This can be seen through lack of litter, lack of broken items etc.)				✓	
Total =sum/12		3.1				Space for sketching or note taking

Area 49. Recreational Space: The Car Wash. *Analytical Description*

Date: 31 th July	Day: Wednesday	Time: 9:30am then 12:30pm
Weather: 22° to 26° and sunny with 0% precipitation	Notable smells: none	Notable sounds: none

The carwash in Area 49 is an active, vibrant part of the neighbourhood. It is visited by a mixed demographic of men and women of all ages. It hosts a car wash, bus stop, shops and sellers as well as a pool/snooker table.

The buildings in this area are a mixture of permanent and traditional materials. There is construction down one side of the space that is building permanent structures. These are likely to include a shop, and perhaps also a restaurant. The different aspects of the space are not iconic or landmark, however residents should know the spaces well as it is a well-used part of the neighbourhood.

All buildings in the space are single storey. There is a mixture of traditions, techniques and materials including both permanent and traditional. There is car access to the car wash area, however cars cannot access the rest of the space making it all safe despite vehicular access. There is a bus stop at the edge of the space onto the main road. This is used by mini-buses and creates a dense node when the number of residents getting on or off a bus peaks. There are also bike and motorbike taxis that operate at the side of this space, connecting it to the wider city. These various forms of transportation make this a well-used space as people frequent when looking for transportation.

This space is essential to the wider context as it provides both a commercial and recreation space for the neighbourhood. This is reflected in the large pool/snooker table that is located under the traditional pergola structure. The pool table appeared busy throughout the day with large groups, mostly male, either playing or watching friends play the game.

The ground of this site is a bit bumpy in parts which may make it hard for disabled users to access the full space, however on the whole it is accessible. In terms of landscaping, there is the pool/snooker table, as well as seats and benches by the car wash. However, there is a lack of vegetation.

The car wash space feels lively and vibrant throughout the day. Residents are gathered both formally and informally, playing pool/snooker or chatting to neighbours as they pass. Residents can be seen passing through the space, greeting, smiling and enjoying the space as they go. There are sellers and stalls down one axial of the space, which have food and drink available. The back of the space hosts a car wash which has loud music playing. This adds to the experience of the space. The street life here is active and positive which feels typically Malawian.

There is a strong sense of community which is seen through active social contact such as formal and informal gathering, chatting and residents recognising one another. There is not a lot of litter or broken items, however the ground in this space could be maintained better.

Area 49. Commercial Space: The Car Wash. Morning Visit

Date: 31th July

Day: Wednesday

Time: 10:30am

Weather: 22° and sunny with 0% precipitation

Notable smells:

Notable sounds: Music playing at carwash



Area 49. Commercial Space: The Car Wash. Morning Visit

Date: 31 th July	Day: Wednesday	Time: 10:30am
Weather: 22° and sunny with 0% precipitation	Notable smells:	Notable sounds: Music playing at carwash

Social Aspects of the Public Space		1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes	
Personal Relationships	Do you see members of the public space interacting with one another? (greeting, smiling chatting etc.)				✓	<p>The car wash area in area 49 is a vibrant and active part of the neighbourhood. People are gathered together playing pool/snooker. Others are passing through the space, greeting, smiling etc. as they go. There are stalls down one side of the space, which have food and drink available.</p> <p>There are diverse social activities taking place, there are those playing pool/snooker, others buying/selling items, there is a car wash, and a bus/taxi stop with many commuters. This mix of activities provides multiple gathering settings. There is a range of ages using the space, including parents with children passing through.</p> <p>This is a vibrant and active space, it is well populated throughout the day due to the mixture of activities taking place. The car wash was playing music which adds to the vibrancy of the space</p> <p>This is a typically Malawian space, with active street life.</p> <p>Sense of community appears strong, which is seen through active social contact, formal and informal gathering, and chatting.</p> <p>The space does not have a lot of litter or broken items, however could be better maintained</p>
	Do you see many families? (children with parents, couples etc.)			✓		
	Are there spaces for children to play under supervision of adults?			✓		
Public Meeting Spaces	Is there food or drink available in the public space?				✓	
	Does the space accomodate diverse social activities?				✓	
	Is the space inclusive to all users? (different ages, genders etc.)				✓	
	Does the space include multiple gathering settings? (these could be both formal and informal)				✓	
Urban Safety	Does the space feel vibrant? (think active commercial properties, well populated etc.)				✓	
	Is the public space well-lit at night?		✓			
Culture and Identity	Does the character of this public space reflect the identity of Malawi?				✓	
Sense of Community	Do you feel as though there is a strong sense of community in this neighbourhood? (This can be seen through active social contact, residents recognising one another, informal gathering, hearing nicknames etc.)				✓	
Place Attachment	Is the public space well-maintained? (This can be seen through lack of litter, lack of broken items etc.)		✓	✓		
Total =sum/12		3.1				Space for sketching or note taking

Area 49. Commercial Space: The Car Wash. Morning Visit

Date: 31 th July	Day: Wednesday	Time: 10:30am
Weather: 22° and sunny with 0% precipitation	Notable smells:	Notable sounds: Music playing at carwash

Physical Aspects of the Public Space		1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes	
Architectural Quality	Are the majority of buildings in this public space made from good quality materials?		✓	✓		<p>The buildings in this space are a mixture of permanent and traditional materials. There has been construction down one side building permanent structures.</p> <p>The different parts are not iconic or landmark, however residents should know the spaces by description.</p> <p>The buildings are all single storey. There is a mixture of traditions, techniques and materials including both permanent and traditional. The traffic is slow moving and parks at the edge to use the car wash, therefore no fast moving vehicles in the space.</p> <p>There is a bus stop at the edge of the space for mini buses, this has peaks in number of users creating dense nodes as people get on or off the buses. There are also bike and motorbike taxis that operate at this space connecting it to wider city.</p> <p>The area is essential to surrounding context as it provides a commercial and recreational space for the neighbourhood, as well as connects to wider city.</p> <p>The ground is a bit lumpy and bumpy in parts which may be hard for disabled users to navigate, however, on the whole it is mostly usable.</p> <p>The area has a pool/snooker table, and seats/benches by the car was which are landscaping elements.</p> <p>The space is lacking vegetation</p>
	Are there any iconic or landmark buildings/structures?		✓			
	Are the buildings in the space visually compatible? (think heights, materials, space between buildings)			✓		
Infrastructure	Is the ground in this space good quality? (think, materials, maintenance, age)		✓			
	Does the space feel safe despite vehicular traffic (Low levels of traffic, slow moving vehicles etc.)				✓	
Transport & Accessibility	Is the public space connected to public transport links?				✓	
	Is this public space essential to the surrounding urban context?				✓	
	Is the space accessible to all users (including disabled) in terms of topography and physical barriers?		✓	✓		
Density & Privacy	Does the public space have private areas for those who want them?			✓		
	Is the space densely populated at peak times of the day?				✓	
Ecological Quality	Is there good quality landscape elements in the space? (such as street furniture or paths)			✓		
	Is there a good presence of vegetation in the public space?	✓				
Total =sum/12						Space for sketching or note taking

Area 49. Commercial Space: The Car Wash. Afternoon Visit

Date: 31th July

Day: Wednesday

Time: 12:30pm

Weather: 27° and sunny with 0% precipitation

Notable smells:

Notable sounds: music playing at carwash



Area 49. Commercial Space: The Car Wash. Afternoon Visit

Date: 31 th July	Day: Wednesday	Time: 12:30pm
Weather: 27° and sunny with 0% precipitation	Notable smells:	Notable sounds: music playing at carwash

Social Aspects of the Public Space		1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes	
Personal Relationships	Do you see members of the public space interacting with one another? (greeting, smiling chatting etc.)				✓	This space was fairly consistent throughout the day.
	Do you see many families? (children with parents, couples etc.)			✓		
	Are there spaces for children to play under supervision of adults?			✓		
Public Meeting Spaces	Is there food or drink available in the public space?				✓	
	Does the space accomodate diverse social activities?				✓	
	Is the space inclusive to all users? (different ages, genders etc.)				✓	
	Does the space include multiple gathering settings? (these could be both formal and informal)				✓	
Urban Safety	Does the space feel vibrant? (think active commercial properties, well populated etc.)				✓	
	Is the public space well-lit at night?		✓			
Culture and Identity	Does the character of this public space reflect the identity of Malawi?				✓	
Sense of Community	Do you feel as though there is a stong sense of community in this neighbourhood? (This can be seen through active social contact, residents recognising one another, informal gathering, hearing nicknames etc.)				✓	
Place Attachment	Is the public space well-maintained? (This can be seen through lack of litter, lack of broken items etc.)		✓	✓		
Total =sum/12			3.1			Space for sketching or note taking

Appendix 7:
Ethical Application Form

Ethics Application Form

Please answer all questions

1. Title of the investigation
Quality of urban life in Lilongwe.
Please state the title on the PIS and Consent Form, if different:

2. Chief Investigator (must be at least a Grade 7 member of staff or equivalent)
Name: Ashraf Salama <input checked="" type="checkbox"/> Professor <input type="checkbox"/> Reader <input type="checkbox"/> Senior Lecturer <input type="checkbox"/> Lecturer <input type="checkbox"/> Senior Teaching Fellow <input type="checkbox"/> Teaching Fellow Department: Architecture Telephone: T: +44 (0)141 548 3995 E-mail: ashraf.salama@strath.ac.uk

3. Other Strathclyde investigator(s)
Name: Laura MacLean Status (e.g. lecturer, post-/undergraduate): PhD Student Department: Department of Architecture Telephone: 07477881323 E-mail: laura.a.maclean@strath.ac.uk

4. Non-Strathclyde collaborating investigator(s) (where applicable)
Name: Status (e.g. lecturer, post-/undergraduate): Department/Institution: If student(s), name of supervisor: Telephone: E-mail: Please provide details for all investigators involved in the study:

The place of useful learning

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5. Overseas Supervisor(s) (where applicable)
Name(s): Status: Department/Institution: Telephone: Email: I can confirm that the local supervisor has obtained a copy of the Code of Practice: Yes <input type="checkbox"/> No <input type="checkbox"/> Please provide details for all supervisors involved in the study:

6. Location of the investigation
At what place(s) will the investigation be conducted Lilongwe, Malawi. The fieldwork will be conducted in four neighbourhoods in the city of Lilongwe, the capital city of Malawi. These neighbourhoods represent a mixture of formal and informally planned neighbourhood typologies which are found in many east-African cities. The investigation will largely take place in one demarcated public space within each of the neighbourhoods.
If this is not on University of Strathclyde premises, how have you satisfied yourself that adequate Health and Safety arrangements are in place to prevent injury or harm? Yes. The researcher has included a risk assessment form in agreement with the university's risk management framework. The researcher has been informed that insurance cover is included on fieldwork for the university approved by DEC's and SEC's. A travel insurance form must be submitted on Pegasus. This is currently ready to be submitted with the dates of fieldwork are formally confirmed. The researcher will receive on-site assistance by members of an NGO with experience in the areas of the city.

7. Duration of the investigation
Duration 9 days Start date (expected) 27 / 07 / 2019 Completion date (expected): 04 / 08 / 2019

8. Sponsor
Please note that this is not the funder; refer to Section C and Annexes 1 and 3 of the Code of Practice for a definition and the key responsibilities of the sponsor. Will the sponsor be the University of Strathclyde: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If not, please specify who is the sponsor:

9. Funding body or proposed funding body (if applicable)
Name of funding body:

Status of proposal – if seeking funding (please click appropriate box):

☐ In preparation

☐ Submitted

☐ Accepted

Date of submission of proposal: / / Date of start of funding: / /

10. Ethical issues

Describe the main ethical issues and how you propose to address them:

The primary ethical concern in the research is the involvement of human participants and the handling of private information. As such, the participants will all be dealt with in confidence by anonymising their identities on all residents' questionnaires. Any visual data that has identifiable people will also be anonymised.

The research includes participants from socially deprived circumstances, who may have limited levels of literacy, as such it is important that the researcher is sensitive to the situation. An important part of the research is to ensure that people know what is being asked of them (to fill in a questionnaire). This should be done by providing instructions in simple plain language.

The questionnaires will be administered by a small team of local people who are bilingual in Chichewa and English. They have been recruited by local NGO who feels they are appropriate for the task in the local context. They should be able to make participants feel comfortable with and guide them through the process of filling in a questionnaire. The questionnaire will also be translated into Chichewa to allow larger number of participants to be involved.

11. Objectives of investigation (including the academic rationale and justification for the investigation)

Please use plain English.

Quality of urban life is a complex issue that is affected many realms of human life. It is affected by the physical, social, economic and welfare conditions of a city. These can be investigated both through objective methods using literature, and subjective methods using surveys.

The research is using exploratory sequential design. As such, the first strand is to liaise with decision makers and academics to gain their expert perspective about what they think are the main factors affecting urban life in their cities. This information will then be used to prioritise the research in the residential questionnaires to ensure that the research is culturally appropriate and as influential as possible.

The second strand of fieldwork is to gain the subjective perspective of the residents of the city using a prioritised questionnaire. The objective of this is to understand the real lived-in condition of the various neighbourhood for its residents. This information can be compared against the objective conditions (e.g. perception of crime compared to reported crime rates).

This research believes that it is fundamental to gain the subjective perspective of the residents of the city to understand the real lived-in conditions of the city for its residents. This is important for a number of reasons:

- 1- The objective data is not aggregated to a local level in Malawi. It is possible to gain information about the city as a whole, but not to a neighbourhood scale.
- 2- The objective data does not take residential human perspective into account. It is important to note how people perceive the conditions of their environment.
- 3- Objective reports may not be accurate (e.g. people may not always report crimes, therefore they are not included in statistics.)

The research aims to develop a framework and test a framework for investigating QOUL in this context. The

current framework has been developed from literature, and the next step is to validate this through expert opinion and testing with residents.

Summary objective:

- To validate the quality of urban life indicators through expert opinions
- To validate the quality of urban life questionnaire through resident trial

12. Participants

Please detail the nature of the participants:

Experts: 8 experts from academia, government and NGOs to complete short questionnaire.

Residents: 200+ Residents from 4 neighbourhoods in Lilongwe to complete questionnaire.

Summarise the number and age (range) of each group of participants:

Number: 200+ Age (range) 16+

Please detail any inclusion/exclusion criteria and any further screening procedures to be used:

Residents should live within the boundary of one of the four selected neighbourhoods and be aged 16+. Ideally a similar number of questionnaires completed in each neighbourhood. There is no distinction based on gender, social status or profession. The aim is to get a wide demographic of residents.

Experts have been selected based on their occupation. They must work for government, an academic institution or an NGO/Charity. There is no distinction based on gender or age.

13. Nature of the participants

Please note that investigations governed by the Code of Practice that involve any of the types of participants listed in B1(b) must be submitted to the University Ethics Committee (UEC) rather than DEC/SEC for approval.

Do any of the participants fall into a category listed in Section B1(b) (participant considerations) applicable in this investigation?: Yes ☐ No ☒

If yes, please detail which category (and submit this application to the UEC):

14. Method of recruitment

Describe the method of recruitment (see section B4 of the Code of Practice), providing information on any payments, expenses or other incentives.

Resident recruitment:

A team of 4 fieldwork assistants have been recruited by a local NGO who feels that they will be appropriate and competent at collecting resident's responses.

The main method they will use is by door to door questionnaires in the selected neighbourhoods. The literature presents that Malawians have a high response rate to questionnaires (Usually above 95%). The questionnaire will be both digital and paper format to maximise responses. (Using a tablet as well as paper/pen).

Apart from their time, there will be no costs for the participants, therefore no payments or other encouragements should be expected. The questionnaire should take less than 10 minutes to complete. The research aims to provide an opportunity for participants to voice their opinions and share their views with an academic audience,

which will in turn be shared with local decision makers. The researcher hopes this will be incentive enough for participants.

It will be made clear to participants that there is no expectation that they must participate.

Expert recruitment:

The experts have been recruited by contacting various academic institutions in Malawi to determine if anyone is willing to take part in research. Once links have been established, the researcher asked if they have other contacts they can pass it on too.

Other contacts include a previous colleagues of the researcher at a Malawian NGO.

15. Participant consent

Please state the groups from whom consent/assent will be sought (please refer to the Guidance Document). The PIS and Consent Form(s) to be used should be attached to this application form.

Full informed consent is sought from the participants using the participant information sheet and consent form included with this application (both experts and residents will be provided consent forms).

These will be provided in English and Chichewa for residents to maximise the number of participants. If participants have understood and are satisfied with its content, the consent form should be signed to agree the process and terms regarding handling data, storing and distribution of information.

No further difficulties concerning the nature of the participants are expected in this process.

16. Methodology

Investigations governed by the Code of Practice which involve any of the types of projects listed in B1(a) must be submitted to the University Ethics Committee rather than DEC/SEC for approval.

Are any of the categories mentioned in the Code of Practice Section B1(a) (project considerations) applicable in this investigation? ☐ Yes ☒ No

If 'yes' please detail:

Describe the research methodology and procedure, providing a timeline of activities where possible. Please use plain English.

To understand the everyday environment of neighbourhoods in Lilongwe, the research will use a residential questionnaire. This will be disseminated using a small research team

Research Team in Malawian Fieldwork:

Lead researcher/PhD Student- Laura MacLean;

President of Malawian NGO- Evance Morra;

Research Assistant/Engineer- Mark Frieze

4 Fieldwork Assistants- Recruited by Evance Morra, all local and bilingual

Laura, Evance and Mark worked together previously on NGO projects in Malawi. They work well as a team, have excellent communication skills and experience working in similar environments. Evance is from Malawi and has connections in each neighbourhood (Discussed further in section 17).

Residential Questionnaire:

Each questionnaire should take less than 10 minutes to complete + 5 minutes discussion and consent =15 minutes per questionnaire. Added to this is the lag time to walk between houses and waiting on those answering the door etc. Therefore expect 3 questionnaires to be completed per hour (more if groups are answering). This therefore means each fieldwork assistant will be able to gain a maximum of 21 questionnaires in a 7 hour working day, resulting in 64 per day across the 4 fieldwork assistants. It is intended that they will work for 5 days, resulting in a target of 320 questionnaires from the door-to-door method.

Expert Questionnaire:

Expert questionnaire will be conducted prior to the fieldwork via online methods. Experts have already been contacted to confirm interest.

Observational Assessments:

Laura, Evance and Mark will conduct observational assessments of each neighbourhood in tandem to the fieldwork assistants working on the residential questionnaire. This will not involve human participants other than the fieldwork team, however a draft walking tour of the observations has been attached for your knowledge.

Week Timeline:

Saturday- Leave Glasgow

Sunday- Arrive in Malawi 3:30pm. Researcher team meeting.

Monday- Neighbourhood 49

Tuesday- Neighbourhood 30

Wednesday- Neighbourhood 36

Thursday- Neighbourhood 23

Friday- Return to any neighbourhoods to get extra results (identify which requires)

Saturday- Follow up visit to each neighbourhood to gain a weekend view for observational assessment. (Flight 5:45pm)

Sunday- Arrive Home

Preparation before fieldwork:

Before visiting Lilongwe, the researcher has made contact with academics/government officials and NGO staff to discuss the project. They will complete the initial questionnaire to provide their opinions on the factors that are important to measure in a quality of urban life study in this context.

Using desk research and contacts in Lilongwe, public areas of the neighbourhoods have been selected as research sites. However, this will be reassessed once researcher arrives.

Fieldwork:

Each neighbourhood will have 1.5 days dedicated for questionnaire gathering and observational assessment.

What specific techniques will be employed and what exactly is asked of the participants? Please identify any non-validated scale or measure and include any scale and measures charts as an Appendix to this application. Please include questionnaires, interview schedules or any other non-standardised method of data collection as appendices to this application.

-Residents Questionnaire (This is a longer version than will be used in fieldwork as it will be shortened depending on expert opinions).

-Expert Questionnaire

Where an independent reviewer is not used, then the UEC, DEC or SEC reserves the right to scrutinise the methodology. Has this methodology been subject to independent scrutiny? Yes ☐ No ☒
If yes, please provide the name and contact details of the independent reviewer:

17. Previous experience of the investigator(s) with the procedures involved. Experience should demonstrate an ability to carry out the proposed research in accordance with the written methodology.

Chief Investigator:

Previous experience of the chief investigator (Prof. Ashraf Salama) includes long and extensive experience in urban research in cities of the Global South. His experience spans across six countries in four continents, including academic and professional experience in Egypt, the United States, United Kingdom and the Middle East. He established the Cluster for Research in Architecture and Urbanism of Cities in the Global South (CRAUCGS) at the University of Strathclyde in 2014. This research is part of the ongoing effort to produce new knowledge on cities outside of the Western world. He currently supervises a range of urban research on various cities across the Global South, among which several investigations on the African continent.

His experience also includes intimate involvement in participatory design and community participation, demonstrated by his longtime professional association with Henry Sanoff, considered often as the founder of participation in architecture.

Field Investigator:

Previous experience of researcher (Laura MacLean) includes a familiarity with the region as a result of 5 previous visits to east and central Africa, including Malawi (2014/15/16), Zambia (2014/15) and Kenya (2013). Major cities and towns visited among these journeys include Lilongwe, Blantyre and Zomba in Malawi; Lusaka and Livingstone in Zambia and Mombasa in Kenya.

Laura previously worked for Students for Malawi (SfM) under a number of capacities, including as vice-chair of the NGO's board of directors. She was involved with SfM from 2014-2018. SfM is a partner charity to Chisitu Action for Development (CAD) a Malawian NGO which is the organisation that Evance Morra is president of. Mark Friese (research assistant) was the chair of SfM board of directors at this time.

Through this experience, Laura and Evance and Mark led a number of projects, including classroom construction, summer schools and school feeding projects. At their optimum they project managed dual teams of over 50 Scottish students and more than 50 Malawian employees over the course of one year. As such, they are a competent team with 3+ years of experience working in Malawi on local projects.

While working with SfM and CAD, the researchers disseminated questionnaires within the local community to gain insight into what local people felt would be the most appropriate use of their resources. These were conducted at household level, using questionnaires, as well as through school intervention.

School intervention involved speaking to classes about what is important to them, and what is available to them. This was completed using informal data collection through art work and drawing. The results of the local surveys helped to shape and evolve the work completed in the community.

While working in Malawi, Laura and Mark were accommodated within the home of a local resident for up to 3 months per visit. During their previous trips they have established a network of local expertise that will be utilised in the PhD fieldwork.

Other relevant work in region:

Laura and Mark visited Zambia and made contact with the University of Zambia. During this trip they took a tour of the neighbourhoods of the city with members of the university which will be similar to the work in Lilongwe

looking at various aspects of urban life in the context.

Laura has co-authored 3 articles that use observational techniques, and 1 paper with the models used in this research. These techniques will be adapted to gain information on quality of urban life in Lilongwe. Papers include:

Salama, Ashraf M. and Remali, Adel M. and MacLean, Laura (2017) *Deciphering urban life : a multi-layered investigation of St. Enoch Square, Glasgow City Centre*. ArchNet-IJAR: International Journal of Architectural Research, 11 (2). pp. 137-156.

Salama, Ashraf M. and Remali, Adel M. and MacLean, Laura (2017) *Characterisation and systematic assessment of urban open spaces in Glasgow city centre*. Spatium, 37 (June 2). pp. 22-33.

Salama, Ashraf M. and Maclean, Laura (2017) Integrating Appreciative Inquiry (AI) into architectural pedagogy: An assessment experiment of three retrofitted buildings in the city of Glasgow. *Frontiers of Architectural Research*
Volume 6, Issue 2, June 2017, Pages 169-182

MacLean, Laura and Salama, Ashraf M. (2019) *Towards a context specific and multidimensional quality of urban life model*. Open House International, 44 (1). pp. 25-33.

18. Data collection, storage and security

How and where are data handled? Please specify whether it will be fully anonymous (i.e. the identity unknown even to the researchers) or pseudo-anonymised (i.e. the raw data is anonymised and given a code name, with the key for code names being stored in a separate location from the raw data) - if neither please justify.

Residential questionnaires fully anonymous.

Expert questionnaire- will be up to them if they wish to be anonymous.

Explain how and where it will be stored, who has access to it, how long it will be stored and whether it will be securely destroyed after use:

The majority of residential questionnaires will be completed on paper. These will be transferred to Qualtrics which will store the results digitally. The paper copies will be shredded after use. Residential questionnaires are anonymised.

Expert questionnaires will be completed using Qualtrics therefore will be stored digitally on this software.

Once the PhD is complete, the digital information will be securely destroyed (expected in 2020)

Will anyone other than the named investigators have access to the data? Yes ☐ No ☒

If 'yes' please explain:

19. Potential risks or hazards

Briefly describe the potential Occupational Health and Safety (OHS) hazards and risks associated with the investigation:

Site visits by public transport can represent an important risk, as roads are often ill-maintained and traffic accidents are common.

Fieldwork is to be conducted in neighbourhoods in Lilongwe which the researcher is not a resident. This could cause problems. As such, researcher will always be accompanied by a local resident.

To minimise risks, a full risk assessment has been completed.

See form: [ID: 903 - PhD research Malawi](#)

Please attach a completed OHS Risk Assessment (S20) for the research. Further Guidance on Risk Assessment and Form can be obtained on [Occupational Health, Safety and Wellbeing's webpages](#)

20. What method will you use to communicate the outcomes and any additional relevant details of the study to the participants?

Experts:

Experts will be contacted after the results have been analysed to provide them with feedback and information on how their results will shape the fieldwork.

21. How will the outcomes of the study be disseminated (e.g. will you seek to publish the results and, if relevant, how will you protect the identities of your participants in said dissemination)?

The results of the fieldwork will be used to write a research paper as part of the PhD. This will be circulated to the experts and local NGO who can disseminate it to residents as appropriate. The information will also be made available to Lilongwe city council for them to see the perception of their resident's quality of urban life.


Checklist	Enclosed	N/A
Participant Information Sheet(s)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Consent Form(s)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample questionnaire(s)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample interview format(s)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample advertisement(s)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
OHS Risk Assessment (S20)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample walking tour observation sheet	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>

22. Chief Investigator and Head of Department Declaration

Please note that unsigned applications will not be accepted and both signatures are required

I have read the University's Code of Practice on Investigations involving Human Beings and have completed this application accordingly. By signing below, I acknowledge that I am aware of and accept my responsibilities as Chief Investigator under Clauses 3.11 – 3.13 of the [Research Governance Framework](#) and that this investigation cannot proceed before all approvals required have been obtained.

Signature of Chief Investigator




Please also type name here:

Professor Ashraf Salama

I confirm I have read this application, I am happy that the study is consistent with departmental strategy, that the staff and/or students involved have the appropriate expertise to undertake the study and that adequate arrangements are in place to supervise any students that might be acting as investigators, that the study has access to the resources needed to conduct the proposed research successfully, and that there are no other departmental-specific issues relating to the study of which I am aware.

Signature of Head of Department



Please also type name here

Dr Zhen Chen on behalf of Professor
Ashraf Salama

Date:

07 / 06 / 2019

23. Only for University sponsored projects under the remit of the DEC/SEC, with no external funding and no NHS involvement

Head of Department statement on Sponsorship

This application requires the University to sponsor the investigation. This is done by the Head of Department for all DEC applications with exception of those that are externally funded and those which are connected to the NHS (those exceptions should be submitted to R&KES). I am aware of the implications of University sponsorship of the investigation and have assessed this investigation with respect to sponsorship and management risk. As this particular investigation is within the remit of the DEC and has no external funding and no NHS involvement, I agree on behalf of the University that the University is the appropriate sponsor of the investigation and there are no management risks posed by the investigation.

If not applicable, tick here ☐

Signature of Head of Department



Please also type name here

Date:

/ /

For applications to the University Ethics Committee, the completed form should be sent to ethics@strath.ac.uk with the relevant electronic signatures.

24. Insurance

The questionnaire below must be completed and included in your submission to the UEC/DEC/SEC:

Is the proposed research an investigation or series of investigations conducted on any person for a Medicinal Purpose? Medicinal Purpose means: <ul style="list-style-type: none">▪ treating or preventing disease or diagnosing disease or▪ ascertaining the existence degree of or extent of a physiological condition or▪ assisting with or altering in any way the process of conception or▪ investigating or participating in methods of contraception or▪ inducing anaesthesia or▪ otherwise preventing or interfering with the normal operation of a physiological function or▪ altering the administration of prescribed medication.	No
---	----

If **"Yes"** please go to **Section A (Clinical Trials)** – all questions must be completed

If **"No"** please go to **Section B (Public Liability)** – all questions must be completed

Section A (Clinical Trials)

Does the proposed research involve subjects who are either: <ul style="list-style-type: none">i. under the age of 5 years at the time of the trial;ii. known to be pregnant at the time of the trial	Yes / No
---	----------

If **"Yes"** the UEC should refer to Finance

Is the proposed research limited to: <ul style="list-style-type: none">iii. Questionnaires, interviews, psychological activity including CBT;iv. Venepuncture (withdrawal of blood);v. Muscle biopsy;vi. Measurements or monitoring of physiological processes including scanning;vii. Collections of body secretions by non-invasive methods;viii. Intake of foods or nutrients or variation of diet (excluding administration of drugs).	Yes / No
---	----------

If **"No"** the UEC should refer to Finance

Will the proposed research take place within the UK?	Yes / No
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If **"No"** the UEC should refer to Finance

Title of Research		
Chief Investigator		
Sponsoring Organisation		
Does the proposed research involve:		
a) investigating or participating in methods of contraception?	Yes / No	
b) assisting with or altering the process of conception?	Yes / No	
c) the use of drugs?	Yes / No	
d) the use of surgery (other than biopsy)?	Yes / No	
e) genetic engineering?	Yes / No	
f) participants under 5 years of age (other than activities i-vi above)?	Yes / No	
g) participants known to be pregnant (other than activities i-vi above)?	Yes / No	
h) pharmaceutical product/appliance designed or manufactured by the institution?	Yes / No	
i) work outside the United Kingdom?	Yes / No	

If **“YES”** to **any** of the questions a-i please also complete the **Employee Activity Form** (attached).
 If **“YES”** to **any** of the questions a-i, and this is a follow-on phase, please provide details of SUSARs on a separate sheet.

If **“Yes”** to any of the questions a-i then the UEC/DEC/SEC should refer to Finance (insurance-services@strath.ac.uk).

Section B (Public Liability)

Does the proposed research involve :		
a) aircraft or any aerial device	No	
b) hovercraft or any water borne craft	No	
c) ionising radiation	No	
d) asbestos	No	
e) participants under 5 years of age	No	
f) participants known to be pregnant	No	
g) pharmaceutical product/appliance designed or manufactured by the institution?	No	
h) work outside the United Kingdom?	Yes	

If **“YES”** to any of the questions the UEC/DEC/SEC should refer to Finance (insurance-services@strath.ac.uk).

For NHS applications only - Employee Activity Form

Has NHS Indemnity been provided?	Yes / No
Are Medical Practitioners involved in the project?	Yes / No
If YES, will Medical Practitioners be covered by the MDU or other body?	Yes / No

This section aims to identify the staff involved, their employment contract and the extent of their involvement in the research (in some cases it may be more appropriate to refer to a group of persons rather than individuals).

Chief Investigator		
Name	Employer	NHS Honorary Contract?
		Yes / No
Others		
Name	Employer	NHS Honorary Contract?
		Yes / No
		Yes / No
		Yes / No
		Yes / No

Please provide any further relevant information here:

Participant information sheet for experts

Name of department: Department of Architecture

Title of the study: Quality of urban life in Lilongwe

Introduction

My name is Laura MacLean, I am a doctoral student from Scotland. This investigation is part of a research cluster involved with architecture and urbanism in cities of the Global South (CRAUCGS) at the University of Strathclyde, Glasgow.

What is the purpose of this research?

The aim of this questionnaire is to prioritise, add or subtract indicators that are important for investigating quality of urban life in the context of Lilongwe, and thus validate the indicators that have been derived from the literature review. The results of this expert survey will directly impact the fieldwork questionnaire that will be used to gain the perspective of Lilongwe's residents.

Do you have to take part?

It is your own decision to take part in the investigation or not. You may choose to withdraw from participation at any time without notice. Refusing to participate or withdrawing will not affect any other aspect of the way you are treated.

What will you do in the project?

You will be asked to complete one short online survey about quality of urban life in Lilongwe. The questionnaire is short and should take no longer than 10 minutes to complete.

Why have you been invited to take part?

You were invited to take part in this investigation because you are:

- an academic based at an academic institution in Malawi
- and/or work with an NGO in Malawi
- and/or are involved with decision making in Malawi
- and/or are involved with urban governance, urban planning or public spaces in Malawi

What information is being collected in the project?

The questions are about the different indicators that are important to urban dwellers in Lilongwe. This is not personal information, but the opinions of experts on different aspects of life that affect the general urban dweller. This will be used to design a questionnaire for residents of Lilongwe.

Who will have access to the information?

The information from this survey will remain confidential. I will personally process the information therefore it will not be passed to any third parties.

Where will the information be stored and how long will it be kept for?

The information will be collected and stored on Qualtrics, the online questionnaire software. It will be deleted once the PhD is complete (expected 2020)

Thank you for reading this information – please ask any questions if you are unsure about what is written here.

What happens next?

If you are happy to be involved in the project, you will be asked to sign a consent form to confirm this. If you do not want to be involved, we thank you for your attention.

After the investigation is complete, the researchers will provide feedback to participants through a medium of their choice. You are encouraged to provide us with feedback also on this occasion or on any other moment. The results from this investigation are expected to be published in scientific journals.

Researcher contact details:

Laura MacLean
Department of Architecture, University of Strathclyde
75 Montrose Street G1 1XJ, Glasgow, Scotland
Email: laura.a.maclea@strath.ac.uk
Telephone: +44 (0) 141 548 3097

Chief Investigator details:

Prof. Ashraf Salama
Department of Architecture, University of Strathclyde
75 Montrose Street G1 1XJ, Glasgow, Scotland
Email: architecture@strath.ac.uk
Telephone: +44 (0) 141 548 3097

This research was granted ethical approval by the University of Strathclyde Ethics Committee.

If you have any questions/concerns, during or after the research, or wish to contact an independent person to whom any questions may be directed or further information may be sought from, please contact:

Secretary to the University Ethics Committee
Research & Knowledge Exchange Services
University of Strathclyde
Graham Hills Building
50 George Street
Glasgow
G1 1QE

Telephone: 0141 548 3707
Email: ethics@strath.ac.uk

Consent Form for experts

Name of department: Department of architecture

Title of the study: Quality of urban life in Lilongwe

- I confirm that I have read and understood the Participant Information Sheet for the above project and the researcher has answered any queries to my satisfaction.
- I confirm that I have read and understood the Privacy Notice for Participants in Research Projects and understand how my personal information will be used and what will happen to it (i.e. how it will be stored and for how long).
- I understand that my participation is voluntary and that I am free to withdraw from the project at any time, up to the point of completion, without having to give a reason and without any consequences.
- I understand that I can request the withdrawal from the study of some personal information and that whenever possible researchers will comply with my request. This includes the following personal data:
 - My personal information from transcripts.
- I understand that anonymised data (i.e. data that do not identify me personally) cannot be withdrawn once they have been included in the study.
- I understand that any information recorded in the research will remain confidential and no information that identifies me will be made publicly available.
- I consent to being a participant in the project.

(PRINT NAME)	
Signature of Participant:	Date:

Participant information sheet for residents

Name of department: Department of Architecture

Title of the study: Quality of urban life in Lilongwe

Introduction

My name is Laura MacLean, I am a doctoral student from Scotland. This investigation is part of a research cluster involved with architecture and urbanism in cities of the Global South (CRAUCGS) at the University of Strathclyde, Glasgow.

What is the purpose of this research?

The aim of this investigation is to gain the perception of Lilongwe's residents on the various factors that affect their daily life. This should allow policy makers and planners to assess which aspects of urban life are positive, and which have a negative effect on residents. This information can assist decision makers in directing their resources within Lilongwe to best meet the needs of the residents.

Do you have to take part?

It is your own decision to take part in the investigation or not. You may choose to withdraw from participation at any time without notice. Refusing to participate or withdrawing will not affect any other aspect of the way you are treated.

What will you do in the project?

You will be asked to complete one short questionnaire. This should take no longer than 10 minutes.

Why have you been invited to take part?

You were invited to take part in this investigation because you are:

- You live in one of the case study neighbourhoods
- You are over the age of 16

What information is being collected in the project?

The questions are about the different indicators that are important to urban dwellers in Lilongwe. This is fully anonymised therefore cannot be traced back to any participant.

Who will have access to the information?

The information from this survey will remain confidential. I will personally process the information therefore it will not be passed to any third parties.

Where will the information be stored and how long will it be kept for?

The information will be collected and stored on Qualtrics, the online questionnaire software. It will be deleted once the PhD is complete (expected 2020)

Thank you for reading this information – please ask any questions if you are unsure about what is written here.

What happens next?

If you are happy to be involved in the project, you will be asked to sign a consent form to confirm this. If you do not want to be involved, we thank you for your attention.

After the investigation is complete, the researchers will provide feedback to participants through a medium of their choice. You are encouraged to provide us with feedback also on this occasion or on any other moment. The results from this investigation are expected to be published in scientific journals.

Researcher contact details:

Laura MacLean
Department of Architecture, University of Strathclyde
75 Montrose Street G1 1XJ, Glasgow, Scotland
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Telephone: +44 (0) 141 548 3097

Chief Investigator details:

Prof. Ashraf Salama
Department of Architecture, University of Strathclyde
75 Montrose Street G1 1XJ, Glasgow, Scotland
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G1 1QE

Telephone: 0141 548 3707
Email: ethics@strath.ac.uk

Consent Form for residents

Name of department: Architecture

Title of the study: Quality of urban life in Lilongwe

- I confirm that I have read and understood the Participant Information Sheet for the above project and the researcher has answered any queries to my satisfaction.
- I confirm that I have read and understood the Privacy Notice for Participants in Research Projects and understand how my personal information will be used and what will happen to it (i.e. how it will be stored and for how long).
- I understand that my participation is voluntary and that I am free to withdraw from the project at any time, up to the point of completion, without having to give a reason and without any consequences.
- I understand that I can request the withdrawal from the study of some personal information and that whenever possible researchers will comply with my request. This includes the following personal data:
 - My personal information from transcripts.
- I understand that anonymised data (i.e. data that do not identify me personally) cannot be withdrawn once they have been included in the study.
- I understand that any information recorded in the research will remain confidential and no information that identifies me will be made publicly available.
- I consent to being a participant in the project.

(PRINT NAME)	
Signature of Participant:	Date:

Expert Questionnaire

Thank you for taking part in this short survey. This research has used a literature review to establish 24 primary indicators that are important for investigating quality of urban life in Lilongwe. The research is using exploratory sequential design to validate and test the indicators to design a quality of urban life measurement framework. The first step in the validation process is to gain the opinions of experts (including yourself) to prioritize, add or remove indicators as required. The results of this expert survey will then directly impact the fieldwork stage helping to shape and design the framework for evaluating quality of urban life in Lilongwe.

Q1. Please state your name and professional occupation:

Q2. Would you prefer for your name to be anonymous if this research is used in future papers? (Delete tick/cross as appropriate)

Yes ✓ / X

No ✓ / X

The following sections are going to ask you to rate indicators of quality of urban life in Lilongwe from 1-4. These have been separated into physical, social, economic and welfare categories, each with 6 indicators. These relate to the conditions of the average resident of Lilongwe and not your personal life.

Q3. How important are each of the following physical indicators in the daily life of Lilongwe's residents?

Please put a cross where appropriate

Physical quality of urban life indicators	Not at all Important	Less Important	Somewhat Important	Most Important
1.1 Building and House Quality This includes the materials used, dwelling size, and overall quality of home				
1.2 Physical Urban Infrastructure This includes the quality, safety and legibility of neighborhood streets and roads				
1.3 Density This includes if the neighborhood is overcrowded, the concentration of buildings and privacy felt in residents home/outside space				
1.4 Urban Form & Typology This includes if the neighborhood is high density, medium density, low density or a quasi-residential area.				
1.5 Urban Transport & Accessibility includes availability, quality and type of transport, as well as neighborhood proximity to work & city				
1.6 Ecological Quality This includes the green and open space in the neighborhood, for recreation and events, as well as the families farming and cultivation.				

Q3b. Having reviewed the 6 physical quality of urban life indicators, do you feel that there are any missing that should be added to this investigation?

Q4. How important are each of the following social indicators in the daily life of Lilongwe's residents?

Please put a cross where appropriate

Social quality of urban life indicators	Not at all Important	Less Important	Somewhat Important	Most Important
2.1 Personal Relationships Including family life, family cycle and neighborhood relations				
2.2 Sense of Community Including clubs, groups & societies, youth interaction and lifestyle values				
2.3 Place Attachment Including moving intensions, residence in area, village of origin and sense of belonging				
2.4 Public Meeting Spaces Including quality spaces for social interaction, inclusive spaces that are accessible, and the shops/sellers/stalls in neighborhood				
2.5 Local Governance Including the types of leaders, feeling as if you have a voice in community & knowing who to turn to				
2.6 Culture and Identity Including tribalism, ethnicity, values, local and national history. Also includes if there is space for cultural events in neighborhood				

Q4b. Having reviewed the 6 social quality of urban life indicators, do you feel that there are any missing that should be added to this investigation?

Q5. How important are each of the following economic indicators in the daily life of Lilongwe's residents? Please put a cross where appropriate

Economic quality of urban life indicators	Not at all Important	Less Important	Somewhat Important	Most Important
3.1 Household Income and Expenditure Including ability to meet basic needs, & material possessions				
3.2 Tenure & Home Ownership Including formal and reliable tenure & land/property ownership				
3.3 Work Status Including entrepreneurship, formal or informal work, flexibility of work and availability of work				
3.4 Education Status Including quality of education, educational attainment, and attendance & access to education				
3.5 Labor Migration Including if resident has ever migrated for work				
3.6 Poverty Rates Including economic poverty, social poverty, individual and neighborhood economic poverty				

Q5b. Having reviewed the 6 economic quality of urban life indicators, do you feel that there are any missing that should be added to this investigation?

Q6. How important are each of the following well-being indicators in the daily life of Lilongwe's residents?

Please put a cross where appropriate

Welfare quality of urban life indicators	Not at all Important	Less Important	Somewhat Important	Most Important
4.1 Physical Well-Being Including their health, fitness and life expectancy				
4.2 Emotional Well-Being Including factors such as stress, anxiety and happiness				
4.3 Health Services Including availability & access to healthcare facilities & community services				
4.4 Environmental Services & Basic Infrastructure Including waste management, water & sanitation and access to energy				
4.5 Urban Safety Including how safe residents perceive their neighborhood to be				
4.6 Natural Disasters Including floods, droughts and their effects on housing conditions and agricultural production				

Q6b. Having reviewed the 6 welfare quality of urban life indicators, do you feel that there are any missing that should be added to this investigation?

Residents Questionnaire

Thank you for agreeing to complete the residential questionnaire. This is split into 6 sections. The first is your personal demographics, this is followed by information about your physical environment, then your social environment, your economic environment and then your welfare environment, and this is then concluded with summary questions.

What is your age?

☐ Up to 15

☐ 16-24

☐ 25-34

☐ 35-49

☐ 50-64

☐ 65+

What is your gender?

☐ Male

☐ Female

What is your religious belief?

☐ Christian

☐ Muslim

☐ Prefer not to say

What is the highest level of education
you have completed to date?

☐ Some primary schooling

☐ Completed primary school

☐ Some secondary schooling

☐ Completed secondary school

☐ Tertiary education

☐ None

What is your marital status?

☐ Never married

☐ Divorced/Separated

☐ Widowed

☐ Married

☐ Living with partner

☐ Single

What is your tribal ethnicity?

☐ Chewa

☐ Lomwe

☐ Mang'anja

☐ Ngoni

Which neighborhood do you live in?

☐ Area 21 (Chilinde)

☐ Area 23

☐ Area 36

☐ Area 30

☐ Nyanja

☐ Senga

☐ Tonga

☐ Tombuka

☐ Yao

☐ None

☐ Other (please specify)

☐ Area 49

☐ Other (Please specify)

What is the main material used for the walls in your home *(Architectural Quality/Building Materials)*

☐ Grass; Mud and wattle; Mud Brick

☐ Burnt Brick; Concrete; Stone with Lime

☐ Combination

☐ No Walls

What is the main material used for the roof in your home? *(Architectural Quality/Building Materials)*

☐ Thatch; Sod; Palm Leaf

☐ Rustic Mat; Bamboo; Wood Planks; Cardboard

☐ Metal; Wood; Cement Fiber; Ceramic Tiles; Roof Shingles

☐ No Roof

Do you think your house is a good quality building? *(Architectural Quality/Finishes)*

☐ Definitely yes

☐ Probably yes

☐ Probably not

☐ Definitely not

How many internal rooms does your home have? *(Housing Quality/Density)*

☐ 1

☐ 2-3

☐ 4-5

☐ 6+

How many people live in your home most of the year? *(Density/User Density)*

☐ 1-2

☐ 3-4

☐ 5-6

How many external rooms does your home have? *(Housing Quality/Density)*

☐ 1

☐ 2-3

☐ 4-5

☐ 7+

Do you think your home feels overcrowded?
(Density/User Density)

☐ Definitely yes

☐ Probably yes

☐ Probably not

☐ Definitely not

☐ 6+

Where do you typically cook? (Housing
Quality/Dwelling Services)

☐ Inside my house

☐ In a separate building

☐ On veranda

☐ Outside House

☐ No food cooked at household

Does your home have a veranda? (Architectural
Quality/Dwelling typology)

☐ Yes

☐ No

Do you have a garden or outside space?
(Ecological quality/green space & vegetation)

☐ Yes

☐ No

Do you feel there is enough space between
your home and your neighbor's home? (Spatial
Quality/Compatibility)

☐ Definitely yes

☐ Probably yes

☐ Probably not

☐ Definitely not

Do you think that there is enough vegetation in
your neighborhood such as trees, plants etc.
(Ecological quality/vegetation)

☐ Definitely yes

☐ Probably yes

☐ Probably not

☐ Definitely not

Do you feel you can enjoy spending time in
your garden without being overlooked?
(Density/Privacy)

☐ Definitely yes

☐ Probably yes

☐ Probably not

Is there public transport available in your
neighborhood? (Urban Transport/Quality)

☐ Yes, and it is good quality

☐ Yes, but it is poor quality

☐ I don't think so

☐ Definitely not

☐ Definitely not

Can you use your garden to grow crops or keep animals? *(Ecological quality/farming & cultivation)*

- ☐ Crops only
- ☐ Animals only
- ☐ Both
- ☐ Neither

What is your main means of travel? *(Urban Transport/Typology)*

- ☐ Walking
- ☐ Bicycle
- ☐ Animal Drawn Cart
- ☐ Motorcycle/Scooter
- ☐ Car or Truck
- ☐ Public Mini-bus
- ☐ Taxi
- ☐ Other (Please specify)

Do you feel there is enough green space in your neighborhoods, such as parks, football pitches, fields etc. *(Ecological Quality/Green Space)*

- ☐ Definitely yes
- ☐ Probably yes
- ☐ Probably not
- ☐ Definitely not

Are the streets and roads in your neighborhood well built? *(Physical infrastructure/Streets & Roads)*

- ☐ Definitely yes
- ☐ Probably yes
- ☐ Probably not
- ☐ Definitely not

Do you feel it takes a long time to get to the CBD and city center from your home? *(Accessibility/Reachability)*

- ☐ Definitely yes
- ☐ Probably yes
- ☐ Probably not
- ☐ Definitely not

All things considered, do you feel your house meets your family's needs? *(Density/User Density)*

- ☐ Definitely yes
- ☐ Probably yes
- ☐ Probably not
- ☐ Definitely not

Is your place of work or school located near to your home? *(Accessibility/Reachability)*

All things considered, would you say the physical quality of your neighborhood is...

- ☐ Less than 10 minute journey
- ☐ 11-30 minute journey
- ☐ 31-60 minute journey
- ☐ It takes me over an hour

- ☐ High quality
- ☐ Above average quality
- ☐ Below average quality
- ☐ Poor quality

Is there bad noise pollution in the neighborhood from vehicles, neighbors, animals etc.? *(Ecological Quality/Noise Pollution)*

- ☐ Definitely yes
- ☐ Probably yes
- ☐ Probably not
- ☐ Definitely not

What age is the head of your household
(Personal Relationship/Family Life)

- ☐ 0-24
- ☐ 25-34
- ☐ 35-49
- ☐ 50-64
- ☐ 65+

Are you a member of any of the following associations? *(Sense of community/Clubs & Societies)*

- ☐ Local neighborhood group
- ☐ Religious group
- ☐ Professional group
- ☐ Cultural group
- ☐ Savings or investment group
- ☐ Political party
- ☐ Sport group
- ☐ Recreational group
- ☐ Women's group
- ☐ Men's group
- ☐ Youth group
- ☐ Other (Please specify)

How many children do you have? *(Personal Relationships/Family Life)*

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4+

How many siblings do you have? *(Personal Relationships/Family Life)*

☐ 0

☐ 1

☐ 2

☐ 3

☐ 4+

Where is your birth place *(Place Attachment/Migration)*

☐ Northern Region

☐ Central Region

☐ Southern Region

Please specify district...

Would you say you have a strong relationship with any of your neighbors? *(Personal Relationships/Neighbors)*

☐ Definitely yes

☐ Probably yes

☐ Probably not

☐ Definitely not

How long have you lived in this neighborhood? *(Place Attachment/Residence)*

☐ Less than 1 year

☐ 1-2 Years

☐ 2-10 Years

☐ Over 10 Years

Do you feel at home in this neighborhood? *(Place Attachment/Identity)*

☐ Definitely yes

☐ Probably yes

☐ Probably not

☐ Definitely not

Have you lived anywhere dis-similar to this neighborhood? *(Place Attachment/Moving Intentions)*

Do you think there is adequate space for cultural events in your neighborhood, such as weddings, etc. *(Culture& Identity/Neighborhood)*

☐ Yes (where?)

☐ No

☐ Definitely yes

☐ Probably yes

☐ Probably not

☐ Definitely not

Why did you move to your neighborhood?

(Place Attachment/Moving Intentions)

☐ Family/parents moved

☐ For school

☐ To start business/work

☐ Marriage

☐ Never moved

☐ Other (Please specify)

Do you think the neighborhood has adequate space for women to meet and socialise? *(Public Spaces/Meeting Places)*

☐ Definitely yes

☐ Probably yes

☐ Probably not

☐ Definitely not

Are there areas within your neighborhood for people to meet socially? *(Public Meeting Spaces/Quality Spaces)*

☐ Definitely yes

☐ Probably yes

☐ Probably not

☐ Definitely not

Do you think the neighborhood has adequate space for men to meet and socialise? *(Public Spaces/Meeting Places)*

☐ Definitely yes

☐ Probably yes

☐ Probably not

☐ Definitely not

Do you think that these spaces are good quality? *(Public Meeting Spaces/Quality Spaces)*

☐ Definitely yes

☐ Probably yes

☐ Probably not

☐ Definitely not

Do you think the neighborhood has adequate space for youth to meet and socialise? *(Public Spaces/Meeting Places/Youth)*

☐ Definitely yes

☐ Probably yes

☐ Probably not

☐ Definitely not

Do you think they are inclusive to all? (*Public Meeting Spaces/Quality Spaces*)

- ☐ Definitely yes
- ☐ Probably yes
- ☐ Probably not
- ☐ Definitely not

Do you feel a strong sense of community? (*Sense of community*)

- ☐ Definitely yes
- ☐ Probably yes
- ☐ Probably not
- ☐ Definitely not

Do you think that your neighborhood promotes social interaction between groups?

(*Public Spaces/Meeting Places*)

- ☐ Definitely yes
- ☐ Probably yes
- ☐ Probably not
- ☐ Definitely not

Do the shops, sellers and stalls in your neighborhood provide most things you need?

(*Social Facilities/Shops*)

- ☐ Definitely yes
- ☐ Probably yes
- ☐ Probably not
- ☐ Definitely not

Does your neighborhood have lively and active spaces that promote diverse social activities?

(*public meeting places/social facilities*)

- ☐ Definitely yes
- ☐ Probably yes
- ☐ Probably not
- ☐ Definitely not

How often do you leave your neighborhood?

(*Place Attachment/Belonging*)

- ☐ Everyday
- ☐ Once or twice a week
- ☐ Monthly
- ☐ A few times a year

Do you think there is adequate space for children to play safely under the supervision of parents? (*Personal relations/Family Life*)

- ☐ Definitely yes
- ☐ Probably yes

Where do you usually spend your free time when you are not working or at school? (*Public Meeting Spaces/Quality Spaces*) Tick as many as appropriate.

- ☐ At home with family & friends

- ☐ Probably not
- ☐ Definitely not

Are the shops, sellers and stalls in your neighborhood easily accessible?

(Social Facilities/Shops)

- ☐ Definitely yes
- ☐ Probably yes
- ☐ Probably not
- ☐ Definitely not

- ☐ At home alone
- ☐ Visiting friends/family at their home
- ☐ At a bar
- ☐ On the streets with friends
- ☐ At a local hangout
- ☐ At a club or society
- ☐ At the shops
- ☐ Other (Please specify)

How often do you think the following listen to people like you? *(Local Governance/Types of Leaders)*

	Not at all	Poor at listening	Somewhat good at listening	Great at listening
Members of parliament/senate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Local elected officials and councilors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leaders of community and traditional leaders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Religious leaders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Do you feel you have any say in the running of your community? (*Local Governance/Voice*)

- ☐ Definitely yes
- ☐ Probably yes
- ☐ Probably not
- ☐ Definitely not

Is your tribal ethnicity important to you? (*Culture & Identity/Tribalism*)

- ☐ Definitely yes
- ☐ Probably yes
- ☐ Probably not
- ☐ Definitely not

Do you think there are good leaders in your neighborhood? (*Local Governance/Voice*)

- ☐ Definitely yes
- ☐ Probably yes
- ☐ Probably not
- ☐ Definitely not

Are people in your neighborhood from the same tribe as you? (*Culture & Identity/Diversity*)

- ☐ Definitely yes
- ☐ Probably yes
- ☐ Probably not
- ☐ Definitely not

Do you take part in tribal or ethnic festivals or events? (*Culture and Identity/Tribalism*)

- ☐ Definitely yes
- ☐ Probably yes
- ☐ Probably not
- ☐ Definitely not

All things considered, would you say the social quality of your neighborhood is...

- ☐ High quality
- ☐ Above average quality
- ☐ Below average quality
- ☐ Poor quality

Do you own any of these durable goods and appliances? Tick where appropriate (*Income and Expenditure/Material Possessions*)

- ☐ Motor
- ☐ Bed
- ☐ Table
- ☐ Chair
- ☐ Radio
- ☐ CD Player
- ☐ TV
- ☐ Bicycle
- ☐ Clock
- ☐ Iron
- ☐ Computer
- ☐ Mobile Phone
- ☐ Refrigerator

Do you own any of these agricultural assets? Tick where appropriate (*Income and Expenditure/Material Possessions*)

- ☐ Hand hoe
- ☐ Slasher
- ☐ Axe
- ☐ Panga Knife
- ☐ Treadle Pump
- ☐ Watering Can
- ☐ Ox Cart
- ☐ Livestock
- ☐ Granary

What method of acquisition was used to get your plot? (*Tenure and Home Ownership/Secure Tenure*)

What coping mechanisms do you rely on if food insecure? (*Poverty Rates/Food Security*)

- ☐ Rely on less expensive food

- ☐ Inherited/allocated by a family member
- ☐ Rent short term
- ☐ Granted by local leaders
- ☐ Purchased
- ☐ Bride price
- ☐ Leasehold
- ☐ Farming as a tenant
- ☐ Other (please specify)

- ☐ Limit portions
- ☐ Reduce number of meals taken in a day
- ☐ Borrow food
- ☐ Rely on family/friends
- ☐ I've never been food insecure
- ☐ Restrict consumption of adults for children
- ☐ Other (please specify)

What type of tenure do you have for your home? *(Tenure and Home Ownership/Secure Tenure)*

- ☐ Owned
- ☐ Rented
- ☐ Free, authorised
- ☐ Employer provides
- ☐ Free, not authorised
- ☐ Being purchased
- ☐ Live with parents/family

All things considered, would you say the economic quality of your neighborhood is...

- ☐ High quality
- ☐ Above average quality
- ☐ Below average quality
- ☐ Poor quality

Over the last 6 months, have you suffered from any of the following? *(Physical well-being/Health)*

- ☐ Fever and malaria

If you have been unwell before, who diagnosed the illness *(Health Services/Healthcare facilities)*

- ☐ Medical worker at hospital

- | | |
|--|--|
| <input type="checkbox"/> Sore throat | <input type="checkbox"/> Medical worker at health facility |
| <input type="checkbox"/> Headache | <input type="checkbox"/> Health surveillance assistant |
| <input type="checkbox"/> Stomach ache | <input type="checkbox"/> Traditional healer |
| <input type="checkbox"/> Diarrhea | <input type="checkbox"/> Family member/friend |
| <input type="checkbox"/> Repertory infection | <input type="checkbox"/> Self |
| <input type="checkbox"/> Prefer not to say | <input type="checkbox"/> Other (please specify) |
| <input type="checkbox"/> None | |

Over the last 6 months, have you suffered from any of the following? *(Physical well-being/Health)*

- ☐ Chronic malaria/fever
- ☐ HIV/AIDS
- ☐ Asthma
- ☐ Arthritis/rheumatism
- ☐ Epilepsy
- ☐ Stomach disorder
- ☐ Mental illness
- ☐ Prefer not to say
- ☐ None

Are the healthcare facilities in your area adequate? *(Health Services/Community Services)*

- ☐ Extremely adequate
- ☐ Somewhat adequate
- ☐ Somewhat inadequate
- ☐ Extremely inadequate

How many meals do you eat on a typical day? *(Physical well-being/Malnutrition)*

- ☐ 0-1
- ☐ 2
- ☐ 3
- ☐ 4 or more

What type of waste facility do you use? *(Basic infrastructure/waste disposal)*

- ☐ Flush/pour toilet;
- ☐ VIP latrine; flush/pour latrine
- ☐ Traditional latrine
- ☐ Composting toilet
- ☐ Shared facility

Would you say you feel stressed or anxious often? *(Emotional well-being/Stress)*

- ☐ Yes, everyday
- ☐ Yes, every week
- ☐ Less than weekly
- ☐ Never

How do you get your drinking water *(Basic Infrastructure/Water and Sanitation)*

- ☐ Water piped into dwelling
- ☐ Water piped outside dwelling unit
- ☐ Communal Standpipes
- ☐ Protected wells
- ☐ Boreholes
- ☐ Unprotected wells
- ☐ Spring, stream or river
- ☐ Rainwater
- ☐ Other (please specify)

How long does it take to get water and come back? *(Basic Infrastructure/Water and Sanitation)*

- ☐ Less than 10 minutes
- ☐ 11-39 minutes
- ☐ 31-60 minutes
- ☐ Over an hour

What type of fuel do you use for cooking? *(Basic Infrastructure/Power and Energy Access)*

- ☐ Firewood and charcoal

☐ No facility

☐ Other (please specify)

Where do people usually go to resolve conflict in your neighborhood? Tick as many as appropriate *(Safety/Conflict)*

- ☐ Public security services
- ☐ Local committee
- ☐ Administrative authorities
- ☐ Political leaders
- ☐ Religious leaders
- ☐ Family or friends
- ☐ Traditional leaders
- ☐ Other (please specify)

Is there adequate street lighting in the neighborhood? *(Safety/infrastructure)*

- ☐ Definitely yes
- ☐ Probably yes
- ☐ Probably not
- ☐ Definitely not

In your view, how likely is it that you will be victim to some crime in your neighborhood? *(Safety/crime rates)*

- ☐ Extremely likely

- ☐ Electricity
 ☐ Somewhat likely
- ☐ Paraffin
 ☐ Somewhat unlikely
- ☐ Solid Fuels
 ☐ Extremely unlikely
- ☐ Crop residue/saw dust
- ☐ Other (please specify)

What type of fuel do you use for lighting? *(Basic Infrastructure/Power and Energy Access)*

In your opinion, is there much crime in your neighborhood? *(Safety/crime rates)*

☐ Battery dry cell (torch)
 ☐ Yes, lots

☐ Electricity
 ☐ Yes, some

☐ Candles
 ☐ Not much

☐ Firewood
 ☐ None

☐ Paraffin

How safe do you feel in the following situations *(Safety/Sense of security)*

	Not at all	A Little	Fairly	Completely
Walking alone in your neighborhood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

in daytime

Walking alone in
your neighborhood
in nighttime

☐☐☐☐

Being alone at
home during the
day

☐☐☐☐

Being alone at
home during the
night

☐☐☐☐

Waiting for public
transport in your
neighborhood

☐☐☐☐

Using public
transport in your
neighborhood

☐☐☐☐

In public areas of
your neighborhood

☐☐☐☐

Over the last 5 years, has your neighborhood
been affected by natural disasters such as floods,
droughts and heavy rains (*Natural Disaster/Floods
& Droughts*)

☐ Yes, extremely

☐ Yes, lightly

☐ Not badly

☐ Not at all

Have the natural disasters affected your crops
negatively? (*Natural Disaster/Floods & Droughts*)

☐ Yes, extremely

☐ Yes, lightly

☐ Not badly

☐ Not at all

Have the natural disasters affected your home
negatively? (*Natural Disaster/Floods & Droughts*)

☐ Yes, extremely

All things considered, would you say the
welfare quality of your neighborhood is...

☐ High quality

☐ Yes, lightly

☐ Not badly

☐ Not at all

☐ Above average quality

☐ Below average quality

☐ Poor quality

What do you like **most** about living in your neighborhood? (Please tick up to 5)

☐ My home

☐ That the streets and roads are good quality

☐ That the public transport is good quality

☐ That there is adequate green space

☐ That I have space to farm

☐ That my family live close by

☐ That I have good neighbors

☐ That I have a good social life here

☐ That there are good clubs and societies

☐ That there are good public meeting spaces

☐ That the shops/stalls have what I need

☐ That we have good leaders

☐ That there is good opportunities for work

☐ That I own my plot

☐ That there are good education facilities

☐ That healthcare facilities are good quality

☐ That I have good access to water

☐ That I have access to electricity

☐ That my neighborhood is safe

☐ That I am not affected by natural disasters

What do you like **least** about living in your neighborhood? (Please tick up to 5)

☐ My home

☐ That the streets and roads are poor quality

☐ That the public transport is poor quality

☐ That there is not adequate green space

☐ That I don't have space to farm

☐ That my family don't live close by

☐ That I have bad neighbors

☐ That I don't have a good social life here

☐ That there are not good clubs and societies

☐ That there are poor public meeting spaces

☐ That the shops/stalls don't have what I need

☐ That we don't have good leaders

☐ That there are not good opportunities for work

☐ That I don't own my plot

☐ That there are not good education facilities

☐ That healthcare facilities are poor quality

☐ That I don't have good access to water

☐ That I don't have access to electricity

☐ That my neighborhood is not safe

☐ That I am affected by natural disasters

All things considered, I feel satisfied with my life

- ☐ Not at all satisfied
- ☐ Somewhat satisfied
- ☐ Very satisfied
- ☐ Extremely satisfied

All things considered, I feel I have the important things in life

- ☐ Not at all true
- ☐ Somewhat true
- ☐ Very true
- ☐ Extremely true

Draft Walking Tour Tool:

Physical Aspects

4- Highly appropriate >> 1- Highly inappropriate		4>>1
1- How would you rate the architectural quality of the public space? (Architectural quality)		

2- How would you rate the quality of the ground in this public space? (<i>Streets & Roads</i>)	
3- To what extent is the urban space densely populated at peak times of the day? (<i>Density</i>)	
4- To what extent is the urban space densely populated at non-peak times of the day? (<i>Density</i>)	
5- To what extent does the public space consider the dimensions of public space and privacy? (<i>Privacy</i>)	
6- To what degree does the public space involve a mixture of uses? (<i>Urban Form/Land Use</i>)	
7- To what extent is the form of the space appropriate for the existing uses? (<i>Urban Form</i>)	
8- To what extent is this area accessible from the surrounding neighbourhood? (<i>Accessibility</i>)	
9- To what extent is this area connected to public transport links? (<i>Accessibility</i>)	
10- To what extent is the space essential to the surrounding urban context? (<i>Accessibility</i>)	
To what extent is there vegetation and green areas in this public space? (<i>Ecological quality</i>)	
11- How would you rate the quality of the landscape elements in this space? (- street furniture/(paths) promoting feeling of comfort/relaxation... (<i>Ecological quality</i>)	
12- To what extent are buildings in the space compatible to one another in the configuration of the space? (<i>Spatial quality</i>)	
13- All things considered, would you say the physical quality of this public space is good? (<i>Validating</i>)	
Total Score	
Average Score	

Social Aspects

4- Highly appropriate >> 1- Highly inappropriate	4>>1
1- To what extent is this public space inclusive to all? (<i>Inclusivity</i>)	
2- To what extent does the space promote human experience while supporting activities and interaction among people? (<i>Community</i>)	

3- To what extent does the space promote social interaction between different groups? (<i>Community</i>)	
4- To what extent does the public space consider the dimensions of public space and privacy? (<i>Privacy</i>)*	
5- To what degree does this space include multiple gathering settings? (<i>Space sub-division</i>)	
6- To what extent does the space accommodate diverse social activities? (<i>Diversity of Activities</i>)	
7- To what extent does the space accommodate diverse social groups? (<i>Diversity of users</i>)	
8- Are the shops/sellers/stalls in this space lively/animated/dynamic spaces? (<i>Facilities</i>)	
9- To what extent does the character of this street reflect the identity of Malawi? (<i>Identity</i>)	
10- All things considered, would you say the social quality of this public space is good? (<i>Validating</i>)	
Total Score	
Average Score	

Economic Aspects

4- Highly appropriate >> 1- Highly inappropriate	4>>1
1- To what extent are the majority of the walls of houses in the neighbourhood made from permanent materials? (<i>Architectural quality</i>)	
2- To what extent are the majority of the roofs of houses in the neighbourhood made from permanent materials? (<i>Architectural quality</i>)	

3- To what extent is there an acceptable space between buildings on the street? (<i>Density</i>)	
4- Are there physical barriers and walls between plots (<i>Privacy</i>)	
5- To what extent are gardens on the street overlooked by passers-by? (<i>Privacy</i>)	
6- To what extent does the neighbourhood consider the dimensions of public space and privacy? (<i>Privacy</i>)	
7- Is there a variety of land use on the street? (<i>Urban form</i>)	
8- To what extent does the street provide multiple gathering settings? (Formal/Informal spaces) (<i>Urban form</i>)	
9- To what extent are the streets accessible to all users? (<i>Accessibility</i>) a- Transport options b- Topography	
10- To what extent is the street easy to navigate? (<i>Legibility</i>)	
11- To what extent are the roads and pavements of the street good quality? (<i>Urban infrastructure</i>)	
12- To what extent are the gardens in the area appropriate for cultivation? (<i>Ecological quality</i>)	
13- To what extent are there green spaces in the neighbourhood? (<i>Ecological quality</i>)	
14- All things considered, would you say the physical quality of this neighbourhood is good? (<i>Validating</i>)	
Average Score	

Welfare Aspects

4- Highly appropriate >> 1- Highly inappropriate	4>>1
1- To what extent does the neighbourhood have spaces that are appropriate for cultural events? (<i>Culture & Identity</i>)	

2- Are there spaces within the neighbourhood for young people to meet and socialise? (<i>Youth</i>)	
3- Are there spaces in the neighbourhood for children to play safely within the watch of parents? (<i>Family life</i>)	
4- To what extent are the (in) formal meeting spaces within the neighbourhood good quality? (<i>Quality space</i>)	
5- Do you feel there is a strong sense of community in this neighbourhood? (<i>Sense of community</i>)	
6- To what extent does the neighbourhood foster user's attachment to it? (<i>Place attachment</i>)	
7- To what extent does the character of this street reflect the identity of Malawi? (<i>Identity</i>)	
8- Are (in)formal social spaces in this neighbourhood inclusive to all? (<i>Quality spaces</i>)	
9- Do the (in)formal spaces promote social interaction between different groups... age/gender etc.	
10- Are the shops/sellers/stalls in this neighbourhood lively/animated/dynamic spaces?	
11- All things considered, would you say the social quality of this neighbourhood is good?	
Total Score	
Average Score	

Appendix 8:
Residential Attitude Survey

Residential Questionnaire

Quality of urban life in Lilongwe

Odii...

Mulibwanji?

Dzina langa ndine..... ndabwera mmalo mwa Laura McLean yemwe akupanga kafukufuku wakakhalidwe ka moyo wa mmizinda makamaka mu mzinda uno wa Lilongwe. Kufufuza chikhalidwe cha umoyo wammatauni ndi njira imodzi imene boma limagwiritsa ntchito powona moyo wabwino wa anthu mmadera, mmatawuni komanso mmizinda yosiyanasiyana. Izi zinayamba chifukwa choti kuyang'ana mbali ya zachuma payokha siimakwanira kuonetsa ngati anthu akukhala moyo wabwino. Chifukwa cha ichi, kafukufuku ameneyu awunika za kamangidwe, kakhalidwe zachuma komanso umoyo wabwino mudera lino

Zomwe titapeze pano zikathandiza opanga ziganizo za boma kuti akathe kupanga ziganizo zoyenerera zomwe zingathandize Madera athu.

Kodi muli okonzeka kucheza nafe?

Section 1. Demographic Information This section asks about the demographic aspects of your life. Please tick ONE answer for each question using the tick boxes provided.

Q1. What is your age? Muli ndi zaka zingati?

- ☐ 0-15
- ☐ 16-24
- ☐ 25-34
- ☐ 35-50
- ☐ 50-64
- ☐ 65+

Q2. What is your gender? Ndinu amayi kapena abambo?

- ☐ Male
- ☐ Female
- ☐ Prefer not to say

Q3. What is your relationship status? Muli pa banja?

- ☐ Married
- ☐ Living with partner
- ☐ Single
- ☐ Divorced/separated
- ☐ Widowed
- ☐ Prefer not to say

Q4. What is your highest level of education to date? Munalekera kalasi yanji?

- ☐ Some primary schooling
- ☐ Completed primary school
- ☐ Some secondary schooling
- ☐ Completed secondary school
- ☐ College or university
- ☐ None

Q5. What is your religious belief? Ndinu a chipembedzo chanji?

- ☐ Christian
- ☐ Muslim
- ☐ Other
- ☐ Prefer not to say

Q6. What was your main source of income for your household livelihood during last 12 months? Miyezi isanu ndi inayi yapitayi mumapanga chani kuti mupeze zofunika za tsiku ndi tsiku pa khomo panu pano?

- ☐ Entrepreneurship
- ☐ Employment
- ☐ Ganyu
- ☐ Petty trading
- ☐ Remittance
- ☐ Pension
- ☐ Insurance
- ☐ Public works
- ☐ Fishing
- ☐ Food crop sales
- ☐ Cash crop sales
- ☐ Social cash transfer
- ☐ Forestry products
- ☐ Begging
- ☐ Other (Please specify)

Q7. Which neighbourhood do you live in? Mumakhala area chani?

- ☐ Area 18
- ☐ Area 49
- ☐ Area 36

Section 2. This section asks about the physical aspects of your home and the neighbourhood in which it is located. Please tick ONE answer in questions 1-6 in the tick boxes provided.

Q1. What is the main material used for the walls in your home? Chipupa cha nyumba yanu anagwiritsa ntchito chani?

- ☐ Traditional Dwelling: *Made from grass, mud & wattle, mud brick*
- ☐ Modern Dwelling: *Made from burnt brick, concrete, stone & lime*
- ☐ Combination of both construction types

Q5. What is your main means of travel? Mayendedwe anu a tsiku ndi tsiku mumagwiritsa ntchito chani?

- ☐ Walking
- ☐ Bicycle
- ☐ Animal Drawn Cart
- ☐ Motorcycle/Scooter
- ☐ Car or Truck
- ☐ Public Mini-bus
- ☐ Car Taxi
- ☐ Bicycle taxi
- ☐ Other (please specify)

Q6. Is your place of work located near to your home? Komwe mumagwira ntchito ndikomwe mumakhala kunatalikana motani?

Less 10-minute	11-30-minute	31-60-minute	Over an hour
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Q7. Is your closest school located near to your home? Kuchoka pa khomo panu kukafika ku sukulu ndi mtunda otalika bwanji?

Less 10-minute	11-30-minute	31-60-minute	Over an hour
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Q8. Is your main health facility located near to your home? Kuchoka pa khomo panu kukafika kuchipatala ndi mtunda otalika bwanji?

Less 10-minute	11-30-minute	31-60-minute	Over an hour
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Q2. How many internal rooms does your home have? Nyumba yanu ili ndi zipinda zingati?

1	2-3	4-5	6+
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Q3. How many external rooms does your home have? Nyumbayanuilindizipindazingatizapanja?

1	2-3	4-5	6+
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Q4. How many people live and eat from your household? Ndianthu angati omwe amakhala komanso kudya mu nyumba yanu ino?

1-2	3-4	5-6	7+
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Q9. What is the age of the head of your household? Kodi mutu wabanja lino ali ndi zaka zingati?

0-24	25-34	35-49	50-64	65+
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Q10. Do you have many family members living in this neighbourhood? Muli ndi achibale angati omwe mumakhala nawo mu dera lino?

0	1-3	4-6	7-9	10+
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Q11. How many children do you have? Muli ndi ana angati?

0	1-2	3-4	5+
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Q12. How long have you lived in this neighbourhood? Mwakhala mu dera lino kwa nthawi yaitali bwanji?

Less 1 year	1-2 years	2-10 years	Over 10 years
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Q13. Why did you move to this neighbourhood? Kodi munasamukira kudera lino chifukwa chani?

- ☐ Family/parents moved
- ☐ For school
- ☐ To start business/for work
- ☐ Marriage
- ☐ I was born here
- ☐ Other (please specify)

In the following section, please answer the following questions by ticking ONE column per question. Against the selection you make, please select the main reasons for your choice from the provided. Tick all that apply.

	1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes	TICK	
1. Do you think your house is a good quality building? Mukuganiza kuti nyumba yanu ndiyamamangidwe a pamwamba?					a. Due to the external finish	
					b. Due to the internal finish	
					c. Due to the material it is made from	
					d. Due to its maintenance	
2. Do you think that your house feels overcrowded? kuyelekeza kukula kwa nyumba yanu ndi chiwerengero cha anthu amene mumakhalamo zimagwirizana?					a. Due to the size of the rooms	
					b. Due to the number of people	
					c. Due to number of rooms	
3. Do you feel there is enough space between your's and your neighbour's homes? Pali mpata okwanira pakati pa nyumba yanu ndi nyumba zoyandikana nanu?					a. Due to the number of buildings in the street	
					b. Due to the size of my garden	
					c. Due to the size of my neighbour's garden	
4. Do you feel you can enjoy spending time in your garden without being overlooked? // kodi mumatha kukhala panja pa nyumba yanu osasokonezedwa?					a. Due to the size of my garden	
					b. Due to walls or bushes on boundary on my plot	
					c. Due to passers-by being able to see in	
					d. Due to neighbouring houses seeing in	
5. Are the streets and roads in your neighbourhood well built?// kodi misewu ya mudera mwanu ndiyomangidwa bwino?					a. Due to the material they are made from	
					b. Due to their maintenance	
					c. Due to the age of the streets and roads	
6. Is there adequate public transport available in your neighbourhood? Kodi mu dera lanu lino muli mayendedwe okwanira a ma galimoto olipira?					a. Due to the frequency of transport	
					b. Due to the routes the transport takes	
					c. Due to the cost of the transport	
					d. Due to the quality of the vehicles	
7. Do you feel it takes a long time to get to the city centre from your home? Mumatenga nthawi yaitali bwanji kuti mukafike ku city centre?					a. Due to the type of travel I use	
					b. Due to the location of my neighbourhood	
					c. Due to the terrain of the neighbourhood	
8. Do you feel there is enough green space in neighbourhood? (Parks, fields etc.) kodi zachilengedwe mu dera lino ndizokwanira?					a. Due to the number of parks	
					b. Due to the number of fields	
					c. Due to the plants, trees and vegetation	

All things considered; would you say the physical quality of your neighbourhood is...? Kodi dera lanu lino liri ndinyumba za maonekedwe otani? (circle one)

Poor Quality	Below Average Quality	Above Average Quality	High Quality
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Section 3. *This section asks about the social aspects of your home and the neighbourhood in which it is located.* Please answer the following questions by ticking ONE column per question.

Against the selection you make, please select the main reasons for your choice from the provided. Tick all that apply.

	1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes		TICK
1. Would you say you have a strong relationship with any of your neighbours? Kodi ubale wanu ndi anthu oyandikana nanu ndi otani?					a. Due to the friendliness of my neighbours	
					b. Due to my neighbours being similar to me	
					c. Due to the amount of neighbour interaction	
					d. Due to the quality of the interaction we share	
2. Are there areas within the neighbourhood for people to meet socially? Kodi mu dera lanu muli malo opangira za msangulutso?					a. Due to the quality of the spaces available	
					b. Due to the number of spaces available	
					c. Due to the accessibility of the spaces available	
					d. Due to my gender	
3. Are the public areas in the neighbourhood inclusive to all? Mudera muno muli ndi malo ogwiritsidwa ntchito ndi aliyense? Ngati eya kodi aliyense amatha kugwiritsa ntchito mopanda choletsa chilli chonse?					a. Spaces tend to be inclusive to both genders	
					b. Spaces tend to be inclusive to all ages	
					c. Spaces tend to be inclusive to all races	
4. Do you think the neighbourhood has adequate space for youth to meet? Dera lanu lili ndimalo okwanira omwe achinyamata amatha kukumanira?					a. Due to the quality of the spaces for youth	
					b. Due to the number of spaces for youth	
					c. Due to the accessibility of spaces for youth	
5. Do you think there is adequate space for children to play safely? Nanga malo osewerera ana ndi okwanira?					a. Due to the quality of the spaces for children	
					b. Due to the amount of spaces for children	
					c. Due to the accessibility of spaces for children	
6. Are the shops, sellers and stalls in neighbourhood easily accessible? Malo ogulitsila malonda amapezeka mosavuta?					a. Due to the proximity of the shops, sellers and stalls from my home	
					b. Due to the opening hours of the shops	
7. Do the shops, sellers and stalls have most of the things you need? Kodi anthu ogulitsa katundu amapezeka ndi zonse zomwe mumafuna?					a. Due to the items that they stock	
					b. Due to the cost of the items in the shop	
8. Do you think that there are good leaders in your neighbourhood? Mu dera lanu muli atsogoleri abwino?					a. Because I feel they listen to people like me	
					b. Because I feel they are good at their job	
					c. Because they treat people like me fairly	
9. Do you feel you have a say in the running of your community? Mumapanga nawo					a. Because I think people hear my voice	
					b. Because there are opportunities for me to give my opinion	

ziganizo za momwe mungayendetsere dera lanu?						
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All things considered; would you say the social quality of your neighbourhood is...? (circle one)

Poor Quality	Below Average Quality	Above Average Quality	High Quality
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Section 3. This section asks about the economic aspects of your home and the neighbourhood in which it is located. Please tick ONE answer in questions 1-3 in the tick boxes provided.

Q1 What type of tenure do you have for your home? Kodi nyumba yanuyi ndi yanuyanu?

- ☐ Owned
- ☐ Rented
- ☐ Free, authorised
- ☐ Free, not authorised
- ☐ Employer provides
- ☐ Being purchased
- ☐ Live with parents/family

Q2 How did you acquire your plot? Kodi malo anu ano munawapeza bwanji?

- ☐ Inherited/allocated by family
- ☐ Rent short term
- ☐ Granted by local leaders
- ☐ Purchased
- ☐ Bride Price
- ☐ Leasehold
- ☐ Farming as tenant
- ☐ Other

Q3 Where does your employment usually take place? Ntchito yanu mumagwirira malo akuti?

- ☐ Market place
- ☐ Home
- ☐ Roadside/mobile
- ☐ Agricultural fields
- ☐ In city centre or CBD
- ☐ In education
- ☐ None
- ☐ Other

Q4 Do you own any of these items? Tick as many as appropriate Kodi muli ndi katundu otsatirayu mnyumba mwanu?

- ☐ Car or Truck
- ☐ Bed
- ☐ Radio
- ☐ TV
- ☐ Bicycle
- ☐ Iron
- ☐ Computer
- ☐ Mobile phone
- ☐ Refrigerator

In the following section, please answer the following questions on a scale from 1-4, ticking ONE box per question. Against the selection you make, please select the main reasons for your choice from list provided. Tick all that apply.

	1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes		TICK
1. Do you feel your tenure/lease is secure? Kodi malo mukukhalawa ndi okhazikika?					a. Due to owning my plot	
					b. Due to not owning my plot	
					c. Due to my landlord being friendly	
					d. Due to my landlord being intimidating	
					e. Due to the housing costs in this area	
2. Do you think there are good work opportunities in your area? Mu dera lanu lino muli miyayi ya ntchito zabwino?					a. Due to the employment rate in the neighbourhood	
					b. Due to my current state of employment	
					c. Due to being able to find a job in neighbourhood	
3. Do you think there are good schools in your area? Dera lino muli sukulu zabwino?					a. Due to the quality of the school buildings	
					b. Due to the distance to the schools from home	
					c. Due to the attendance of students in area	

4. Do you feel you have the means to meet your basic needs? Kodi mumakwanisa kupeza zofunika za tsiku ndi tsiku?					a. Due to being able to afford food	
					b. Due to being able to afford clothes	
					c. Due to being able to afford beautiful possessions	

All things considered; would you say the economic quality of your neighbourhood is...? (circle one)

Poor Quality	Below Average Quality	Above Average Quality	High Quality
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Section 4. This section asks about the well-being aspects of your home and neighbourhood. Please tick ONE answer for each question in the tick boxes provided.

Q1. What type of fuel do you use for cooking?
Mumagwiritsa ntchito chain pophikira?

- ☐ Firewood and charcoal
- ☐ Electricity (including solar or battery)
- ☐ Paraffin
- ☐ Solid fuels
- ☐ Straw/shrubs/grass

Q2. What type of fuel do you use for lighting?
Nanga pounikira?

- ☐ Firewood and charcoal
- ☐ Electricity (including solar or battery)
- ☐ Paraffin
- ☐ Solid fuels
- ☐ Candles
- ☐ Grass/straw

Q3. Does your household own a toilet? Khomo lanu lino muli ndi chimbudzi?

- ☐ Yes
- ☐ No
- ☐ Prefer not to say

Q3. What type of toilet do you use?
Mumagwiritsa ntchito chimbudzi chotani?

- ☐ Flush/pour toilet
- ☐ Ventilated improved pit (VIP) latrine
- ☐ Traditional latrine
- ☐ Composting toilet
- ☐ No Facility/bush/field

Q4. How do you get your drinking water?
Madzi okumwa mumatunga kuti?

- ☐ Piped water into or near dwelling unit
- ☐ Community standpipes
- ☐ Protected well
- ☐ Unprotected well
- ☐ Boreholes
- ☐ Spring, stream or river, pond or lake
- ☐ Rainwater
- ☐ Tanker truck/bowser
- ☐ Bottled water
- ☐ Other (please specify)

Q5. Where do you go if you fall sick?
Mumapita kuti mukadwala?

- ☐ Medical worker
- ☐ Traditional healer
- ☐ Family member/friend
- ☐ Self
- ☐ Other (Please specify)

In the following section, please answer the following questions on a scale from 1-4, ticking ONE box per question. Against the selection you make, please select the main reasons for your choice from list provided. Tick all that apply.

	1. Definitely not	2. Probably Not	3. Probably Yes	4. Definitely Yes		TICK
1. How would you rate your health over the last year? Kodi umoyo wanu chaka changothachi wakhala uli otani?					a. Due to experiencing serious sickness or injury	
					b. Due to experiencing minor sickness or injury	
					c. Due to experiencing minimal sickness or injury	
					d. Due to chronic illness	
2. How would you rate the healthcare facilities in your neighbourhood?Kodi zipatala zanu dera lino mungaziike mulingo otani					a. Due to the provision of health services	
					b. Due to the accessibility of medical equipment	
					c. Due to the quality of the health workers	
					d. Due to the drugs available	
					e. Due to the quality of the infrastructure	
3. How would you rate quality of waste facility you use?Kodi kotaya zinyalala kwadera lanu ndi kotani?					a. Due to the provision of the waste facility	
					b. Due to the accessibility of the waste facility	
					c. Due to the quality of the waste facility	
4. How would you rate the quality of drinking water facility you use?Kodi madzi omwe mumamwa mungawaike pa mulingo otani?					a. Due to the provision of the water facility	
					b. Due to the accessibility of the water facility	
					c. Due to the quality of the water facility	
How would you rate the quality of the fuel you use for lighting? Kodi zomwe mumagwiritsa ntchito pounikira mungaziike pa mulingo otani?					a. Due to the provision of fuel	
					b. Due to the accessibility of the fuel	
					c. Due to the quality of the fuel	
In your view, is there much crime in your neighbourhood?Mmaganizo anu, mu dera lanu lino muli mchitidwe wa u mbava ndi Umbanda ochuluka?					a. due to the number of crimes I am aware of	
					b. Due to the lack of street lighting	
					c. Due to the sense of community	

All things considered; would you say the well-being quality of your neighbourhood is...? (circle one)

Poor Quality	Below Average Quality	Above Average Quality	High Quality
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Section 5. Concluding Questions. This section will ask about your overall quality of urban life.
Chigawoichitifunsammenemumauoneramoyowanuokhalamatown

Q1. Now reflecting on the quality of your neighbourhood, what do you like most about living here? (Tick up to 5) kodi dera lanu lino chomwe chimakusangalatsani ndi chani?

- ☐ My home
- ☐ That my home and garden feel private
- ☐ That the public transport is good quality
- ☐ That the streets & roads are good quality
- ☐ That there are good quality parks and green space
- ☐ That my family live close by
- ☐ That I have good neighbours
- ☐ That I have a good social life
- ☐ That there are good quality public meeting spaces
- ☐ That the shops, sellers & stalls have what I need
- ☐ That we have good leaders
- ☐ That there are good opportunities for work
- ☐ That my tenure is secure
- ☐ That education facilities are good
- ☐ That I have the means to meet my basic needs
- ☐ That I have access to water
- ☐ That I have access to electricity
- ☐ That there are good quality health services
- ☐ That my neighbourhood is safe

Q2. All things considered, I feel satisfied with my life //kodi mumakhutira ndi moyo wanu?

- ☐ 1- Not at all satisfied
- ☐ 2- Somewhat satisfied
- ☐ 3- Very satisfied
- ☐ 4- Extremely satisfied

Q3. All things considered; I feel I have the important things in life// kodi mukuona ngati muli ndi zinthu zofunikira mmoyo mwanu?

- ☐ 1- Not at all true
- ☐ 2- Somewhat true
- ☐ 3- Very true
- ☐ 4- Extremely true

Appendix 9:
Indicator Table

Indicator Table:

Physical Environment			
Indicator	Scholar that uses indicator	Definition	Evaluation Criteria
Building Quality			
Building Quality	(Campbell, et al., 1976) (Møller & Schlemmer, 1983) (Felce & Perry, 1995) (Lofti & Solaimani, 2009) (Esmaeilpoorarabi, et al., 2016)	That the building is a well-built structure, that is strong and solidly made, and well maintained.	That the house has a good/beautiful <i>external</i> finish
			That the house has good <i>internal</i> finish (plastered walls and nice floors)
			What material is the building made from? (Mud brick, concrete, wood etc.)
Building Upkeep & Maintenance	(Marans & Rodgers, 1975)	That the home/building is well maintained.	Are the buildings in the area well maintained?
Neighbourhood Building Quality	(Marans & Rodgers, 1975) (Moller & Schlemmer, 1983) (Campbell, et al., 1976) (Esmaeilpoorarabi, et al., 2016)	That the buildings in the neighbourhood are well-built structures, that are strong and solidly made, and well maintained.	That your neighbours keep their homes in a good condition
Housing			
Dwelling size	(Campbell, et al., 1976) (Moller & Schlemmer, 1983) (McCrea, et al., 2005) (Das, 2008) (Sandru, 2012) (Low, et al., 2018)	That the home is big enough to meet the needs of the family that occupies it.	What type of home do you live in? (Flat, detached house etc.)
			How many people (excluding domestic helpers) live in the household?
			How many rooms are in the home?
			Do you think the rooms are too large/small?
			Does your housing situation meet your family needs?
Home Services	(Moller & Schlemmer, 1983) (Das, 2008)	That the buildings have certain services (such as water and electricity) built in	Is there access to running water in the house?
			Is there access to electricity in the house?
			Is there access to a toilet in the house?
Garden & Outdoor Space	(Moller & Schlemmer, 1983) (Gavrilidis, et al., 2016)	That the houses in the neighbourhood have personal or shared gardens	Do you have a (beautiful/big) garden/outdoor space?
			Do your neighbours have (beautiful/big) gardens/outdoor spaces?
			Does the neighbourhood have shared gardens/spaces?
			Can you grow crops/have animals in your garden?

Satisfaction with Housing	(Campbell, et al., 1976) (McCrea, et al., 2005) (Das, 2008) (Low, et al., 2018)	That the occupier has an overall satisfaction with the conditions of their home for themselves and their family	All things considered, are you (the occupier) satisfied with the condition of the home?
			As a place for your family, is your home good?
Urban Infrastructure			
Streets and Roads	(Marans & Rodgers, 1975) (Campbell, et al., 1976) (Moller & Schlemmer, 1983) (Westaway & Gumede, 2001) (Gavrilidis, et al., 2016)	That the streets, pavements and roads in the area are well built and well maintained.	Are the streets and pavements well built and maintained?
			Are the roads well built and maintained?
Road Safety	(Esmaeilpoorarabi, et al., 2016)	That the roads and public spaces feel safe for pedestrians and cyclists	Are the roads safe for pedestrians and cyclists?
			Are the roads safe for vehicular use in the area?
Density			
Size of Community	(Marans & Rodgers, 1975) (Sandru, 2012)	Is it a small/medium or large community.	Is the community small/medium or large?
Density and Crowding	(Marans & Rodgers, 1975) (Moller & Schlemmer, 1983) (Sandru, 2012) (Low, et al., 2018)	That there is enough space between houses, and that the neighbourhood doesn't feel over crowded.	Is there enough space between houses?
			Does the neighbourhood feel overcrowded?
			Are there too many buildings in the street?
			Are there too many buildings in the neighbourhood?
Privacy	(Marans & Rodgers, 1975) (Moller & Schlemmer, 1983) (Felce & Perry, 1995)	That the occupier has enough privacy in their home and garden from neighbours and passers-by. This could be affected by density.	Is there enough privacy in the home from passers-by?
			Is there enough privacy in the garden from passers-by and neighbours?
			Do you feel your home/garden is overlooked by neighbouring houses?
			Do you feel you can spend time in your garden without being watched?
Urban Form			
Degree of Planning	(Marans & Rodgers, 1975)	That there has been a high/medium or low level of neighbourhood planning	Has the neighbourhood been planned by the government?
			Has the neighbourhood been informally planned?

Land Use	(Shafer, et al., 2000) (Esmaeilpoorarabi, et al., 2016)	That the neighbourhood has a variety of land use and spatial diversity. Streets include shops as well as homes.	Is there a mixture of domestic and commercial buildings in the area? (shops and houses)
			Are there urban public places in the neighbourhood? (Squares, gathering spaces etc.) (formal and informal)
Accessibility & Transport			
Convenience of Location	(Marans & Rodgers, 1975) (Campbell, et al., 1976) (Moller & Schlemmer, 1983) (Esmaeilpoorarabi, et al., 2016) (Low, et al., 2018)	That the location has convenient access to physical and social amenities. That it is conveniently located to the rest of the city	Are shops and sellers conveniently accessible from a house in this street?
			Are parks/playgrounds conveniently accessible from a house in this street?
			Are work places and schools conveniently accessible from a house in this street?
			Is it close/easy to get to the city centre or central business district?
Public Transport	(Marans & Rodgers, 1975) (Campbell, et al., 1976) (Moller & Schlemmer, 1983) (Felce & Perry, 1995) (Shafer, et al., 2000) (Westaway & Gumede, 2001) (Das, 2008) (Esmaeilpoorarabi, et al., 2016) (Low, et al., 2018)	That there is opportunity to use transportation other than private cars and taxis.	Is there public transport available in the neighbourhood?
			Is the public transport system efficient? (Frequent, good routes etc.)
			Is the public transport system affordable?
			All things considered, would you say the public transport system is good?
			What is your primary mode of travel? (walking, cycling, public transit, private car)
Green and Open Space			
Adequate of Green Space & Parks	(Marans & Rodgers, 1975) (Campbell, et al., 1976) (Moller & Schlemmer, 1983) (Westaway & Gumede, 2001) (McCrea, et al., 2005) (Das, 2008) (Lofti & Solaimani, 2009) (Sandru, 2012) (Esmaeilpoorarabi, et al., 2016) (Gavrilidis, et al., 2016)	That the neighbourhood has adequate green space and parks for its residents	Is there adequate green space in the neighbourhood?
			Are there adequate parks in the neighbourhood?
			Is there adequate space for outdoor recreational activities? (Cycling/jogging/football etc.)
Available Open Space	(Marans & Rodgers, 1975) (Shafer, et al., 2000) (Das, 2008)	That the neighbourhood has adequate open space	Is there adequate (non-green) open space in the neighbourhood?

Greenery and Vegetation	(Marans & Rodgers, 1975) (Sandru, 2012) (Gavrilidis, et al., 2016)	That the neighbourhood has trees, plants and vegetation	Is there an adequate number of trees in the neighbourhood?
			Is there an adequate amount of plants and vegetation in the neighbourhood?
Naturally occurring features	(Gavrilidis, et al., 2016) (Esmaeilpoorarabi, et al., 2016)	That the neighbourhood has naturally occurring features, such as lakes, rivers	Does the neighbourhood have natural features such as lakes or rivers?
			Does the neighbourhood have natural features such as hills or mountains?
Climate			
Climate and Environmental Pollution	(Marans & Rodgers, 1975) (Campbell, et al., 1976) (Shafer, et al., 2000) (Das, 2008) (Sandru, 2012) (Low, et al., 2018)	This relates to a number of climactic factors that are found in a neighbourhood including climate, air quality and overall comfort levels etc.	Is the neighbourhood sunny?
			Is the neighbourhood hot/cold?
			Is the neighbourhood affected by waterlogging?
			Is there bad noise pollution in the neighbourhood? (From cars, noisy neighbours, animals etc.)
			Does the neighbourhood have satisfactory air quality?
			Overall, does the neighbourhood have a comfortable climate?

Social Environment			
Indicator	Scholar that uses indicator	Definition	Evaluation Criteria
Social Relationships			
Family/Household Life	(Marans & Rodgers, 1975) (Moller & Schlemmer, 1983) (Felce & Perry, 1995) (McCrea, et al., 2005) (Low, et al., 2018)	This relates to the persons relationships with their family and family status. This is important for understanding	Are your parents still living? Are you close with your parents?
			Do you have siblings? How many of each? Are you close to them?
			How long have you been married? Are you satisfied with your marriage?
			Do you have any children? How many? Do many live with you?
			Does anyone other than your family live in your house?
			Do you have a good relationship with your (and your partners) relatives?
			Do you have many relatives in the area? Do you visit them often?
			All things considered, are you happy with your family life?
			Do you have a good many friends?

Social Relationships	(Campbell, et al., 1976) (Moller & Schlemmer, 1983) (Felce & Perry, 1995) (Esmaeilpoorarabi, et al., 2016) (Low, et al., 2018)	This relates to the persons relationships with people out with their family. This is important for	Do you enjoy being a parent?
			Is it easy to get to know people in the area?
			Are you friendly with your neighbours?
			Is it easy to find a partner (husband/wife) in the area?
			Are your work colleagues friendly?
Place Attachment			
Residence in Area	(Low, et al., 2018) (Marans & Rodgers, 1975) (Moller & Schlemmer, 1983)	Length of time resident has resided in area, and have they stayed anywhere dis-similar to this area.	How long have you lived in this area?
			How long have you lived in this house?
			Have you lived anywhere that is dis-similar to here? (Where was that?)
			Where is your birthplace?
Moving Intentions	(Campbell, et al., 1976)	If the resident is settled and attached to their area, or if they have the desire to move	Do you think you will move from this neighbourhood?
			What is the main thing that keeps you from moving right now?
			Do you think that a good fit exists between you and the neighbourhood?
Social Amenities			
Social Amenities	(Campbell, et al., 1976) (Moller & Schlemmer, 1983) (Felce & Perry, 1995) (Shafer, et al., 2000) (Westaway & Gumedde, 2001) (Das, 2008) (McCrea, et al., 2005) (Esmaeilpoorarabi, et al., 2016) (Low, et al., 2018) (Rapley, 2003)	This relates to if the neighbourhood has access to cultural, recreational and social activities/amenities. This could include facilities such as libraries, sports grounds, cafes, church/mosque etc.	Do you have much spare time? Do you get to spend time doing things you want to do?
			Do you spend your free time pursuing hobbies/activities?
			Are there opportunities in this area for club memberships?
			Are there services and facilities for entertainment?
			Which do you attend on a monthly basis: church/mosque, religious connected groups, parent teacher association, sports teams, political clubs, women’s groups, men’s groups, bawo club etc.
			Overall, how satisfied are you with how you spend your free time?
Public Meeting Places	(Esmaeilpoorarabi, et al., 2016)	Are there areas within the neighbourhood for people to meet socially, perhaps also informally	Are there areas within the neighbourhood for people to meet socially?
			Are these facilities easily accessible?
			Are there informal meeting spots in your community?

Accessibility and Availability of Shops	(Shafer, et al., 2000)	This relates to the shops and sellers within the neighbourhood, and if they are easy to access	Are there shops/stalls/sellers in your neighbourhood?
			Are they easily accessible?
			Do they provide most things that you need?
Sense of Community			
Sense of Community	(Shafer, et al., 2000) (Rapley, 2003) (McCrea, et al., 2005) (Das, 2008)	This relates to whether or not the participant feels that the community interact well together.	Is there a strong sense of community in this neighbourhood?
			Is there much neighbourhood interaction?
			Do you feel involved with your neighbourhood?
Neighbours	(Marans & Rodgers, 1975) (Campbell, et al., 1976) (Das, 2008)	This relates to the perception of the participants neighbours.	Are your neighbours (un)friendly?
			People in my neighbourhood are (dis)similar to me?
			I get along well with my neighbours
Local Governance			
Local Government	(Campbell, et al., 1976) (Moller & Schlemmer, 1983) (Das, 2008) (Low, et al., 2018)	This relates to local leaders, if the resident feels they have running in their community	Do you feel you have any say in the running of your community?
			Do you think there are good leaders in the area you live?
			Is it important to you to vote for government?
			Do you pay allegiance to your chief?
			Do public officials treat your fairly? Do they hear your voice?
Independence, Choice & Freedom	(Felce & Perry, 1995) (McCrea, et al., 2005) (Low, et al., 2018)	This relates to political independence	Do you feel you have political independence to peruse things you want in life?
			Do you feel you can make choices about your/your community’s future?
Culture/Identity			

Economic Environment			
Indicator	Scholar that uses indicator	Definition	Evaluation Criteria
GDP and Poverty Rates			
GDP/resident	(Rapley, 2003) (Sandru, 2012)	This relates to the gross domestic product of the people in the area.	What is the GDP in the area?
Poverty Rate	(Rapley, 2003)		Percentage of the neighbourhood that lives in poverty?
Household Income			
Household Gross Monthly Income	(Moller & Schlemmer, 1983) (Campbell, et al., 1976) (Lofti & Solaimani, 2009) (McCrea, et al., 2005) (Sandru, 2012) (Low, et al., 2018) (Esmaeilpoorarabi, et al., 2016)	This relates to the financial situation of a family in the neighbourhood.	What is the gross monthly income of the household?
			What is your occupation? What is partner's occupation? (Main occupations of area)
			How many incomes contribute?
			Is there any additional income?
			Does your family have any money saved?
			Do you have much money available to you personally?
			Do you worry about paying bills?
			Would you say you're satisfied with your economic condition?
Residential Expenditure			
Housing Costs	(Campbell, et al., 1976) (Moller & Schlemmer, 1983) (McCrea, et al., 2005) (Das, 2008) (Lofti & Solaimani, 2009) (Sandru, 2012) (Esmaeilpoorarabi, et al., 2016) (Low, et al., 2018)	This relates to the cost of rent or purchasing a home or plot	Do you own your residence?
			What is the average price per m2 of houses in area?
			How much is your property/land worth?
			Is your rent reasonable? (how much per month)
Material Possessions	(Moller & Schlemmer, 1983) (Felce & Perry, 1995) (Rapley, 2003) (Das, 2008) (Sandru, 2012)	This relates to the material possessions that the occupant owns. This gives an indication of wealth and spending choices.	Do you have a stable lease? (Knowing you won't be asked to move)
			Percentage of households with a computer/internet access (Do you have...)
			Percentage of households with a television (Do you have a television?)
			Percentage of households with a radio (Do you have a radio?)
			Would you say you have beautiful things and a nice home?
Work Status			
Job Status			What is your main job?

	(Marans & Rodgers, 1975) (Felce & Perry, 1995) (Rapley, 2003) (Low, et al., 2018) (Esmaeilpoorarabi, et al., 2016) (Sandru, 2012) (Westaway & Gumedde, 2001) (McCrea, et al., 2005) (Lofti & Solaimani, 2009) (Moller & Schlemmer, 1983) (Campbell, et al., 1976)	This indicates the main job (if any) of people in the area. It discusses their feelings about their job, and the employment opportunities in the area.	(employed/self-employed/un-employed/retired/housewife/student) Are you satisfied with your job? Job security (Un)employment rate of neighbourhood Does the neighbourhood have good employment opportunities? Is the work interesting/enjoyable? Are you self-employed? Could you find a job easily if you needed to?
Travel to Work	(Campbell, et al., 1976)	This relates to the time taken to travel to work	Do you have to travel to work? Is this far? (in)convenient?
Housewife	(Felce & Perry, 1995) (Campbell, et al., 1976)	This relates to if the resident is a housewife for their work	Are you a housewife? Have you ever wanted a career?
Education Status			
Personal Education	(Felce & Perry, 1995) (Rapley, 2003) (Marans & Rodgers, 1975) (Low, et al., 2018) (Esmaeilpoorarabi, et al., 2016) (Sandru, 2012) (Moller & Schlemmer, 1983)	This relates to school attendance, and educational attainment of the resident	School attendance Highest level of educational attainment? Did you have a good education? Are you satisfied with the level of education you have? Has your education been useful to you personally? Do you think a good education is important?
Neighbourhood Education levels	(Marans & Rodgers, 1975) (Low, et al., 2018)	This relates to the overall educational attainment of the neighbourhood	Percentage of people in area with 'x' level of education Highest level of education within your home? Are education expenses reasonable?
Education Services			
Education Services	(Moller & Schlemmer, 1983) (Campbell, et al., 1976) (Low, et al., 2018) (Esmaeilpoorarabi, et al., 2016) (Westaway & Gumedde, 2001) (McCrea, et al., 2005) (Lofti & Solaimani, 2009)	This relates to the physical buildings where education takes place	Reasonable educational expenses Are there sufficient schools in the area? Do you have to travel far to get to the schools? Are the school's good quality? Are there higher education facilities in the area? Assessment of educational services Assessment of educational facilities?

Well-Being Environment			
Indicator	Scholar that uses indicator	Definition	Evaluation Criteria
Physical Well-Being			
Physical Well-Being	(Felce & Perry, 1995) (Rapley, 2003) (Low, et al., 2018) (Sandru, 2012) (Shafer, et al., 2000) (Campbell, et al., 1976)	This relates to the physical health of the resident over recent years	Health of people in neighbourhood
			Health status
			Life expectancy
			Mortality rate in neighbourhood
Emotional Well-Being			
Emotional well-being	(Felce & Perry, 1995) (Rapley, 2003) (McCrea, et al., 2005) (Campbell, et al., 1976)	This relates to the emotional health of resident over recent years	Emotional health
			Happiness & self esteem
			Life as a whole
Health Services			
Health Services	(Low, et al., 2018) (Esmaeilpoorarabi, et al., 2016) (Das, 2008) (Westaway & Gumede, 2001) (McCrea, et al., 2005) (Lofti & Solaimani, 2009)	This relates both to the provision of services, and the quality of those services.	Provision of health services
			Number of annual visits to doctor
			Access to health facilities (hospital, elderly/child care etc.)
			Quality of health services
Environmental Services			
Environmental services	(Das, 2008) (Westaway & Gumede, 2001) (Gavrilidis, et al., 2016) (Lofti & Solaimani, 2009)	This relates both to the quality of environmental services, and access to the environmental services	Sanitation
			Drainage system
			Solid waste disposal system
			Water supply (source of water, water supply duration, water cleanliness)
			Refuse removal
Personal Safety			
Personal Safety	(Low, et al., 2018) (Westaway & Gumede, 2001) (Felce & Perry, 1995) (Rapley, 2003) (Marans & Rodgers, 1975) (Das, 2008) (Moller & Schlemmer, 1983)	This relates to the residents perception of how safe they feel	Do you feel it is safe to walk at night?
			Would you feel you need to lock your doors at night?
			Do you think the streets are safe?
			Do you feel your home is safe?
			Is there street lighting?
			Are you satisfied with your personal safety?
Neighbourhood Safety			

Neighbourhood Safety	(McCrea, et al., 2005) (Moller & Schlemmer, 1983) (Campbell, et al., 1976) (Low, et al., 2018) (Lofti & Solaimani, 2009) (Felce & Perry, 1995) (Rapley, 2003) (Marans & Rodgers, 1975)	This relates to crime rates, and if they feel safe in the streets of the neighbourhood	Is there much crime in the neighbourhood?
			Are there gangs in the area?
			Do the police protect you in your area? Do police have a good relationship with neighbourhood?
			Do you feel safe in the streets at any time?
			Having no drunks in the area

Appendix 10:
List of Cases Used in Comparison

Scholar	Location	Journal	Year	Article Title
Das, Daisy	Guwahati, India	<i>Social indicators Research</i>	2007	<i>Urban Quality of life: A case study of Guwahati</i>
Gavrilidis, Ciocanea, Nita, Onose and Nastase	Romania	<i>Procedia Environmental</i>	2016	<i>Urban landscape quality index-planning tool for evaluating urban landscapes and improving the quality of life</i>
Lotfi and Solaimani	North Iran	<i>Journal of Social Sciences</i>	2009	<i>An assessment of urban quality of life by using analytic hierarchy process approach (Case study: comparative study of quality of life in the north of Iran)</i>
Low, Stimson and Chen	Hong Kong	<i>Social indicators research</i>	2018	<i>Personal and neighbourhood indicators of quality of urban life: A case study of Hong Kong</i>
Marans and Kweon	Detroit, America	<i>Springer</i>	2011	<i>The quality of life in Metro Detroit at the beginning of the Millennium</i>
McCrea, Stimson and Western	Queensland , Australia	<i>Social Indicators Research</i>	2005	<i>Testing a moderated model of satisfaction with urban living using data for Brisbane-South East Queensland, Australia</i>
Møller & Schlemmer	Durban, South Africa	<i>Social Indicators Research</i>	1983	<i>Quality of life in South Africa: Towards an instrument for the assessment of quality of life and basic needs</i>
Sandru	Braila City, Romania	<i>Romanian Review of Regional Studies</i>	2012	<i>Quality of Life Assessment in Urban Environment using a geographical informational system model: Case study: Braila City</i>
Shafer, Lee & Turner	Texas, USA		2000	
Westaway and Gumedde	South Africa	<i>Curationis</i>	2001	<i>Satisfaction with personal and environmental quality of life: a black south African informal settlement perspective</i>
Models:				

Campbell, Converse & Rodgers		Russel Sage Foundation. Book	1976	The Quality of American Life. Perceptions, Evaluations and Satisfactions
Felce & Perry		Research in Developmental Disabilities	1995	Quality of Life: Its Definition and Measurement.
Rapley		Sage Publications Ltd. Book	2003	Introduction- Where has QoL come from? In: Quality of life research: a critical introduction.
Esmailpoorara bi, Niusha, Yigitcanlar, Tan & Guaralda, Mirko		<i>International Journal of Knowledge- Based Development</i>	2016	<i>Towards an urban quality framework: Determining critical measures for different geographical scales to attract and retain talent in cities</i>

Appendix 11: Key Definitions

Definitions

Urban Life Term	Definition	Scholar
Access	Access is often formally defined as the quality of having interaction with, or passage to, a particular good service or facility	(Talen, 2002)
Accessibility	Accessibility is the capacity to enter and use a space. Not all public spaces are open to everyone	Carmona et al.; 2003
Behaviour setting	Behaviour settings are prominent units of extra-individual behaviour identified with a high degree of agreement by independent observers	Barker and Wright (1995) cited in Cicerchia, 1996
Behavioural Setting	<p>A behaviour setting is a unit of the environment that is relevant to behaviour, which coerces people and things to conform to its spatial-temporal pattern.</p> <p>Every environment has a programme. The behavioural settings are rated on five behavioural mechanisms: affective behaviour, gross motor activity, manipulation, talking and thinking</p>	Cicerchia, 1996
City	Like a piece of architecture, the city is a construction in space, but one of vast scale, a thing perceived only in the course of long spans of time. City design is therefore a temporal art, but it can rarely use the controlled and limited sequences of other temporal art like music	Lynch, 1960
City	A city is a multi-purpose, shifting organisation, a tent for many functions, raised by many hands and with relative speed. Complete specialisation, final meshing is improbable and undesirable. The form must be somewhat noncommittal, plastic to the purpose and perceptions of its citizens.	Lynch, 1960 page 91
City	The city is not built for one person, but for great numbers of people, of widely varying backgrounds, temperaments, occupations and class	Lynch, 1960, page 110
City	A city can be perceived on two levels, a physical one, as a large group of buildings linked by space, and a social one, as a system of human activities linked by interaction	Pasino, 2016
Complexity	Describes the visual richness of a street; in other words the variety of the physical elements and human activities	
Culture	Culture is probably best understood in an 'anthropological' sense, as a 'particular way of life, which expresses certain meanings and values not only in art and learning, but also in institutions and ordinary behaviour'	Williams, 1961 page 41 cited in Carmona et al.; 2003

		(PG 108)
Daily urban system	The multi-functional system of social and economic relationships which are carried out within an ischrone of 12 hours	Cicerchia, 1996
Density	Often represented by population or housing density	Yin, 2017
Design	Usually refers to the layout of the street grid and has been measured mostly by street intersection density or block size	Yin, 2017
Destination accessibility	Examines the availability of activities or destinations in a neighbourhood	Yin, 2017
Districts	Districts are the medium-to-large sections of the city, conceived of as having two-dimensional extent, which the observer mentally enters 'inside of' and which are recognisable as having some common, identifying character... They can be recognised internally, and occasionally can be used as external reference as a person goes by or towards them	Lynch, 1960
Diversity	Refers to the mix of land uses	Yin, 2017
Diversity	Involves a mixed activities and various environments for a wide range of users.	Salama & Gharib 2012
Edges	Edges are the linear elements not used or considered as paths by the observer. They are the boundaries between two phases, linear breaks in continuity: shores, railroad cuts, edges of development, walls. They are lateral references rather than coordinate axes...	Lynch, 1960
Environment	The 'environment' can be considered as a mental construct, an environmental image, created and valued differently by each individual	Carmona et al.; 2003 P. 88
Human Scale	How the size and texture of physical elements match the size of human and how they correspond to human speed	Yin, 2017
Imageability (also legibility or visibility)	That quality in a physical object which gives it a high probability of evoking a strong image in any given observer. It is that shape, colour, or arrangement which facilitates the making of vividly identified, powerfully structured, highly useful mental images of the environment	Lynch, 1960
Informality	A concept that emerged in the 1970s as a term, which generally refers to that which is not identified, measured, regulated or legalized by the state. In urban areas it is used to refer to economic activity and social organisation as well as the nature of urban space and form	(Jenkins, 2013)
Landmarks	Landmarks are another type of point reference but in this case the observer does not enter within them, they are external. They are usually a rather simply defined physical object: building, sign,	Lynch, 1960

	store or mountain. Their use involves the singling out of one element from a host of possibilities.	
Legibility	The ease with which its parts can be recognised and organised into a coherent pattern	Lynch, 1960
Livability	Livability refers to various constructed views regarding the quality of life in any human living environment. The concept is concerned with optimising the performance and the integrity of human life	Hagerty et al., 2001 cited in Kashef 2016
MCA Multi-criteria Analysis	A set of techniques for eliciting preference structures in multiattribute decision making	Miller et al (2013)
Nodes	Nodes are points, the strategic spots in a city into which an observer can enter, and which are the intensive foci to and from which he is traveling. They may be primarily junctions, places of a break in transportation, a crossing or convergence of paths, moments of shifts from one structure to another...	Lynch, 1960
Paths	Paths are the channels along which the observer customarily, occasionally, or potentially moves. They may be streets, walkways, transitlines, canals, railroads.	Lynch, 1960
Perception	Perception concerns more than just seeing or sensing the urban environment. It refers to the more complex processing or understanding of stimuli. Ittelson (1978 from Bell et al., 1990 p.29) identifies four dimensions of perception, which operate simultaneously: cognitive, affective, interpretative and evaluative	Carmona et al.; 2003 P. 88
Place	By place, we mean the geography or environments of individuals and groups of individuals such as households, neighbourhoods and communities	Marans and Stimson, 2011
Place	Place includes the particular communities and neighbourhoods where people live and the community amenities and environmental conditions associated with those places.	Marans 2003
Placelessness	Placelessness tends to signify absence or loss of meaning	Carmona et al.; 2003 P. 101
Proxemics	The term coined for observations and theories concerning peoples use of space, intended as a specific cultural elaboration	Edward T. Hall cited in Cicerchia, 1996
Public life	Public life i.e. the sociocultural public realm of people and activities	Carmona et al.; 2003 P.114
Public realm	The public realm has 'physical' (space) and 'social' (activity) dimensions. The physical public realm is understood here to mean the spaces and settings- publicly or privately owned- that	Carmona et al.; 2003 (PG 109)

	support or facilitate public life and social interaction. The activities and events occurring in those spaces and settings can be termed as the sociocultural public realm	
Public realm	In broad terms, the public realm includes all the spaces accessible to and used by the public, including: external public space, internal 'public' space and external and internal quasi-'public' space	Carmona et al.; 2003 (P. 111)
Public vs. Private	'Public' must be understood vis-à-vis 'private': in broad terms, 'public life involves relatively open and universal social contexts, in contrast to private life, which intimate, familiar, shielded, controlled by the individual, and shared only with family and friends.	Loukaitou-Sideris and Banerjee(1998 p.175) cited in Carmona et al.; 2003 (PG 109)
Sense of place	Sense of place is often discussed in terms of the Latin concept of 'genius loci', which suggests that people experience something beyond the physical or sensory properties of place, and can feel an attachment to a spirit of place	Jackson, 1994 p.157 Cited in Carmona et al.; 2003 P. 96
Social space	Spaces that support, enable or facilitate social and cultural interaction and public life regardless of whether it is genuinely 'public' space or private space that is publicly accessible	Carmona et al.; 2003 P. 114
Social Space	Social space, considered as the total environment in which people live, is determined by two dimensions: the morphological environment, and socio-cultural environment	Sandru, 2012
Street	Streets are linear three-dimensional spaces enclosed on opposite sides by buildings. They may or may not contain roads	Carmona et al.; 2003 P. 146
Streets vs. Squares	In principal streets are 'dynamic' spaces with a sense of movement, while squares are static spaces with less sense of movement	Carmona et al.; 2003 P. 141
Townscapes	In broad terms, townscape results from the weaving together of buildings and all the other elements of the urban fabric and street scene (trees, nature, water, traffic, advertisements, etc.) so that- in Gordon Cullen's phrase- visual drama is released.	Carmona et al.; 2003 P. 146
Urban Design	Urban design as the process of making better places for people than would otherwise be produced	Carmona et al.; 2003 P. 3
Urban Environment	The urban environment is a system made up to actions and controls on certain resources, transformed and otherwise which are situated in a defined territory, with the aim of achieving aims concerning the present and future of the human population, of the animal and vegetable population and of the artificial, natural and non-living physical elements which inhabit this territory	Town planning institute of the university of Montreal (1988) Cited in Cicerchia, 1996

Erratum

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