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2019
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Lived Experiences of Large-Scale Housing Developments on Urban Peripheries: The Case Study of Lufhereng at the Western Edge of Soweto



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Submitted in partial fulfilment towards the Masters of Science Degree in Development Planning, in the school of Architecture and Planning, Faculty of Engineering and the Built Environment at the University of the Witwatersrand, Johannesburg

26 November 2019

Table of Contents

TABLE OF CONTENTS i
DECLARATION iv
ACKNOWLEDGEMENTS v
ABSTRACT vi
LIST OF FIGURES vii
LIST OF TABLES vii
LIST OF MAPS vii
ABBREVIATIONS viii

Chapter 1. Introduction 1
1.1 Background 1
1.2 Rationale 2
1.3 Research Problem 5
1.4 Aim and Objectives 6
1.5 Research Question 6
1.6 Context: Low-Income Housing in South Africa Post 1994 7
1.6.1 Provision of low-income housing under 1994 housing policy 7
1.6.2 Policy Shift and Adoption of the BNG 10
1.6.3 Persistence of challenges in the provision of low-income housing 11
1.7 Chapter Overview 13
Chapter 2. Sustainable Human Settlements 14
2.1 SHS as a concept of Sustainable Development 15
2.1.1 What is sustainable development? 15
2.1.2 Dimensions of Sustainable Development as they relate to SHS 16
2.2 Exploring Sustainable Human Settlements and its design concepts 25
2.2.1 Compactness 26
2.2.2 Urban Integration and Diversity 28
2.2.3 Mixed land uses 30
2.2.4 Density 31
2.3 Sustainable Livelihood Approach: Lived Experiences 32
2.3.1 What is Sustainable Livelihoods? 32
2.3.2 Operationalising Livelihoods Approach 35
2.3.3 Conceptualising a household as a unit of analysis in SL approach 36

2.3.4 Livelihoods strategies of the poor in urban areas 36
2.3.5 Conclusion 38
2.4 Exploring the concept of Peripherality 39
2.4.1 Demographics 40
2.4.2 Education 40
2.4.3 Employment and income 40
2.4.4 Access to services 41
2.4.5 Transport and connectivity 41
2.5 Conceptual framework 41
2.6. Position of the research in the existing body of work 42
Chapter 3. Research Methodology 44
3.1 Type of Research 44
3.2 Data Collection 46
3.3 Sampling 47
3.4 Ethical Considerations 47
3.5 Limitations 48
Chapter 4. Lufhereng Profile 49
4.1 The Lufhereng Project: Origin, Location and Objectives 49
4.2 The Lufhereng Project: Scope and Target 50
4.3 Lufhereng as an integrated housing development 51
4.4 Geotechnical challenges in Lufhereng 54
4.5 Access and Transport 58
4.6 Conclusion 58
Chapter 5. Findings and Analysis 60
5.1 Introduction 60
5.2 Demographic Profile for Lufhereng 60
5.2.1 Average Household Size 60
5.2.2 Age Profile 61
5.2.3 Employment Profile 62
5.2.4 Household Income 64
5.3 Integrated Developments in Lufhereng 65
5.3.1 Residential developments in Lufhereng 66
5.3.2 Accessing Facilities, Services, Retail and Shops for Lufhereng Residents 70
5.4 Employment and work opportunities in Lufhereng 71

5.5 Income Generation in Lufhereng/livelihoods strategies in Lufhereng 72
5.6 Promoting Food Security 73
5.7 Protocol and Rules Governing the Community of Lufhereng 73
5.8 Conclusion 74
Chapter 6. Recommendation and Conclusion 75
6.1 Conclusion 75
6.2 Limitations to the study 76
6.3 Recommendations 77
REFERENCES 78
ANNEXURE 86
Interview Guidelines with Key Informants in the Lufhereng Integrated Urban Development Project 86
PARTICIPANT INFORMATION SHEET (COJ OFFICIAL) 88
PARTICIPANT INFORMATION SHEET (RESIDENTS) 89

DECLARATION

I, Jasmine Ramosoeu declare that this research report is my own unaided work. It is being submitted for the Degree of Masters of Science in Development Planning, in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination to any other University.

……..

Signed on the ……. day of ……..2019

ACKNOWLEDGEMENTS

The funding of National Research Foundation (NRF) towards this research is hereby acknowledged. However, opinions expressed, and views and facts presented in this report are those of the author and do not necessarily represent the views and policies of the NRF. My sincere gratitude to the NFR for this financial assistance.

I would like to thank my supervisor Dr Sarah Charlton, for her assistance, guidance and supervision in this project. Special thanks also go to Charles Davis, the Project Manager for Lufhereng in the City of Johannesburg Housing Department and the residents of Lufhereng who took part in this project by offering their time answering my questions and sharing their knowledge and experiences about Lufhereng.

To my mother, many thanks to you for your support and faith in me, for all you had to sacrifice to see me through, I can never thank you enough.
To my kids Banesa Naledi and Anelisiwe, thank you for being patient and understanding, my love for you has no bounds.
To the rest of my family and friends, it was your love and support that saw me through, I thank you sincerely.

Above all, I am sincerely grateful to God for making it possible for me to complete this project. Glory to Him alone!

ABSTRACT

Gauteng Provincial Government through its launch of mega projects of clusters and new cities in April 2015 intends to pursue developing mega sustainable human settlement projects on greenfields at the urban peripheries. The projects are envisioned to bring 'radical and decisive spatial transformation' to Gauteng City Region, characterised by settlements that are socially and economically integrated, with ample amenities for communities in these settlements. The mega projects are seen as a solution to the challenge of housing backlog and each project will have no less than 15 000 integrated housing units, with majority being for the poor. The conception of these projects continues to be criticised heavily in literature as they are perceived to reinforce urban fragmentation, inefficiency and exclusion. Lufhereng Mixed Development is a large scale peripheral greenfield development designed to be a sustainable human settlement and has many mutual characteristics with the proposed mega projects. Even though Lufhereng is not yet a consolidated development, it was first occupied in 2010. At the time of this study, Lufhereng has about 2 100 housing units, with a population estimated at 7 560. This study seeks to find out from the views and perceptions of Lufhereng residents what it is like to actually live in these projects. The study employs a mixed method research. Data is gathered using questionnaires with both structured and semi-structured interviews. Residents of Lufhereng and Lufhereng Project Manager from City of Johannesburg Department of Housing are the key informants in the study. Some of the findings are that there is a general sense of dissatisfaction among the residents which stems from lack of facilities, retail and services within the project, and lack of employment opportunities. Most of the economically active residents of Lufhereng are unemployed, and feel that living in Lufhereng makes it worse off mainly because of its location in relation to places of employment. Moreover, most of the residents assert that since they got relocated to Lufhereng, their household incomes have significantly dropped as they have lost their livelihoods strategies. The residents' perceptions, based on their lived experiences of the project therefore confirm some of the criticisms of Mega Projects, considering at the time of the study, it has been six years since people moved to Lufhereng. The living experiences of residents of Lufhereng about Lufhereng are therefore, not of a sustainable human settlement.

LIST OF FIGURES

Figure 1. Features that jointly define adequate housing
Figure 2. A typical low-income housing (RDP) that is segregated and disconnected to urban opportunities.
Figure 3. The mainstream SD perception of the two-way link between poverty and environmental degradation
Figure 4. A more realistic representation of the poverty and environmental degradation problem.
Figure 5. Conceptual Framework of the study
Figure 6. Figure 6 Socio-economic gradient

LIST OF TABLES

Table 1. Elements and Objectives of BNG
Table 2. Contributory factors to urban social sustainability as identified in the review of the SD literature
Table 3. Livelihood strategies often used by the poor
Table 4. Geotechnical conditions of Lufhereng
Table 5. The subdivisions of Zone 1

MAPS

Map 1. The location of planned mega housing projects in the Gauteng City Region
Map 2. The location map of Lufhereng in context
Map 3. Map showing the development phases for Lufhereng project
Map 4. Map of the geotechnical aspects of Lufhereng

ABBREVIATIONS

BNG	Breaking New Ground
CoJ	City of Johannesburg Metropolitan Municipality
DHS	Department of Human Settlement
CARE	Cooperative for Assistance and Relief Everywhere (Humanitarian aid agency)
DFID	Department for International Development (UK Government Department)
DRDLR	Department of Rural Development and Land Reform (South Africa)
GCR	Gauteng City Region
GCRO	Gauteng City Region Observatory
GPG	Gauteng Province Government
NDP	National Development Plan
UB	Business Plan (Doornkop Business Plan)
ULEDP	Updated Lufhereng Economic Development Plan
UDF	Urban Design Framework (Doornkop Urban Design Framework
RDP	Reconstruction and Development Programme
SHS	Sustainable Human Settlement

Chapter 1. Introduction

1.1 Background

From its inception in 1994, the democratic government prioritised provision of state funded housing to the poor in its administration, a bold move at the time as such initiatives were long regarded by major development institutions as inefficient and unsuccessful (cf. Gilbert, 2004). The programme of providing low income housing to the poor was initially instituted to counter the legacy of apartheid of inadequate housing and to meet a basic need of housing to the desperately poor. In undertaking to provide low-income housing to this group, the state has had to tackle many challenges which presented limitations and enforced compromises to the South African housing policy aspirations to manifest spatially in the transformation of the apartheid city, and realisation of sustainable cities. The challenges were compounded by ever increasing housing backlogs, limited resources, rapidly growing population of the poor, especially in cities where the migration influx is naturally high, and the complex land question, together with competing claims on prime land.

As pointed out by Chambers (1995), proper review of any development acknowledges its achievements. Therefore, in light of these challenges, in 2004, just a decade into democracy, the state had built and delivered an astonishing 1.6 million low-income housing units (cf. National Treasury, 2004; Rust, 2006). In 2014, 3.7 million low-income housing opportunities, consisting of free-standing housing units and social housing units had been delivered to beneficiaries (The Presidency, 2014). Quantitatively, this is an unparalleled progress globally in providing the basic need of housing to the poor. Notwithstanding this enormous achievement, the housing program has been highly critiqued. The 1994 housing policy was criticised for poorly located low-income housing at the urban fringes, which appears to continue apartheid geographies and further perpetuates sprawled cities and marginalisation of the poor; for failing to use the provision of low-income housing to restructure, deracialise and integrate the apartheid city; and for failing to integrate these low-income housing developments (cf. Seekings, 2000; Khan and Thurman, 2001; Huchzermeyer, 2001, 2003; Zack & Charlton 2003; Goebel, 2007).

In 2004, the ministry of housing established a new housing plan called the Breaking New Ground (BNG), as a progressive step towards better housing and as a response to the critiques of the 1994 housing policy. The BNG seeks to redirect the development of low-income housing towards achieving integrated and overall sustainable human settlements. However, what has resulted with the state provision of low-income housing since the implementation of this plan is the location of low-income housing that is sporadic, somewhat oscillating between the continuation of apartheid geographies and manifestation of the BNG principles (Charlton and Kihato, 2006).

1.2 Rationale

In an attempt to address the housing challenges, particularly of a huge and ever increasing housing backlog, the Gauteng Provincial Government has launched a new policy titled 'Mega Projects: Clusters and New Cities' in April 2015. This policy is set to guide the development of new cities on greenfields in line with the BNG elements and objectives (Table 1). The new cities are intended to be integrated and self-contained. They are set to have diverse forms of services and facilities, together with their own economic base which is to provide economic activities and employment to the residents in the housing part of the project (Gauteng, 2015; Harrison and Todes, 2016). The new cities are also planned to be very big, with some increasing their capacity to 60 000 housing units, from a minimum yield that is set at 1 500 housing units (Gauteng, 2015).

Although this policy of mega projects is not yet implemented, the conception of mega housing projects in the Gauteng City Region (GCR) is highly critiqued. The idea of developing new cities around the older existing cities is not new in South Africa or internationally. Therefore, there are local and international precedents from which valuable lessons can be learned. Local examples include Vanderbijlpark-Sasolburg, supported by heavy industry economies; Carletonville, supported by mining; and Babelegi which is supported by decentralised industry (Harrison and Todes, 2016). What is prominent in most mega cities is although the projects start off with the creation of local economies which enable the cities to be self-contained; the cities are vulnerable to shifts in policy, sectoral economic dynamics and changing global

conditions (*ibid*.). Changes in these factors tend to impact negatively on the new cities, leading to a decline over time. When the cities do not recover from the decline, the new cities then present a challenge where residents particularly the poor, have to commute long distances to the existing core cities for livelihoods, an exercise that is costly and time consuming.

In critiquing the policy of mega cities, Turok (2015) posits that the future cities will continue the segregation and exclusion of the poor, and will place a huge burden on local municipalities which have to provide services to the relatively distant new cities. This critique first emerged with the development of low-income housing on the urban peripheries under 1994 housing policy (cf. Khan and Thurman, 2001). It became evident then that local municipalities bore much burden in providing necessary services and infrastructure to these new peripheral neighbourhoods which was unsustainable. Watson (2013) sees the future cities as a way of creating attractive spaces for the middle class, away from congestion and informality that are projecting closer to existing cities. This will no doubt continue urban sprawl and marginalisation of the poor in the low-income housing developments within the new cities.

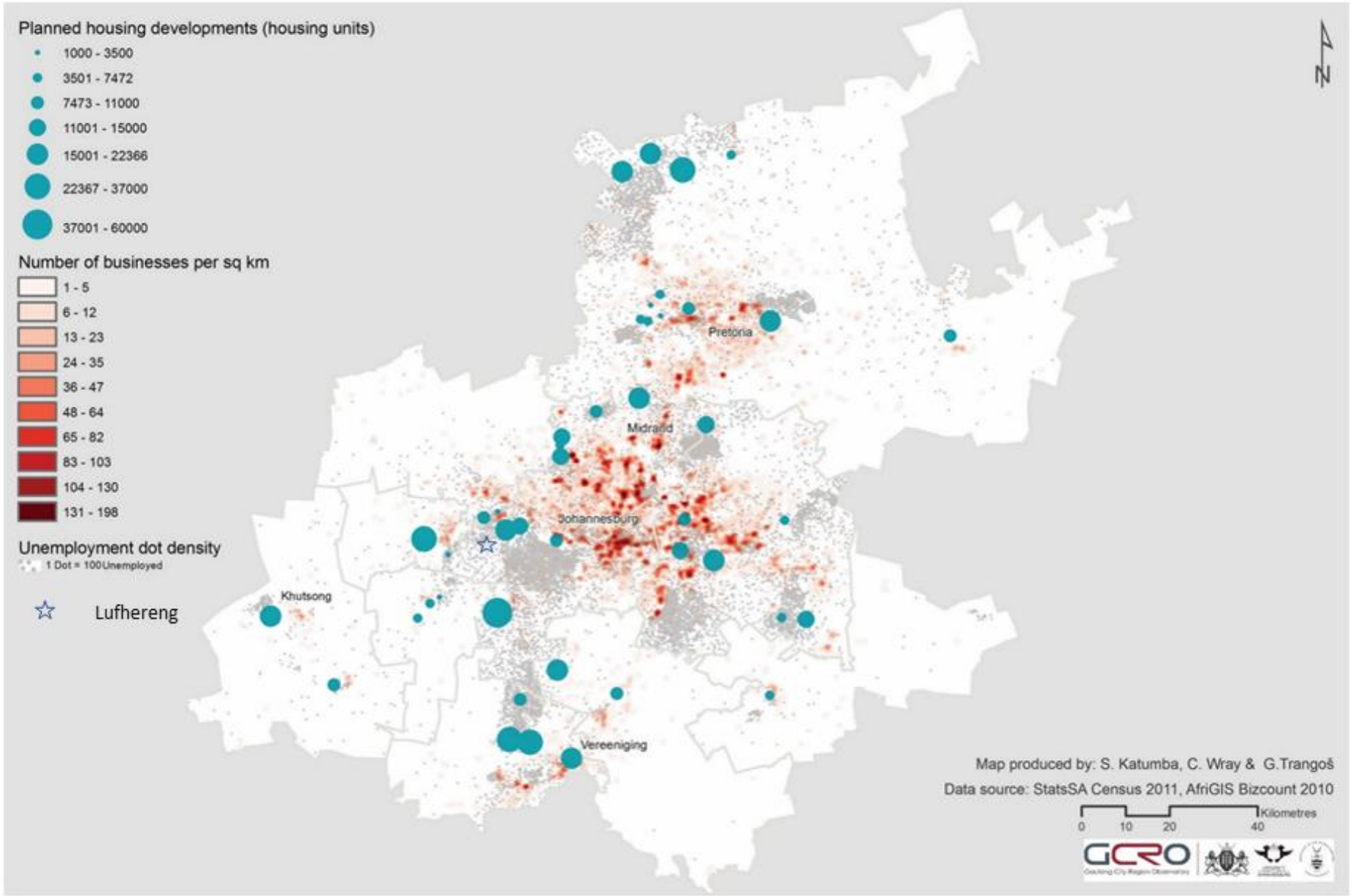
Table 1 Elements and Objectives of BNG

BNG elements	BNG objectives
1. Supporting the entire residential property market	1. Accelerate the delivery of housing as a key strategy for poverty alleviation
2. Moving from housing to sustainable human settlements	2. Utilise the provision of housing as a major job creation strategy
3. Using existing and new housing instruments	3. Ensure that property can be accessed by all as an asset for wealth creation and empowerment
4. Adjusting institutional arrangements within government	4. Leverage growth in the economy
5. Building institutions and capacity	5. Combat crime, promote social cohesion and improve quality of life for the poor
6. Defining financial arrangements	6. Support the functioning of the entire single residential property market to reduce duality within the sector, by breaking the barriers between the first economy residential property boom and the second economy slump.
7. Creating jobs and housing	7. Utilize housing as an instrument for the development of sustainable human settlements, in support of spatial restructuring.
8. Building information, communication and awareness	
9. Establishing systems for monitoring and evaluation	

(Source: Rust, 2006)

Map 1: The location of planned mega housing projects in the Gauteng City Region (in relation to unemployment and economic activity)

(Source: Map adapted from GCRO Map of the Month article for May 2015)


Planned housing developments (housing units)
1000 - 3500
3501 - 7472
7473 - 11000
11001 - 15000
15001 - 22366
22367 - 37000
37001 - 60000
Number of businesses per sq km
1 - 5
6 - 12
13 - 23
24 - 35
36 - 47
48 - 64
65 - 82
83 - 103
104 - 130
131 - 198
Unemployment dot density
1 Dot = 100 Unemployed
Lufhereng
Pretoria
Midrand
Johannesburg
Khutsong
Vereeniging
N
Map produced by: S. Katumba, C. Wray & G.Trangoš
Data source: StatsSA Census 2011, AfriGIS Bizcount 2010
Kilometres
0
10
20
40
GCRO

1.3 Research Problem

This study speaks to the forthcoming mega projects of clusters and new cities (Map 1) [1], which are heavily criticised in the human settlements literature even before they are implemented. However, what it is like to actually live in these projects is not known or well understood. Lufhereng housing project provides an example from which lived experiences of a greenfield development that is peripheral to the urban centre can be understood. The Lufhereng residents' perceptions which are based on lived experiences in the large housing project designed to be a sustainable human settlement may confirm some of the criticisms of Mega Projects or contradict some of them, or reflect a mix of experiences. This research therefore seeks to provide lessons needed to inform the forthcoming developments.

Although Lufhereng housing project is not part of the newly planned mega cities, it has many mutual characteristics with the future mega cities guided by the Mega Projects policy. Both Lufhereng housing project and future Clusters and New Cities are greenfield projects, which are intended to take up large numbers of people, most of whom are the poor. They are also implemented with a pressing need to create economic base within the project for the project to be economically sustainable. The Mega Project policy highlights the need for economic sustainability within the development and therefore aims to create 'economically self-sufficient cities' (Gauteng, 2015). Lufhereng on the other hand has a detailed business plan to bring about economic sustainability within Lufhereng development (cf. ULEDP. 2014).

Moreover, Lufhereng housing project is conceived and managed in part by the Gauteng Provincial Government, the same administration that seeks to implement the mega cities' projects. The progression, successes and failures of the Lufhereng housing project towards a sustainable human settlement as experienced by its residents can therefore speak also to the possible progression, successes and failures of the planned mega cities.

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1. Map is the original map which shows the proposed mega projects. The map does not show Lufhereng as it is not one of the proposed projects; however I have adapted the map to include Lufhereng in order to show it in the context of unemployment and economic activity which are depicted in the map

1.4 Aim and Objectives

The aim in this study is to assess Lufhereng residents' views and perceptions with regard to living in a large and peripheral housing project that is designed to be a sustainable human settlement in order to have an understanding of the possibility of future mega cities in attaining their objective of being sustainable human settlements that are economically self-sufficient. This study also expands on the previous unpublished study by Baloyi (2014), which focuses on the performance of Pennyville as a sustainable human settlement.

The objectives of this study are to find out:

- how the residents of Lufhereng are sustaining their lives within the area;
- where the residents work;
- what economic activities are happening within Lufhereng and whether the residents of Lufhereng are involved in these activities;
- what services and facilities are present within Lufhereng and how the residents of Lufhereng access these services and facilities;
- what social development initiatives are occurring in Lufhereng and whether the residents of Lufhereng are involved in these initiatives;
- in what way Lufhereng is intended to perform as a sustainable
- what residents value about Lufhereng;
- whether or not the residents of Lufhereng see themselves and their children living in Lufhereng for a long time, even with a positive change in their economic status.

1.5 Research Question

The research question this study seeks to answer is as follows:

What are the lived experiences of Lufhereng Integrated Urban Development, a large housing project on the periphery of Johannesburg that is designed to be a sustainable human settlement?

1.6 Context: Low-Income Housing in South Africa Post 1994

1.6.1 Provision of low-income housing under 1994 housing policy

The African National Congress's 1994 Reconstruction and Development Programme (RDP) document introduced and enabled the provision of low-income housing by the democratic state, an endeavour that was further strengthened by the adoption of a new housing policy in 1994 and later crystallised by the supreme law of the state, the Constitution of South Africa in 1996. Through its Bill of Rights, the Constitution makes access to adequate housing a right for all, and Section 26 of the Constitution goes further to commit the state to the realisation of this right, taking into consideration the availability of resources (RSA, 1996). Tissington (2010) broadly defines adequate housing as more than providing shelter from the elements, but entailing various features as illustrated on figure 1. These features may only apply differently for an individual- or household-level choice but jointly sum up what adequate housing is.



(Source: adapted from Tissington, 2010)

Figure 1 Features which jointly define adequate housing

Urban integration is a notion that is central to the concept of sustainability. In South Africa urban integration first emerged in urban planning literature in the early 1990s (Haferburg, 2013). The 1994 democratic administration further promoted the concept of integrating human settlements as a credible step in reconstructing the apartheid city, which was characterised by fragmentation, segregation and inequality. As noted by Pieterse (2004), the democratic government began with resolute urban development action to transform the apartheid city, and was also supported by intellectual capital, institutional resources and political will in this endeavour. However, despite all the efforts, the expected outcomes of integrated cities, are not readily visible or palpable (*ibid*.); change towards emergence of integrated cities has been slow. Therefore, the concept of integration remains a central theme in visionary documents (such as the BNG) which seek to transform the still fragmented post-apartheid cities, and has become a policy driven vision (Harrison, 2003).

At the initial stage of providing low-income housing, the democratic government aimed at providing housing that would essentially give rise to sustainable communities that are socially, economically and environmentally integrated. The objective was to integrate low-income housing with various other developments in order to enable all people, particularly the poor, access to economic opportunities, infrastructure, facilities and services and in creating equal cities (cf. RSA, 1994). The 1994 Housing Policy encapsulates this view in the following statement:

> *Government strives for the establishment of viable, socially and economically integrated communities, situated in areas allowing convenient access to economic opportunities as well as health, educational and social amenities, within which all South Africa' s people will have access on a progressive basis, to:*
>
> - *a permanent residential structure with secure tenure, ensuring privacy and providing adequate protection against the elements; and*
> - *potable water, adequate sanitary facilities including waste disposal and domestic electricity supply (*RSA, 1994:12).

The realisation of this objective of the policy and the establishment of the concept of adequate housing are critical not only for the restructuring and transformation of the

apartheid spatial patterns of cities, but also for supporting the fight against poverty by availing an enabling environment[2] to the poor in the new low-income housing. The failure to realise this fundamental objective of creating integrated and adequate housing with the 1.6 million housing units delivered in the first decade of democracy (and with later deliveries), and the failure to adequately connect low-income housing developments to existing urban opportunities subject the poor in the new developments to costly living. This causes the poor to spend great amounts of time and money commuting between their homes and their places of employment, which are usually far from their homes, and therefore minimises the benefit of the housing unit to the poor and its role in poverty alleviation.

The limited housing budget is classified as the main factor for placing low-income housing at the urban peripheries (Khan and Thurman, 2001; Todes, 2003). Resource limitations especially of funds leave the ministry of housing with no other affordable option but the cheap land at the urban peripheries. The prime land within existing towns and cities, which would bring the poor close to urban opportunities, is too costly for the ministry to secure within the same budget. Many housing experts also postulate that the neo-liberal macro-economic policies that the democratic government adopted, for instance, in the Growth, Employment and Redistribution policy, have created a difficulty for the same government to maximise on its fiscal responsibility of meeting the needs of the poor (Todes, 2003; Goebel, 2007). As a result, the programs that are intended to aid the poor within the state end up being underfunded, and in the case of low-income housing, the overall outcomes are delays in delivery, low-income housing occurring on cheap land on urban peripheries and poor quality of the housing units built (Goebel, 2007). Post 2004, under the BNG, resource limitations are still identified as a reason for continued peripheral locations of low-income housing developments (Biermann, 2004; Biermann and van Ryneveld, 2007).

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2. This phrase ‘enabling environment’ is used here to mean an environment that facilitates the likelihood of creation of various livelihoods by the poor in the low-income housing. The opportunities spring from the available infrastructure, facilities and services as well as the security of tenure all of which come with the provision of low-income housing.

During the implementation phase of the 1994 housing policy, as indicated in the preamble of the Housing White Paper 1994, new concepts emerged in the language of housing locally and internationally and influenced the local subsequent shift in housing policy. These concepts include housing quality, housing unit as an asset and sustainable human settlement. Both concepts of housing quality and housing unit as an asset evolved locally, the former prompted by the high quantity of low-income housing units which were delivered with little attention given to their quality (cf. Charlton *et al*., 2006), and the latter emerged, seeking to illuminate the asset value of the low-income housing units in the fight against poverty. In this analysis, the housing unit is viewed as a social asset, which enables the inhabitant to possess an address, have a place to call home, and be part of a community; it is also viewed as a financial asset through which the inhabitant can secure a loan, or acquire monetary value from selling the house; and the house can be used for economic purposes such as operating small businesses in it (Rust *et al*., 2009; Gordon *et al*., 2011).

These new concepts widened the outlook of the ministry of housing in its role of providing low-income housing, and shifted the ministry's focus from capitalising on quantity of low-income housing built and delivered to the poor, to seeking to provide human settlements that are integrated, sustainable and support the fight against poverty. Moreover, the ministry of housing has over time extended the breadth of its role to not only providing low income housing to the poor, but also to overseeing the provision of overall human settlement within the state (cf. RSA, 2004).

1.6.2 Policy Shift and Adoption of the BNG

In 2004 the Cabinet approved BNG, the new housing plan from the Ministry of Housing. This plan came as a result of the review of the 1994 housing policy; however, it was presented as an adjustment of the 1994 housing policy, not a new policy. The fundamentals of the 1994 policy remain relevant in the BNG, which highlights its role as 'to redirect, enhance and sharpen existing instruments' (CoJ, 2007:2). The BNG is branded a Comprehensive Housing Plan for the development

of sustainable human settlements (RSA, 2004). The main focus of the BNG is to integrate human settlements, such that low-income housing is integrated with other developments such as middle- to high- income housing; commercial, cultural, institutional and industrial developments so as to attain sustainable human settlements (cf. Royston, 2009) in order to address the socio-economic challenges through the development of human settlements (Joseph and Karuri-Sebina, 2014). Through the creation of integrated neighbourhoods and communities, with sufficient linkages, social amenities and services – as opposed to the provision of a fragmented and segregated low-income housing – the poorest of society in the low-income housing gain access to livelihood opportunities and resources, which generally improve the quality of life for them as they get to live, work and play within easily accessible areas (cf. Joseph and Karuri-Sebina, 2014). This leads to the creation of a viable and sustainable human settlement.

The BNG generally seeks to use the provision of housing as a key strategy in fighting poverty; creating jobs; leveraging growth in the economy and closing the gap between first and second economies; fighting crime; and promoting social cohesion (RSA, 2004). It seeks to achieve all these objectives through the creation of integrated and sustainable human settlements.

1.6.3 Persistence of challenges in the provision of low-income housing

Although the BNG came as a response to the critiques of the segregated and peripherally located low-income housing developments (see figure 2), many housing projects implemented after the introduction of BNG seem to continue the trend of locating low-income housing on urban peripheries. However, there are some housing projects that are suitably located closer to economic hubs and integrate other innovations that make them viable cities. In Johannesburg for instance, there is Alexandra Renewal Project, which is not only suitably located but also showcases innovative housing projects; Cosmo City, which is a mixed income development, engaging the participation of both the private and public sectors towards its innovation, and it is linking to existing and forthcoming new developments in its vicinity; and Pennyville which consists of mixed housing typology and mixed tenure,

and it is in close proximity to commuter bus train and a Bus Rapid Transit system route (Charlton, 2014). Although these are good precedents of what the BNG and housing policy should produce, the spatial pattern of low-income housing is not a consistent one, as it still manifests apartheid geographies at some instances and BNG objectives at others.

Other challenges to the provision of low-income housing include ever increasing demand which far outruns the rate of supply for low-income housing. In 1994, the housing backlog was at 1.5 million (cf. Tissington, 2010) nationally. In 2016, the then Minister of Human Settlement, Minister Sisulu pronounced it at 2.1 million (African News Agency, 2016). In Gauteng alone, the housing backlog is at a million (Osman, 2017). Increased immigration to Gauteng and budget cuts have worsened an already big housing backlog (*ibid*.). The housing shortage continuously gives rise to social unrest nationally, depicted by unending protests. From the General Household Survey of 2013, in 13.6 per cent of the South African households, at least one member of the household is waiting for a state-subsidised housing, and 15.3 per cent of households in South Africa live in state-subsidised housing (Statistics South Africa, 2014).



(Picture: Amanda van der Walt, Source: GCRO, 2017)

Figure 2 A typical low-income housing (RDP) that is segregated and disconnected to the urban opportunities

1.7 Chapter Overview

This report consists of six chapters. Each chapter builds the report and expand on the previous section in order to give a meaningful sum to the study. The focus of the sections is as follows:

Chapter 1 gives the introduction to the study. It covers the contextual background to the study and explains the importance of the study, why the study is conducted by stating in details the rationale and problem statement. It also gives the purpose of the study by stating its aim and objectives. The research question that the study seeks to answer is also expounded in this chapter. Then it concludes with chapter overview of the report.

Chapter 2 explores the current literature and debates in relation to the topic of the research in order to place the study in the right context. The themes that are explored in this chapter are sustainable human settlements, lived experiences and peripherality in relation to low-income housing projects.

Chapter 3 outlines the methodology used in this study. It describes the different approaches adopted, their relevance for this study and ethical considerations that I had to make in conducting the research. This chapter also highlights the limitations to the study and efforts made to compensate for the limitations.

Chapter 4 profiles the study area which is Lufhereng and highlights how Lufhereng is designed to be a sustainable human settlement. It brings understanding over how Lufhereng can also perform as a sustainable human settlement in context to being a peripheral housing development.

Chapter 5 discusses and analyses the findings of the study in light of current scholarship and debates relating to the topic of the study.

Chapter 6 draws conclusions from the study, make recommendations and suggests areas that still need to be studied further to enable the state to reach sustainable development through the creation of sustainable human settlements.

Chapter 2. Sustainable Human Settlements

This section of the report reviews literature and debates on four themes, which are sustainable human settlements as a concept of sustainable development, the definition of sustainable human settlement and its design concepts; lived experiences; and peripherality in relation to low-income housing projects. For an effective consideration of the concept of sustainable human settlements, it is crucial to first explore sustainable development, a paradigm from which sustainable human settlement finds its origin and meaning. The first part of this section therefore divulges briefly on the concept of sustainable development in order to develop a broader perspective on sustainable human settlements. On the second theme the paper discusses the definition of sustainable human settlements in the South Africa context and explores the concepts that are central to the sustainable human settlements definition as understood in the housing literature.

The third segment explores lived experiences within the concept of sustainable livelihood approach, a technique that wrestles poverty from the perspectives of the poor. Lived experiences are therefore used here to refer to day to day realities of the poor in terms of their livelihood strategies, barriers to livelihood aspirations and the vulnerability context the poor find themselves in. The sustainable livelihood approach engages these day to day realities of the poor in order to develop relevant and effective programmes. The purpose here is to untangle how sustainable livelihood approach can be of value to the efforts of eliminating poverty in South Africa such as the provision of housing particularly to the poor within the Sustainable Human Settlement Plan.

The last segment of this section looks at the concept of peripherality in the South African context. Peripherality has multidimensional meanings and these meanings are explored in this section together with their features in relation to achieving sustainability of human settlement in the context of South Africa. Low-income housing has been largely associated with peripherality and this has even influenced the introduction of the BNG into the housing policy.

2.1 SHS as a concept of Sustainable Development

Following the Earth Summit held in Rio de Janeiro in 1992, the phrase 'sustainable human settlements' found expression in the ensuing action plan called Agenda 21, as a means through which different states can effectively pursue sustainable development. As development naturally occurs within human settlements, realising sustainable development in the creation and performance of human settlements swiftly drives sustainable development agenda. The sustainable human settlements provide the "physical, spatial, technological, cultural, socio-economical and institutional framework to support [sustainable development]" (Du Plessis and Landman, 2002:1).

2.1.1 What is sustainable development?

Sustainable development as a concept has come to be broadly understood from the Brundtland Commission's report, as:

> "*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*" WCED (1987:41).

This definition of sustainable development is adopted in the South African 2008 National Framework for Sustainable Development (NFDS) and is incorporated into the Constitution of South Africa Section 24 (b) (ii). The definition advocates for vigorous economic development, pursued in a manner that does not degrade the environment or eradicate its resources but efficiently manages the resources to allow future generations their profitable use of the resources. Sustainable development is not a fixed state, but a process of continually realising the dynamic balance between the needs of people and what is environmentally possible (WCED, 1987). Some scholars make distinctions between sustainability and sustainable development, which introduces different meanings between the two terms. In this report, sustainability and sustainable development are used synonymously.

Developing world cannot pursue sustainable development the same way as developed world due to the present socio-economic factors in each world. The Brundtland Commission's report highlights that for cities in developing world, social concerns such as inequality and poverty cannot be ignored in the pursuit of sustainable development as these concerns intricately lead to ecological degradation (WCED, 1987). For developed world where communities are more affluent, sustainable development would demand reduction in the prevailing overproduction and overconsumption of resources to match what the environment can deliver without the deterioration and depletion of its resources. Meeting needs of the present generation necessitates vibrant economic growth; enabling the poor to break out of poverty and the rich to produce and consume sustainably while ensuring ecological resources are not exhausted for future generations (WCED, 1987).

While the Brundtland Commission's report does not provide a 'detailed blueprint for action' towards sustainable development (WCED, 1987:11), it is thorough in details to enable governments to formulate their own blueprint to work towards sustainable development. What governments need rather is a moral obligation to execute their agreements towards sustainable development. Sustainable development requires, at an international level, political systems that are responsible, democratic and foster fair distribution of resources between the rich and the poor countries, as well as the rich and the poor individuals within countries nationally (WCED, 1987).

2.1.2 Dimensions of Sustainable Development as they relate to SHS

2.1.2.1 Social Sustainability

Although the definition of sustainable development from the Brundtland Commission's report enthusiastically includes the social mandate, the focus over the years on implementing sustainable development across the globe has been on pursuing economic growth that is environmentally sensitive (cf. Burton, 2001). As a result, social sustainability remained a concept that is widely accepted, however, without a clear or equally widely defined or accepted meaning (Bramley, Dempsey, Power, Brown and Watkins, 2009; Dempsey, Bramley, Power and Brown, 2011;

Moldan, Janousková and Hák, 2012). In an effort to establish mutual meaning for social sustainability, many scholars and practitioners have rather identified contributory factors to social sustainability and Dempsey *et al*. (2011) have gone further to aggregate and classify these factors into physical and non-physical factors (Table 2). Moldan *et al*. (2012) highlight that although factors to social sustainability are generally understood; there is still a gap in specifying the critical elements of social unsustainability.

Social equity and sustainability of community are two main dimensions of social sustainability that many scholars generally seem to agree on (cf. Bramley, Dempsey, Power and Brown, 2006; Bramley *et al*., 2009; Dempsey *et al*., 2011). The factors in Table 2 can also be grouped under these two dimensions. While sustainable development encourages a global perspective within society, scrutinising some of these factors on a local scale becomes critical for social sustainability in order to understand their effect on everyday experiences. Some facilities such as hospitals, secondary schools, and places of employment serve a large catchment area; therefore regional scale becomes more appropriate in understanding how they contribute to social sustainability. Although there seems to be differing opinions on the acceptable catchment area for these services that are crucial to social sustainability in a local area, for South Africa, the catchment area has a radius of 5 km for facilities such as schools and clinics.

Burton (2001) posits that social equity is very central to the concept of social sustainability, both for the present societies, advocating for the provision for the least advantaged in societies, and future generations. Social equity relates to equitable access to opportunities, services and facilities (cf. Bramley *et al*., 2009; Dempsey *et al*., 2011). However, Lélé (1991) cautions that mere access to resources does not always translate into sustainability, this access has to go hand in hand with new institutions for resource management to ensure social equity. Dempsey *et al*. (2011) further distinguish some facilities and services as key to social sustainability on a local scale of a community as many of these facilities and services are used more frequently for everyday life and when used occasionally, are highly needed for the continuity of the community. These facilities and services include doctor/GP surgery; post office; chemist; supermarket; bank/building society; library; corner shop; primary

school; pub; restaurant/café/takeaway; sports/recreation facility; community centre; facility for children; and public open/green space (*ibid*.). Almost all of these aspects are linked to the built environment, therefore, for the community to have access to these services begins with the provision of the associated built environment in the community.

Sustainability of community is about the ability of the community itself to continue existing as a functional community (cf. Bramley et al., 2009; Dempsey et al., 2011), anchored by pillars of social capital such as human relationships, shared values and partnerships. There is consensus among scholars on the following factors as sub-dimensions of sustainable community: social interaction/social networks in the community; participation in collective groups and networks in the community; community stability; pride/sense of place; safety/security; perceived quality of local environment; and satisfaction with the home (cf. Bramley et al., 2009; Dempsey et al., 2011). These factors enable the community members to live cohesively as a community and become dependent on each other for their safety and survival.

Table 2 Contributory factors to urban social sustainability as identified in the review of SD literature

Non-physical factors	Predominantly physical factors
• Education and training • Social justice: inter- and intra-generational • Participation and local democracy • Health, quality of life and well-being • Social inclusion (and eradication of social exclusion) • Social capital • Community • Safety • Mixed tenure • Fair distribution of income • Social order • Social cohesion • Community cohesion (i.e. cohesion between and among different groups) • Social networks • Social interaction • Sense of community and belonging • Employment • Residential stability (vs turnover) • Active community organizations • Cultural traditions	• Urbanity • Attractive public realm • Decent housing • Local environmental quality and amenity • Accessibility (e.g. to local services and facilities/employment/ green space) • Sustainable urban design • Neighbourhood • Walkable neighbourhood: pedestrian friendly

(Source: Dempsey *et al.*, 2011)

2.1.2.2 Economic Sustainability

Moldan *et al*. (2012) point out that universally, economic growth is regarded an essential goal for the wellbeing of the public. The definition of economic development refers to a process which results in an increase in the real per capita income of a country over time, going hand in hand with the decreasing number of people living below absolute poverty line, and income distribution that is becoming less unequal (Meier, 1976, cited in Barbier, 1987). Although the real per capita income is often associated with a country, the economic development of an area of a smaller magnitude can be assessed. The focus of the South African Planning Commission according to its diagnostic report is to eradicate poverty and reduce inequality, which are both identified as barriers of sustainable growth and development (RSA, 2010). Although inequality in the National Development Plan (NDP) is perceived in its broad sense as observed under apartheid regime, it includes unequal income distribution, a malignant problem that allows poverty to continue even in the midst of economic development.

MacNeill (1989) highlights a number of conditions that are essential to bring about economic sustainability. One such condition is reviving economic growth and increasing economic activities in an area in order to raise income levels and the standard of living for all people and to enable them to meet their needs and aspirations (*ibid*.). However, there is evidence that economic growth can happen without the poor necessarily benefiting from such growth (cf. Seekings, 2007; Ravallion, 2001; Woodward and Simms, 2006). Unequal distribution of income undermines economic development as it restricts low-income households from experiencing increased standard of living (MacNeill, 1989). As income is central to the concept of economic development, creation of employment opportunities and enterprise development are essential for income to be accessed and for decreasing poverty. “Employment and productivity advances can be reinforced by improvements in education, health care, housing and other services” (National Treasury, 2013: 82). The sustainable economic development of a city is therefore determined by the job opportunities and the equal distribution of income in the city. Kenworthy (2006; 67) further adds that “economic growth needs to … strengthen the environmental, social and cultural amenities of the city”.

Another condition MacNeill (1989) points out as essential to bring about economic sustainability regards reducing the rate of population growth (cf. Shrivastava, 1995). Naturally, the higher the population the higher the rate of consumption of resources; with high population growth rate, there is more pressure exerted on the non-renewable resources (cf. Malthus, 1798). Moreover, the population growth rate that does not match the rate of economic growth results in poverty. Population growth rate can be reduced strategically through development, by means of urbanising, improving education and empowering women (MacNeill, 1989). Development has proved to be an effective means of population control as it can be seen in countries such as West Germany and Sweden (*ibid*.). Dasgupta (1995) demonstrates that globally women who are illiterate and unemployed (or in an unpaid employment) have high total fertility rate. Fertility decreases when women engage in economic activities and earn an income, as that gets them empowered and gives them freedom to choose what they want and they get to focus on their careers.

South Africa's National Framework for Sustainable Development highlights the need to provide skills development and capacity building particularly for women and youth in the agricultural sector on areas such as integrated food security, disaster management and bio-security as a sectoral economic strategy for the 'second economy' intervention (RSA, 2008). The dual economic status of South Africa - as first and second economies - was publicly endorsed and reintroduced into the discourse of poverty reduction by former President Thabo Mbeki in his speech at the Black Management Forum conference in 2003 (Aliber *et al*., 2006). The first economy refers to the world of the privileged whereas the second economy refers to the world of the poor, defined by informality, poverty and marginalisation (*ibid*.). There is great effort and statutory provision (cf. RSA, 2010) to minimise the gap between these two economies which are very prominent due to historical legacy of apartheid. As agriculture is the basic economy in South Africa, it provides job opportunities - especial for those in the second economy - and products for exports, contributing to the total GDP (Goldblatt, n.d). Moreover, the commercial farming and smaller-scale communal farming both practiced in South Africa enable easy access for all interested members of the public to engage in agriculture.

Social security reform and arrangements alleviate the challenges associated with unequal income distribution (Donaldson, 2014); assist in lessening the cost of living (National Treasury, 2013); and reduce income poverty (Seekings, 2007) and overall poverty irrespective of the poverty line used in measuring it (Samson *et al*., 2004). In South Africa, there is statutory support for social security as detailed in Section 27 of the Bill of Rights in the Constitution. Social assistance and social insurance make up the social security (RSA, 1996). Moreover, social spending such as education, healthcare and welfare services are also redistributive processes and these services are accessible to almost all individuals in South Africa since the democratic administration in 1994; although a lot of work needs to be done to improve their quality and efficiency (Donaldson, 2014). This report focuses only on social assistance as support to vulnerable households. The existing social assistance in South Africa is given as social grants which include old-age pension, disability grants, grants in aid, foster care grants and child-support grants (RSA, 1996). According to National Treasury (2013), 22% of households nationally receive social assistance as the main source of income and more than half of all households benefit from some form of social assistance. In the year 2015/16, expenditure on social grants is at about 3.2% of the GDP (National Treasury, 2013), it has increased from 2% of the GDP at the beginning of democracy in 1994 (Seekings, 2007).

Economic development tends to be conceived and analysed in quantitative terms, however, it also has a qualitative dimension which includes aspects such as technology and institutional change or innovation (Barbier, 1987). Through technology and innovation, communities do not only increase their productivity and gain wealth, they get to transform to sustainable economies “Access to new and appropriate technologies promote steady improvements in living conditions, which can be lifesaving for the most vulnerable populations, and drive productivity gains which ensure rising incomes” (United Nations, 2015:3).. Among the many drivers of innovation are entrepreneurship and evolving business models, which are also classified as crucial for economic growth (Dutta *et al*., 2016).

2.1.2.3 Environmental Sustainability

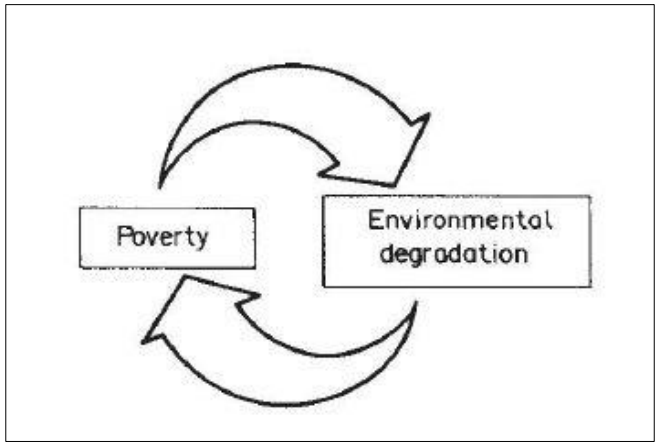
Environmental sustainability is defined as the environment's ability to continue its natural cycles which allow it to renew and repair itself, attaining resilience over stresses that come about as it provides ecosystem services for the economic and social purposes (Department of Environmental Affairs, 2012). Prolonged and excessive use of non-renewable resources, pollution, emission of greenhouse gases and unsustainable agricultural practices are some of the challenges which do not allow the environment to replenish itself and therefore lead to depletion of resources and environmental degradation.

Considering that both the economy and society exist on the environmental arena and require a healthy environment for their success, it is essential that the environment is conserved for it to continue to do its functions without deteriorating. The process of conserving the environment entails, among others, preserving ecosystem resources particularly non-renewable, providing food security, and producing and using energy in an ecologically sustainable way (Shrivastava, 1995). As Goodland (1995) highlights, environmental sustainability "seeks to improve human welfare by protecting the sources of raw materials used for human needs and ensuring that the sinks for human wastes are not exceeded, in order to prevent harm to humans" (quoted in Moldan *et al*., 2012).

South Africa's economy relies heavily on non-renewable resources such as coal, gold and other metal ores, and on agriculture. In 2017 alone, agriculture became the largest contributor to economic growth in the first and second quarters (Statistics South Africa, 2017). Coal is mainly used for energy production and agriculture provides for food security. For long term economic sustainability, it is imperative in resource-based economies that the environmental capital is maintained, and where possible, increased by enhancing the economic activities which involve the stock (MacNeill, 1989). However, non-renewable resources cannot be maintained and mining processes which do not adhere to rehabilitation and environmental codes give rise to debilitating environmental challenges such as leakage of chemicals which affect health, contamination of surface and ground water and formation of sinkholes.

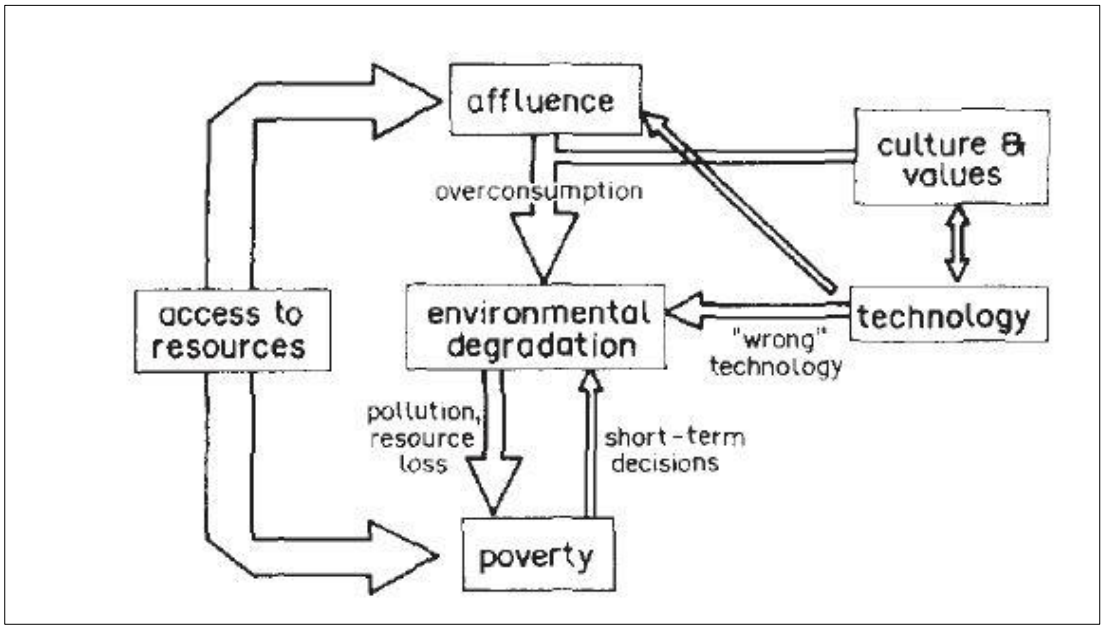
From the Brundtland Commission's report, poverty is identified as the cause of environmental degradation, as it subjects the poor to exploit the environment in efforts to meet their needs and overcome poverty. Poverty and environmental degradation have a cyclic causation to each other (figure 5), as the degraded environment provides minimal resources to those dependent on the natural environment for survival, pushing them to a state of poverty. Nonetheless, poverty and environmental degradation individually have "deep and complex causes" that the cyclic causation relationship, depicted in figure 5, intends not to undermine (Lélé, 1991: 613).

Additionally, Lélé (1991: 164) offers another illustration that he regards as "a more realistic representation of poverty-environmental degradation problem". In this illustration, access to resources gives rise to affluent communities, and overconsumption in these communities, results in environmental degradation which cause pollution and resource loss leading eventually to poverty. Conversely, lack of access to resources causes poverty which provokes short-term decisions in resource use and in turn causes environmental degradation.



(Source: Lélé, 1991: 613)

Figure 3 The mainstream SD perception of the two-way link between poverty and environmental degradation



.
(Source: Lélé, 1991: 164)

Figure 4 A more realistic representation of the poverty and environmental degradation problem

There is consensus among scholars that many environmental problems in developing world originate from lack of development (Lélé, 1991). This renders low-income developments particularly of dormitory type on the urban peripheries of South African cities where there has been very limited access to services and facilities, amenities and overall economic opportunities, vulnerable to environmental degradation. Considering the large scale of supply of low-income housing that has already been achieved, implementation of extensive measures in availing resources in these locations can subdue environmental degradation in these areas. New developments are also vulnerable to fall into the trap of environmental degradation if housing developments will not be supported by integration with other developments. Poor culture and values can permit use of wrong technologies which exacerbate environmental degradation. Environmental technologies and good culture and values bring about affluence.

2.2 Exploring Sustainable Human Settlements and its design concepts

Habitat Agenda gives credibility to the creation of sustainable human settlements by providing a sound vision for sustainable human settlements, as 'where all have adequate shelter, a healthy and safe environment, basic services and a productive and freely chosen employment' (UN-Habitat II, 1996: 16). This vision caries within it features that are highly esteemed by the South African democratic government, which are also echoed unreservedly in its RDP and successive policies. Therefore the concept of sustainable human settlements effortlessly and significantly found expression in the BNG. In this plan, sustainable human settlements are defined as

> *"well-managed entities in which economic growth and social development are in balance with the carrying capacity of the natural systems on which they depend for their existence and result in sustainable development, wealth creation, poverty alleviation and equity"* (RSA, 2004: 12).

In the search for sustainable urban development, various urban forms emerged, all pledging allegiance to sustainability. These urban forms include the compact city, neo-traditional development, eco-city, smart growth and new urbanism (cf. Jabareen, 2011). Although there has been a strong advocacy for these urban forms, each declared 'the model for sustainability' within the city (Jenks and Jones, 2010), many scholars and practitioners are coming to see these multiple forms as complementary to one another, and also concur that these individual urban forms can even occur in one city to bring about sustainability (Guy and Marvin, 2000). This gives legitimacy to an assumption that there is no one ultimate sustainable urban form, but multiple forms which become sustainable when they are in sync with the existing settlement patterns and the context of the area in which they occur (*ibid*.). There is also a significant overlap in the key elements such as design concepts and principles behind these different urban forms.

The definition of sustainable human settlements as given in the BNG aligns with many of the design concepts and principles from the multiple urban forms. This is clearly shown in the following description (key elements highlighted) of the definition of sustainable human settlements as given in the BNG:

> *The present and future inhabitants of sustainable human settlements … live in a safe and a secure environment and have adequate access to* ***economic opportunities****,* ***a mix of safe and secure housing and tenure types****,* ***reliable and affordable basic services****,* ***educational****,* ***entertainment and cultural activities and health, welfare and police services.*** *Land utilization is well planned, managed and monitored to ensure the* ***development of compact****,* ***mixed land-use****,* ***diverse****,* ***life-enhancing environments*** *with maximum possibilities for* ***pedestrian movement*** *and* ***transit*** *via* ***safe and efficient public transport*** *in cases where motorized means of movement is imperative. Specific attention is paid to ensuring that* ***low-income housing*** *is provided in* ***close proximity to areas of opportunity****....* (RSA, 2004: 12).

The section below discusses these common concepts in order to show how they contribute to a sustainable human settlement of the BNG. Moreover, the section gives an indication to how the matrix of sustainable urban form that is sustainable human settlements as conceived in the BNG results from the conglomeration of these design concepts and principles.

2.2.1 Compactness

Compact cities are characterised by high density of development and activity, boasting integrated development with mixed land uses (Burton, 2000). The concept of compactness implies that new developments happen within existing development in a manner that prevents sprawl on an existing rather than new urban fabric, and it refers to containment of further sprawl, not reduction of present sprawl (Hagan, 2000). Compaction facilitates for new developments within the existing urban fabric, placed adjacent to urban structures (Wheeler, 2000, cited in Jabareen, 2011). Because of the close proximity of urban structures and mixed land use developments, compact cities offer easy access to services and facilities and provide a favourable environment for social interactions and improved quality of life (Masnavi, 2000). Compaction also reduces environmental impacts as it discourages automobile dependency while encouraging the use of public transport, walking and

cycling (Burton, 2000), and it “minimises transport of energy, water, materials, products and people” (Elkin *et al*., 1991, cited in Jabareen, 2011: 39).The notion of compacting cities is a widely accepted strategy towards sustainability, as it offers environmental, social and economic benefits.

The adoption of compact city approach in the South African policy (e.g. the 1994 RDP; 1997 Urban Development Framework and the 1997 White Paper) on Urban Development, was prompted by the need to eradicate the legacy of apartheid, characterised by among others urban sprawl and inequality (cf. Todes, 2003; 2006). The notion of compaction presented a suitable strategy to the democratic government, for restructuring and integrating the apartheid city through infill and densification within the city, particularly in the provision of low-income housing to the poor in well located areas which enable easy access to urban opportunities. Despite the resonating authorised support, there has been largely failure in realising the compaction objective in the provision of low-income housing.

The failure, in part, is due to the presence of policies which are conflicting in their mandate. The housing policy for instance, allows for construction of detached units on individually owned plots and “provides too limited funds to cover the costs of better located land or higher density housing” (Todes, 2003:110-111). In the case of Johannesburg, lack of alignment and co-ordination in purpose between provincial government and the local government contribute to the failure to realise the compaction objective in the new developments (Charlton, 2014). Gauteng as the provincial government constitutionally carries the function of providing public human settlement while City of Johannesburg has grown in capacity to have its own dedicated human settlement department (*ibid*.).

As pointed out by Todes (2003) there has been a shift in focus whereby the notion of compactness has also been under scrutiny, its feasibility and desirability being questioned in the face of declining formal economic activities in South African cities, and rising unemployment. Peripheral developments seem to offer diverse alternative survival strategies, through a mixture of rural and urban lifestyles (Cross, Luckin, Mzimela and Clack, 1996; Schoonraad, 2000, cited in Todes, 2003). A study by Schoonraad (2000) reveals that households on peripheral locations get larger sites

which enable them to adapt to lifestyle changes, for instance, they can have backyard developments to sublet and practice urban agriculture, in this manner the households are able to diversify their income streams and increase their food security. The households also create social networks within the projects which become fundamental to their survival.

Moreover, the people in the urban peripheries are less inclined to go to towns, as they usually send one person in the household to work in town, cutting travel costs (Schoonraad, 2000). Additionally, “access to formal employment nodes are less important for low-income households than access to informal opportunities, predominantly in the informal service industry within or near the low-income settlement itself, and access to middle to high-income residential areas where unskilled, semi-skilled and domestic occupations are in high demand” (Biermann, 2005: 1165).

In the absence of integration and mixed land uses within these peripheral developments, sterile environments emerge, with poor services and facilities, and undermined small scale economic activity (Todes, 2003). Residents in these developments get subjected to considerable transport time and travel costs, as they navigate their way between the peripheries and the core cities for economic opportunities (Dewar, 1984, cited in Todes, 2003).

2.2.2 Urban Integration and Diversity

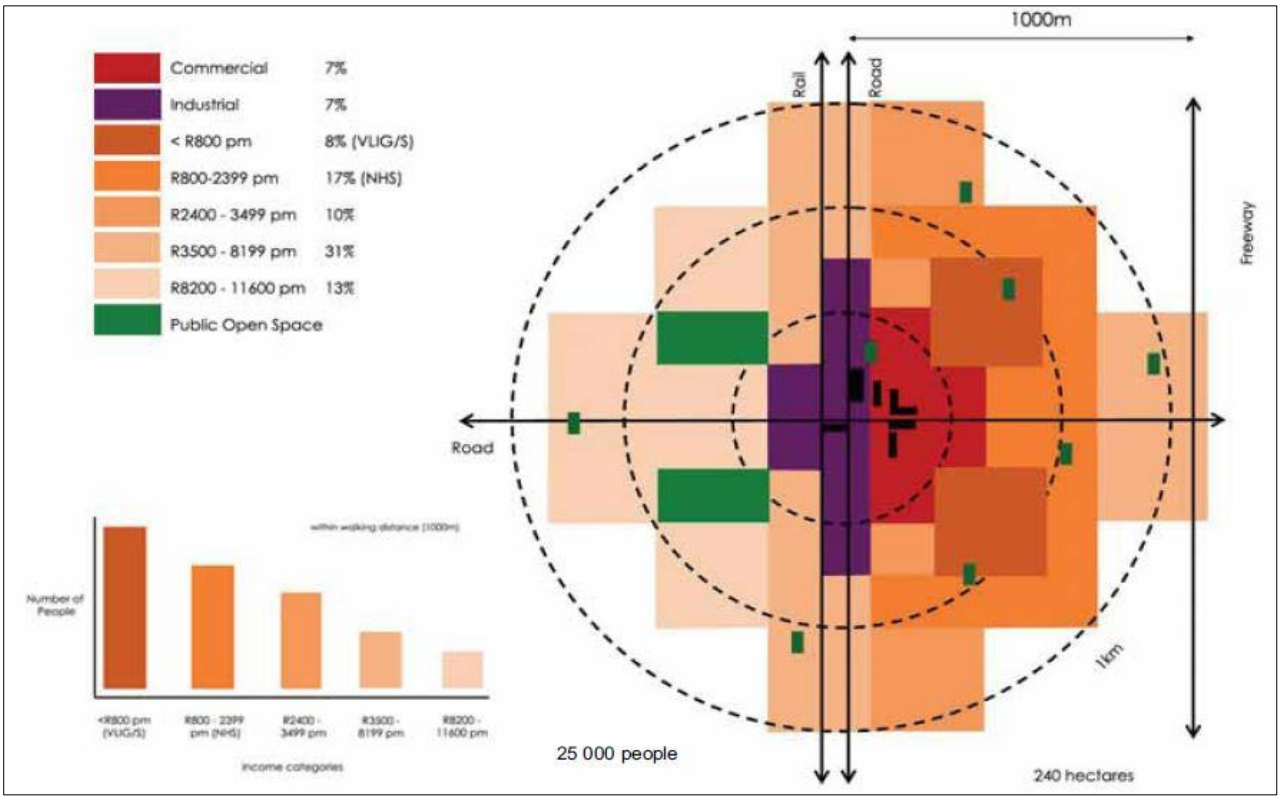
Urban integration is an essential element of a sustainable city and refers to a variety of activity within the city, which unifies the city both spatially and socially and makes it desirable (Jabareen 2011). Urban integration is multidimensional, encapsulating mixed developments which offer a range of housing typologies, mixed incomes, mixed housing tenure, mixed land uses, building densities, household sizes, ages, cultures and other urban features (Talen, 2008; Jabareen 2011). Although there are similarities between urban integration and mixed land uses, mixed land uses is a subset of integration.

As a concept of the BNG, integration refers to the creation of mixed developments within a human settlement. The purpose of the mixed developments is to provide diverse places in order to enable a diverse range of people access to socio-economic opportunities in close proximity to where they live (Landman, 2012a). Although integration is key to BNG, there is a lack of consensus on its meaning and how it should be achieved in practice (Landman 2012b). Absence of a framework to define and guide mixed developments in South African cities enables many different interpretations to what mixed developments consist of. The different interpretations include solely mixed housing typologies or mixed tenure or mixed income; or all of them together, including a mix of social groups (based on income) and land uses (Landman, 2012a). Landman (2012b) further highlights that mixing seems to occur on different scales within an area, whereas in other instances mixing covers one site of an area, in other instances it covers larger urban neighbourhoods. A detailed framework is therefore needed to enable reasonable access for every individual within a housing project.

All the elements of mixed developments have an impact on one another, and influence the extent to which the purpose of mixed developments is realised. For example, it is through mixed housing typologies and mixed housing tenure that a mix of social groups gets to live within the same space with one another. It is therefore important for all of the elements to be implemented at the onset of the project for maximum yield on their benefits and to allow the state of sustainability.

While many scholars and practitioners acknowledge the significance of integrated urban environments, Landman (2012a) highlights challenges that exist for South African cities to manifest as integrated cities. High levels of crime and the history of separation and segregation for which effects are still existent present as obstacles for integration in South African cities (*ibid*.). Moreover, many scholars have also observed resistance from middle-income and high-income communities to be integrated with the low-income groups, and the tendency of banks to devalue property that is adjacent to low-income housing or informal settlement (DRDLR), 2010). DRLR (2010) recommends the use of socio-economic gradient (figure 5), which depicts housing with a gradual increase in income on the same site (cf. DRDLR, 2010), a somewhat integrated settlement consisting of almost clusters of

different income groups is achievable. As observed by Haferburg (2013) in the case of Cosmo City, the challenge with these clusters is they enable different social groups to live side by side, connected only by the space in which they both exist, without socially integrating. Haferburg (2013) questions whether these emerging cities could be what is to become of South Africa cities as South Africa pursues to overcome challenges of the past.



(Source: DRDLR, 2010)

Figure 5 Socio-economic gradient

2.2.3 Mixed land uses

There is a close relationship in function in the key principles of sustainable urban form, as discussed here. The reason for that is these design concepts work in concert to bring about sustainability, individually enforcing the functions of each other. Although the concept of mixed land use has not been individually discussed, many of its functions have already surfaced in the previous discussion. According to Jabareen (2011) mixed land use is defined by diverse zoning within the urban form,

which brings together diverse functional land uses such as residential, commercial, industrial, institutional and other developments related to transportation. The purpose of mixed land uses in a compact set up of a city is transport-related (Jabareen, 2011). Mixed land uses seek to reduce private car usage in doing ordinary activities such as commuting to work, shopping, and leisure trips (Alberti, 2000). Another function involves enhancing security in public spaces through the presence of people on the streets (*ibid*.).

2.2.4 Density

Density is another critical factor in establishing the sustainability of the urban form. Jabareen (2011:14) defines the density of an urban form as “the ratio of people or dwelling units to land area”. High density can manifest as vertical high-rise build form or in the case of informal settlements in South Africa, as low-rise horizontal build form. Although formal high-density housing development is particularly regarded as key for successful urban restructuring, high density housing developments are not necessarily a prerequisite for sustainable urban form. The reality of many cities is not of high densities. However, urban forms must have sufficient numbers of people to generate needed interactions to make urban functions and activities viable. The built form that is of high density reduces the consumption of land, materials and energy, conserving resources and inextricably providing for sustainability (Jabareen, 2011).

Schoonraad (2000) argues that the poor cannot afford to live in high build density because of lifestyles. Schoonraad further highlights that although the poor might prefer the periphery because of opportunities it offers them, the type of density in these low-income areas make these spaces more sustainable than many other spaces in the city. Whereas African cities are characterised by high occupational density and activity particularly in low-income areas, the European cities get to be characterised by building density and type. The additional informal and temporary structures often found in low-income housing in African cities (cf. Charlton, 2017) increase the volume of occupation and activity and also aid in making these spaces more sustainable than many other parts of the city (cf. Schoonraad, 2000). This is a clear indication that viewing African cities through the lenses of European cities

would undermine some important aspects of sustainability in the context of African cities.

2.3 Sustainable Livelihood Approach: Lived Experiences

2.3.1 What is Sustainable Livelihoods?

Since 1994, the South Africa housing policy has enabled the government to deliver a tangible asset into the hands of the poor, in the form of a housing unit (Charlton and Zack, 2003) and in that respect, has done considerably to alleviate poverty, however, many of the people who have received a housing subsidy continue to live in poverty as they face diverse forms of deprivation. Although there has been development in the housing policy, the policy has not purposely attempted to tackle poverty from the perspectives of the poor who according to Chambers (1995) are experts on their life experiences and priorities. It is clear that the measures of poverty reduction taken have done little to alleviate poverty, as deprivation and poverty prove to be “robustly sustainable” (Chambers 1995: 179). The concept of sustainable livelihoods approach therefore may well provide a pathway on how the sustainable human settlement plan can effectively engage the poor in the fight against poverty through the poor people’s views.

SL approach seeks to eliminate poverty by putting the poor and the priorities they define at the centre of the agenda of poverty eradication (Ashley and Carney, 1999). The participation of the poor in the agenda allows the poor to point out their day to day challenges in their pursuits to make a living, identify the avenues that are possible and the impediments that are there preventing them from attaining their livelihood goals. The poor therefore bring in their expertise knowledge on their realities which are “local, diverse, often complex and dynamic” (Chambers, 1995: 173). This knowledge is then integrated in the designing of development policies and programmes, making both effective in addressing poverty by highlighting points of intervention and appropriate strategy (Farrington *et al*., 2002). The SL approach looks at poverty from a broad perspective which takes into account all forms of deprivation and ill-being associated with poverty.

Other attempts at poverty eradication normally used by specialists have failed as Chambers (1999) argues, mainly because the specialists tend to look at poverty from a technical and narrow definition, which only reflects income-poverty or consumption-poverty as poverty. This view of poverty as criticised by Chambers (1995) is universal, reductionist and standardised and projects the Northern views onto the South, as is based on employment thinking which is associated with jobs as the only livelihood people engage in making a living (Chambers, 1995). Of course many of the poor in the global South mainly do not have formal jobs but carry out various activities for livelihoods.

SL approach therefore focuses on understanding what the poor do in making a living; what assets they have access to or control over; and the challenges they face in making their livelihoods (Farrington *et al*., 2002). The emphasis is on the assets the poor draw from for their livelihoods and the strategies they employ, not on their needs (*ibid*.). It is critical for practitioners of SL approach to have an understanding of these factors as well as opportunities presented by institutions and act upon them (Hussein, 2002).

The strategies that result from the application of SL approach should "improve and consolidate poor people's access to and control over assets, thereby improving their livelihoods, and helping to make them less vulnerable to shocks and stresses" (Farrington *et al*., 2002: 1). The overall development objective of the SL approach is to improve the sustainability of the poor people's livelihoods (*ibid.*).

Although SL approach prioritises the participation of the poor, its goal is not to overshadow the roles of policy makers and planners, or to make the poor take over their reins; livelihood perspectives seek to heighten the importance of understanding household economy and how it links to communities and the social, political and economic operations at macro-scale for an effective and equitable policy (Beall and Kanji, 1999). As also a lesson learnt from early experience with the application of SL approach by Ashley and Caney (1999), the SL approach promotes development policy that is holistic, reflecting the understanding of household economy while it addresses the macro aspects of the economy.

Another aspect of livelihood approach that makes it appropriate and effective in addressing poverty especially in urban areas is its capacity to be integrative, multidisciplinary and multidimensional. Because the livelihood activities of the poor in urban areas are varied and depend on a wide range of assets, any initiative that seeks to empower the poor through their livelihoods needs to integrate disciplines and bring multi-sectoral responses. As noted by Ashley and Carney (1999), the aspects of livelihoods are two diverse for a single expert to comprehend them all. The SL approach compels multi-disciplinary working as it demands teamwork between different sectors. When interventions are sector-specific, the SL approach stresses that the sectoral goals are defined and designed to prioritise empowering people (Ashley and Carney, 1999),). SL approach further develops common language and common goal across multiple sectors (*ibid*.). Isolated sectoral initiatives have proven to be limited in addressing the challenges of the poor and multi-sectoral initiatives often prove to be unmanageable even in the pursuit of sustainable human settlement in the South African context. A good example here would be implementing integrated housing as required by the 1994 housing policy which never materialised with the RDP housing developments.

A livelihood and sustainable livelihood are effectively defined by Chambers and Conway as follows:

> *"A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term" (Chambers and Conway, 1992:6).*

These definitions have been widely adopted by proponents and practitioners of livelihood approaches and have become the endorsed definitions within the sustainable livelihood thinking. Different agencies, though may differ in their

emphasis in the application of SL approach (Carney *et al*. 1999), all have adopted the SL definition of Chambers and Conway (1992).

2.3.2 Operationalising Livelihoods Approach

There is no unified way of using SL approach, different practitioners of SL approach have developed different perspectives and methodologies of SL approach, however, what is fundamental is for the different models to conform to the core SL concepts which are encapsulated in the Chambers and Conway (1992) definitions of sustainable livelihoods (Farrington *et al*., 2002). The common basic features in these models is the focus on the livelihoods of the poor; participation of the poor in identification and implementation of activities; and the holistic approach to development that is cross-sectoral in poverty reduction, rejecting taking a single sector as an entry point (Krantz, 2001).

DFID further puts forward a set of principles that it identifies as actual core SL concepts and hence critical in the application of SL approach. DFID emphasises that these principles should underpin all models of SL approach (Carney *et al*., 1999). The principles assert that all development activities should be '*people-centred; responsive and participatory; multi-level, building micro-macro linkages; conducted in partnership between private, public and community sectors; sustainable; dynamic; and holistic, engaging multi-sectoral responses (*Ashley *and* Carney, 1999: 7; Farrington *et al*., 2002: 1-2).These principles generally sum up what has been defined as SL approach in the literature and are more detailed that just Chambers and Conway definitions.

Sustainability has largely attracted negative connotation as it is regarded as a term that has no meaning in literature. It seems to be applied extensively where it means almost everything and nothing in reality. Although the concept of sustainability cannot be missed from the definition of sustainable livelihood or the name SL approach, Ashley and Carney (1999) specify that mere use of SL approaches does not readily warrant that sustainability is addressed, it is therefore imperative to incorporate the strategies that bring about sustainability to the development.

2.3.3 Conceptualising a household as a unit of analysis in SL approach

In this study, a household is used as a unit of observation. The term household has various meanings, but the common definition as given by Beall and Kanji (1999, citing Robertson 1984) refers to the people who eat from the same pot and share the same resources such as in living together. This is the meaning that is also adopted for this report. Beall and Kanji (1999) further point out that household composition, whether in rural or urban area, is not limited to a nuclear family, but may also include a wider kin networks, as well as other people who are not in any way related.

For urban households, developmental cycle of the domestic unit is lengthy and more noticeable, presenting as diverse household types (Beall and Kanji, 1999). The urban households become dynamic, often changing in size and composition as some members of the household leave their immediate locations to pursue livelihoods elsewhere in the city while they still maintain links with their household (*ibid*.).

A factor that is also important in the livelihood systems of urban poor is the two-way flow of resources and reciprocal relationships that exist between the urban and rural residents. Those in urban area tend to send some form of livelihoods support such as remittances and in-kind contributions to their next-of-kin in the rural areas (Beall and Kanji, 1999). The rural households tend to support their urban family members by looking after the urban family members' children or older family members while their urban households focus on pursuing livelihoods. The rural households also tend to support urban households through supplying them with subsistence foodstuffs, or traditional medicine.

2.3.4 Livelihoods strategies of the poor in urban areas

The poor, in their efforts to make a living, typically face various challenges of deprivation and insecurity, which include limited assets, various risks, and limitations imposed by structures and processes towards livelihoods (Hussein, 2002). The identification of what the poor do in respond to these is labelled livelihoods strategies

and this labelling has been significantly criticized in literature (cf. Beall and Kanji, 1999; Onusu, 2007), on the basis that the poor naturally have little to manoeuvre, they do not have the luxury to strategise, and therefore tend to do whatever is possible for livelihoods. Their livelihoods activities constitute the responses to deprivation and insecurity (Beall *et al*., 2000).

While this section of the paper attempts to review literature on the livelihood strategies urban poor adopt in making a living, it is important to point out here that these activities are diverse and sometimes adopted fluidly, therefore, they will not be covered in their totality in this section. Although livelihood strategies among the poor in urban environments take various forms due to the complexity of cities, they are also controlled by access to assets, opportunities available as determined by structures and processes in place as well as individual‘s preferences and choices (Farrington *et al*., 2002). Many practitioners and researchers of SL approach have identified common themes on livelihood practices adopted by many of the urban and rural poor (cf. Chambers 1995; UNCHS, 1996; Moser 1998). Table 3 consists of these livelihood strategies as given in the literature and are grouped by Farrington *et al*. (2002).

Practitioners and researchers of SL approach have also used different categories to organise livelihood strategies of the poor. One category uses time frame and divides livelihood strategies as either coping strategies or adaptive strategies. Coping strategies are those livelihood activities that are pursued as short-term responses to specific shocks and are often for survival purposes, whereas adaptive strategies are livelihoods strategies that are adopted as long term change in behaviour and could also be pursued to build on household assets (Farrington *et al*., 2002). Rakodi’s (1999) categorisation of livelihoods strategies is based on the nature of activity the livelihood strategies involve, for instance, investment to gain one more asset, and substitution of one asset for another (cited in Farrington *et al*., 2002).

Table 3 Livelihood strategies often used by poor households

Strategy	Mainly urban	Urban and rural
income-enhancing/ investment	• domestic services – cleaning and childcare (esp. girls and women) • urban agriculture • renting out rooms	• home gardening • processing, hawking, vending • casual labour, pierce work • specialised occupations (e.g. tinkering, food preparation, prostitution) • child labour • migration off season work • begging • theft
expenditure-reducing/ sacrifice	• scavenging • cutting transport costs	• mortgaging and selling assets • selling children into bonded labour • changes in purchasing habits (e.g. frequent small quantities, not bulk buying) • buying less and/or cheaper goods and services • discrimination within the household (e.g. giving less to less powerful or less favoured household members)
collective support	Communal kitchens Communal childcare	• mutual loans or savings groups • putting out children for care in extended family • remittances from household members working away

(*Source*: Farrington *et al*. (2002), table adapted from Chambers (1997), UNCHS (1996) and Moser (1998))

2.3.5 Conclusion

As Rakodi (1994) has pointed out, poverty reduction is a central priority to development initiatives. Since SL approaches are documented to be effective in tackling poverty, and they also work with local context they are therefore worth incorporating into the SHS plan. It is also inevitably true that concepts that are developed within the North context become redundant in the South context.

Although there is no one model that is prescribed for the use of SL approach, DFID principles are crucial in putting the poor at the centre of development and aligning the development activity to Chambers and Conway's (1992) sustainable livelihoods.

Sustainable livelihood approach as a core concept of sustainable human settlement plan can bring direction to the plan in tackling poverty holistically.

2.4 Exploring the concept of Peripherality

The concept of peripherality acquires a multi-dimensional meaning in its use in defining South African cities. According to Peberdy, Harrison and Dinath (2017), there are spaces that are regarded as peripheral to the core solely because of their geographical location to the core. There are also spaces that are regarded as peripheral to the core, not because of their physical location but as a result of low economic activity in these spaces as well as socio-economical marginalisation of their populations. Some spaces are geographically peripheral and are also characterised by low economic activity and socio-economic marginalisation. As Peberdy *et al.* (2017) point out, low economic activity and socio-marginalisation can occur on the edge of the city as well as in between the city and its edge. Peberdy *et al.* (2017) also highlight an important aspect regarding periphery, that the notions of periphery are relational, making the understanding of scale important. For instance, a certain part of the city may be peripheral to the city's business district at the local scale. At the national scale, the same part of the city may not even be considered peripheral when it compares to other spaces at that level. In Gauteng where Lufhereng is located, there are many spaces of uneven development which are classified as peripheral even though Johannesburg, the economic heartland of the country and continent is in Gauteng.

Peberdy *et al.* (2017) further identify prominent economies of the periphery and the core. According to this classification, peripheral economies are primary producers of raw materials, and these naturally include agricultural products and minerals labour. Core economies are mainly secondary sectors which work with the primary sector products, manufacturing the raw products from the peripheral economies and also in refining them.

2.4.1 Demographics

In South Africa, the peripheries of uneven development in cities are unfortunately occupied mainly by black population groups because of the history of apartheid and continuing practice of the democratic government of placing low-income housing on city edges with minimal economic activity. According to Peberdy *et al.* (2017: 18), the demographic profile of peripheral areas show “relatively high proportions of elderly people and children, large households, and female headed households”. There are also indications of peripheries being home to vulnerable households and populations (*ibid.*).

Cities are also very dynamic spaces; as a result, such demographics may change as factors such as in-migration occurs in the peripheries. In Johannesburg, city edges are classified as spaces with relatively cheaper accommodation compared to core areas. As a result, these spaces are attractive to job seeking immigrants into the city. Peberdy *et al.* (2017) confirm that the low-paid labour in cities is likely of immigrants into the city and Gauteng’s core in particular has a large proportion of cheap labour as immigrants.

2.4.2 Education

According to Peberdy *et al*. (2017), peripheral areas are often characterised by populations with minimal levels of education, fewer schools that are unevenly distributed which force children to travel long distances to school. Although this scenario is still prevalent is some specifically rural peripheral areas, most urban peripheries especially in Gauteng have better access to schools.

2.4.3 Employment and income

Since the periphery is more likely to have people with low-levels of education, and significant number of cheap labour immigrants, the likelihood is the population of the peripheries is mainly low-income. Peberdy *et al*. (2017) found this to be true. They also found that the peripheries have large number of people that are unemployed

and for those employed, they have insecure employment. Although similar cases can also be found in the core, the peripheries have relatively high numbers.

2.4.4 Access to services

As stated by Peberdy *et al*. (2017: 18), “[t]he provision of infrastructure and services, or the lack thereof, is a measure of peripherality”. In Gauteng, the core areas mostly have access to services and the spatially peripheries areas have poorer access to services. Areas that are spatially peripheral to the core have been a great and costly burden to the local municipalities which have to supply them with services and see to their maintenance (cf. Turok, 2015). However, the state still builds housing on the spatial peripheries of the core areas.

2.4.5 Transport and connectivity

The notion of connectivity for spatially marginalised residents plays a big role in changing the dynamic of their periphery. Because of the legacy of apartheid, people in the peripheries have to travel to the core areas for job-seeking, for jobs, and for leisure (Peberdy *et al*., 2017). Accesses to good roads, various modes of public transport which are also affordable bring the periphery closer to the core and plays toward social justice (cf. Burton, 2000). The issue of affordability is also a challenging one in a case where majority of people are unemployed yet willing to work as they may not have the basic resource to get them to places of employment which are the core areas. The democratic government has worked hard to provide services to the peripheries, however, the high rate of migration to urban areas continues to challenge the efforts of the government in bringing equality to all the city dwellers (Peberdy *et al.*, 2017).

2.5 Conceptual framework

Conceptual framework provides a frame of reference, a road map for the study by highlighting the themes, concepts and variables that are central to the study and how they connect with each other. For this research, the concepts of sustainable

development, lived experiences and peripherality are important themes in the creation and performance of sustainable human settlements. The design concepts of sustainable human settlements provide variables that are needed for sustainable human settlements to be realised. The concepts, themes and variables within the conceptual framework are based on their established theories.

The description of sustainable development provides the basis of understanding what constitutes sustainable human settlements at basic level. The joint elements of the dimensions of sustainable developments as well as the design concepts of sustainable human settlements play a crucial role in bringing about a sustainable human settlement hence are relevant variables in this study. The concept of lived experiences provides the views and perceptions of residents in relation to the sustainable human settlement. Although sustainable human settlements and lived experiences are the main themes of the study, the peripheral locality of human settlements has implications to the sustainability of the human settlements as it could imply disconnection and segregation of the human settlement to the existing economic hub, therefore it is equally an important theme.

Sustainable livelihood strategies are also very crucial in the creation and performance of sustainable human settlement. When the poor are left in great vulnerability context with immense barriers to their livelihood aspirations, their human settlements remain unsustainable. However, through sustainable livelihood strategies, their poor can enhance their livelihood strategies to break out of poverty and have a sustainable human settlement.

2.6. Position of the research in the existing body of work

The provision of housing to the poor, although generally acknowledged to be a great initiative in the fight against poverty, has always ignited much debate mainly because of the nature of human settlements that are aimed at providing the poor with formal housing. The debates are accurately focused on the segregation nature and peripheral localities of these housing developments for the poor and the inherent failure to restructure the apartheid city in their provision. The negative attitude

surrounding these state subsidies is largely based on the findings of practitioners and researchers in housing. The views and perceptions of beneficiaries of these state subsidies especially in relation to the provision of sustainable human settlements provides another viewpoint to look at provision of low-income housing.

Moreover, the findings of the study may not only enrich the ongoing debate but may also add and highlight new viewpoints that can only be perceived through experience by beneficiaries of low income housing. The study will also provide basis for reconsidering the nature of future housing developments in the South Africa from the views and perspectives of beneficiaries.

Chapter 3. Research Methodology

This section of the report introduces the methodology used in this study. It describes the different approaches engaged and their relevance for this study. Since the study involves direct participation of people, this necessitates an ethical dimension in the study in order to avoid violation of participants' human rights. Therefore this section also highlights the ethical considerations I had to make in conducting the research. The last part of this section outlines the limitations to the study and efforts that I made to compensate for the limitations.

3.1 Type of Research

This research seeks to construe meaning from the perspectives and experiences of people in peripheral housing project that is designed to be a sustainable human settlement. The study therefore takes on a phenomenological stance whereby the emphasis is on understanding people from their own reality and frames of reference. According to Lester (1999:1) phenomenology is an approach that gives an understanding of the subjective experience from the perspective of the individual, providing an insight into people's motivations and actions while it "cut[s] through the clutter of taken-for-granted assumptions and conventional wisdom". Byrne (2001: 830) defines phenomenology as "one of many types of qualitative research which examines the lived experiences of humans, with an intention of gaining understanding of the essential "truths" of the lived experience". Therefore qualitative method becomes a suitable approach to this study as it is an inquiry process that gives access to information which is mainly descriptive in nature.

Although this study chiefly employs a qualitative method of research, it also uses a elements of quantitative method particularly in the collection of household data and its analysis. As a result, the study uses both numerical and textual types of data as well as statistical and thematic analyses of this data which imply that mixed method is employed in the study. Crest, Clark, Gutmann and Hanson (2003) point out that with mixed method, identifying the characteristics of the study which make it a mixed method gives it credibility as it conveys to the readers that considerations were

engaged to adhere to predefined parameters of both quantitative and qualitative methods in the study. According to Crest *et al*. (2003: 165), a mixed methods study is defined as follows:

> *A mixed methods study involves the collection or analysis of both quantitative and/or qualitative data in a single study in which the data are collected concurrently or sequentially, are given a priority, and involve the integration of the data at one or more stages in the process of research.*

In this study, both quantitative and qualitative data are collected concurrently and the study integrates the data in analysis. Although there are critical debates on mixed method, Carey (1993) highlights that quantitative and qualitative techniques are just tools in a study, therefore combining them appropriately in a mixed method enriches the study as it allows it to sufficiently answer complex questions more than qualitative or quantitative research alone could do. Lund (2012) further affirms that the combination of the different perspectives provided by qualitative and quantitative methods may produce a more complete picture of the domain under study.

I have used structured and semi-structured interviews with questionnaires[3] as study tools. I have also taken on a case study approach (with Lufhereng as the case study area) to develop a thorough understanding on a single community. The intention is not to generalise findings to all peripheral housing developments, as this is not appropriate due to the possible uniqueness of individual housing projects, but to draw out valuable lessons which can be learned from the project in question, and even confirm, negate or extend previous scholarly findings on peripherally located settlements.

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3. Questionnaires comprising of structured and semi-structured questions were used on a sample group consisting of 40 households. The questionnaire included a section to obtain demographic information, including household income, a section obtaining the resident's views on the critical success factors and three open ended questions at the end to obtain any additional information that may not have been covered in the structured questions.

3.2 Data Collection

This research relies on both primary and secondary sources of data. Primary data was collected through interviews from two sources, viz. the residents of Lufhereng and Lufhereng Project Manager from the City of Johannesburg Housing Department. The respondents in Lufhereng came from forty households. Secondary sources of data used include various documents such as the 1994 housing policy, the BNG and Mega projects document titled Mega projects: Clusters and New Cities and scholarly articles. Of importance here is also the unpublished research report by Baloyi (2014) from which this report draws many of its themes and concepts as it also seeks to extend the study by Baloyi.

In collecting data from the community of Lufhereng, I and another student, Thandi Foto used the same questionnaire. Thandi and I shared the study area even though our individual research interests were on different aspects of the area. For that reason we worked together to produce a joint questionnaire with both our sections. The questionnaire had three sections: the first section which consisted of demographic information of the households; the second section with a focus on housing and sustainable human settlements elements; and the third section with a focus on transport. The joint questionnaire allowed Thandi and I to each have sufficient sample size of forty even though we individually conducted half interviews of the total. Then we set out to collect data ourselves, walking from house to house as per our sampling technique, interviewing residents in the area.

For both my subjects, as residents of Lufhereng and CoJ official, the interviews were conducted in their areas of comfort, for instance, with the residents of Lufhereng, it was mostly in their houses although for some residents we sat outside as we interacted through the questionnaire. With Charles, the CoJ official, the interview was conducted in his office. The interviews in Lufhereng were done from the 1st to the 10th of November 2016. The interview with Charles was conducted on the 28th April, 2017.

3.3 Sampling

Every study, whether quantitative or qualitative eventually demands the researcher to make an analytical generalisation, as a result, sampling strategy is important in validating the analytical generalisation that is eventually made. The sampling strategy includes both the sample scheme and sample size, which are about selecting sample members and the number of participants in the study respectively.

In selecting households to interview in Lufhereng, the grid method was used. The grid was drawn and placed on the map of Lufhereng and as it overlapped the map three housing units were selected within every other square on the grid to interview. In the case where interview could not be done in the selected housing unit due to various reasons such as absence of members of the household, or absence of an adult to interview as only adults (21 years and older) were interviewed, then the interviewer would seek a respondent from the next housing unit for the interview. The sample size as indicated previously was forty. This size was considered to be sufficient in this study to answer the research question.

3.4 Ethical Considerations

All the participants in this study were adults (only) who were 21 years and older. The participants were adequately informed of the purpose of the study and that their participation is voluntary. On agreeing to take part in the interview, the participants were then presented with a consent form to sign that they agree to be participants. The purpose of the consent form was also communicated to the participants. The participants were also given the right to be anonymous. The participants were in no way forced to answer the questions. Where the questions were sensitive, such as those speaking to income profiles for individuals, the interviewees were reassured of their anonymity, the purpose of the interview and the reasons to why such questions were relevant and important were given. All data collected was only intended for use of academic purpose, which is this study. At the end of the study the physical questionnaires would be destroyed. The study was also done guided by rules and regulations of the University of the Witwatersrand.

3.5 Limitations

Lufhereng housing project has not had enough time to consolidate as a neighbourhood due to being relatively new and the delay in the project based on the project schedule. The population growth of Lufhereng is also dependent on the construction phase as people only move into their houses once the construction is completed. Therefore, some people have lived in the area for almost six years since 2010 while others have been in the area for a very short period of time. The population size is currently estimated to be 7 560, however, on completion Lufhereng will have between 24 000 and 25 000 people. Due to the small number of people living in the project relative to the total estimated population, the findings from this project now might significantly change once the project is completed. Moreover, some of the economic projects that are planned for Lufhereng housing project are at different stages of implementation, therefore, beneficiaries' perceptions about living in this project may change as those economic activities gain momentum and inhabitants begin to benefit more from them.

Chapter 4. Lufhereng Profile

4.1 The Lufhereng Project: Origin, Location and Objectives

The Lufhereng Integrated Urban Development (referred to as just Lufhereng henceforth) was introduced as a flagship project in Gauteng to put into action the new way of thinking towards housing delivery (cf. Doornkop BP, 2007) that had already taken root within the national department of housing through the introduction of the BNG. This new way of thinking seeks to transform housing into integrated sustainable human settlements, by producing mixed income housing developments which integrate all people irrespective of their race or social class, and offer them equal access to facilities and services and enables them to interact within the same spaces. The new way of thinking also prioritises creation of economic activity within the new settlements as a way of creating employment (Doornkop BP, 2007). Therefore Lufhereng is intended to be a mixed income housing development with vibrant economic activity (cf. Charlton, 2017). The project was also conceived to respond to the challenge of housing backlog.

Lufhereng is a greenfield development located on the western outer edge of Soweto in Gauteng, which makes it a little further away geographically from the Johannesburg central district and the northern part of Johannesburg which is bustling with economic activity, than Soweto is. As Soweto is a historically black township that was established under Segregationist legislation of the past, it has been classified as peripheral, more so as it is characterised by low economic activity and socio-economic marginalisation than it is geographically peripheral. Lufhereng without envisioned developments of mixed income housing and economic activity naturally adopts all dimensions of peripherality (Peberdy *et al.*, 2017) as it can be seen on Map 1 that is characterised by high levels of unemployment and minimal economic activity.

Lufhereng lies to the north of Protea Glen, west of Dobsonville and south of Slovoville. Lufhereng is connected to the nearby areas such as Mohlakeng, Lenasia, Protea Glen, Roodepoort, Krugersdorp and further areas by the R559 and R558,

which cross over the development site, and the N12, which is significantly close to Lufhereng (see Map 2 (b)). There are also provincial road reserves that will bring further connectivity to Lufhereng (see Map 2 (a)).

The project, initially called the Doornkop greenfield was jointly conceived in 1997 by Gauteng Department of Housing and the then local authority, the Western Metropolitan Local Council, to be a large scale housing project (Urban Dynamics, undated). The project was then paused as a result of 'the parallel identification of a provincial small farmers resettlement programme' (*ibid*.). The Lufhereng project was later re-introduced and re-conceptualised to be an integrated urban development by the Gauteng Department of Human Settlement in collaboration with the City of Johannesburg (CoJ, 2007). The national housing policy shift of 2004 influenced the reconceptualization of the project from just a housing development project to an integrated urban development project, now incorporating the sustainable human settlement principles and objectives of the BNG.

4.2 The Lufhereng Project: Scope and Target

The Lufhereng project commenced in 2008 with the installation of bulk infrastructure and services, and then progressed to the construction of housing units in the (CoJ, 2008). The first residents moved into the project in 2010. About 907 houses were initially occupied (CoJ, 2010). According to the ULEDP (2014) there were about 1 014 housing units occupied in 2011, with an estimated population of 3 630 (Urban-Econ, 2014 cited in ULEDP, 2014). Six years since the project was first occupied, there are now 2 100 houses built and occupied in Lufhereng Proper and Extension 1 as part of Phase 1 development (Lufhereng, undated). The current population estimate therefore according to Urban-Econ (2014) calculation, which is based on the average household size of the City of Johannesburg of 3.6 is 7 560. The population for Lufhereng grows with the completion of the housing units based on construction phases. According to the plan of the project, Phase 1 (see Map 3) of the project will comprise of 2 400 detached, semi-detached and row houses and 1 500 walk-up units (CoJ, 2008). Beneficiaries of the subsidised houses will be afforded an opportunity to choose their unit layout based on their individual needs (*ibid.*).

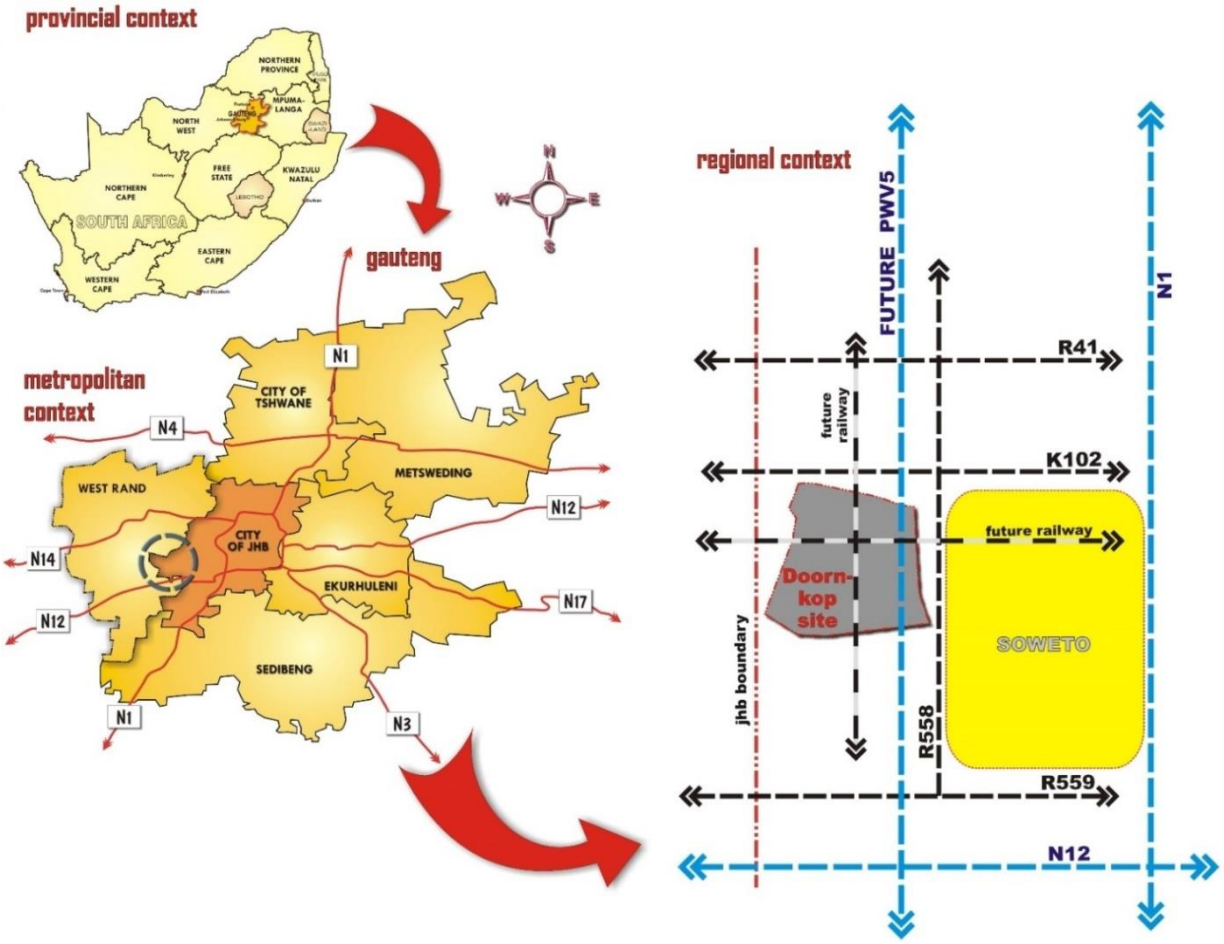
On completion, the project will yield some number between 18 500 (yield figure given by ULEDP, 2014) and 25 000 (yield figure given by CoJ, 2008) housing units, of which according to the business plan that guides the project, 50% will be fully subsidised, 30% will be credit linked and 20% will be fully bonded housing stock (*ibid.*). The target groups for the fully subsidised housing stock are the 3 200 residents of the Protea South Informal Settlement; people of Soweto that are on the 1996/97 waiting list for housing subsidy; the Doornkop farming community; and the relocated residents of Bram Fischerville RDPs whose houses were built in rising flood lines (CoJ, 2010).

4.3 Lufhereng as an integrated housing development

The Lufhereng Project is designed to have various land uses to enable a functional residential environment. With each phase of development, the project has to deliver different housing options in terms of build form, and affordability. The various built forms in the project range from freehold, semi-detached and high density units such as row housing and walk-up apartments (CoJ, 2007). To cover different income groups the project offers fully subsidised housing for the poorest in the community; finance-linked subsidy units for low income households; and middle to high income bonded housing for the general market (Lufhereng, undated). The project also provides tenure options ranging from full ownership to social housing and rental housing. Therefore, through mixed housing typologies and mixed tenure the project caters for different income groups.

The development is also designed to deliver full level of services and a variety of socio-economic facilities and amenities such as health facilities, schools, businesses, and recreation areas to enable equitable access to facilities and services for social sustainability. Some of the facilities highlighted in the plan for Lufhereng include fourteen primary schools, six secondary schools, two day-care centres and about forty-five crèches; seven community facilities; two primary healthcare clinics and one community health centre (CoJ, 2008). These facilities will be built in stages which correspond with the increasing population of Lufhereng as the development progresses in phases (Map 3).

For Lufhereng project to be economically sustainable, it has to develop its own economic base. Lufhereng project is located on a former agricultural site Doornkop, commercial agriculture is therefore identified as a viable economic driver of the project and will include projects such as hydroponics, aquaculture, open field farming and vegetable farming, which are classified as community projects (ULEDP, 2014). The comprehensive Lufhereng economic development plan (cf. ULEDP, 2014) provides various other priority projects to be implemented to make Lufhereng project economically sustainable. Some of the projects that have a potential to be the economic pillars for Lufhereng project include the industrial hub and some community and commercial projects which include informal traders market and a Neighbourhood shopping centre respectively (ULEDP, 2014). According to ULEDP (2014), some of the planned projects are already operational in the project. These include agriculture, forestry and fishing, garage, wholesale and retail trade, catering and accommodation as well as manufacturing (*ibid.*)



(a) (Source: Doornkop Urban Design Framework, 2007)



(b) (Source: Urban-Econ, 2011)

Map 2 The location Maps of Lufhereng in context, (a) showing road reserves and (b) existing linkages to the surrounding areas and further.

All the economic projects planned for Lufhereng will create job opportunities for Lufhereng communities. The agricultural hub alone has a potential of creating about 10 000 working opportunities (CoJ, 2007). The job creation will lead to reduction of poverty, and a possibility of wealth creation among the residents. Social development through capacity building among residents is fundamental in improving their access to the job opportunities created. It is expected that the growing Lufhereng population is getting employment in the emerging economic activities (ULEDP, 2014). Some of the facilities that are expected to be currently available at the project include education facilities, community facilities, municipal facilities as well as community, social and personal services (*ibid.*)

The Lufhereng project commenced with the installation of bulk infrastructure and services in 2008 (CoJ, 2008). Availability of well serviced facilities prevents discharge of chemical pollutants and other materials into the environment thereby enabling for sustainable environment. Living close to work also enables walking, contributing to maintenance of the natural system. In Lufhereng, the economic base within the project will possibly allow the residents to walk or use a bike to physically access the work place. For poor communities, living close to work is not only contributing to sustainable environment but also impacts on alleviating poverty as large amount of money is not spent travelling long distances to and from work.

4.4 Geotechnical challenges in Lufhereng

Lufhereng as a previously mined area and still being in close proximity to mining activity, has geotechnical conditions which dictate on the type of development and the extent to which the site can be developed. For instance, the Doornkop Business Plan (2008) identifies four different zones in the area, with detailed dolomite stability and with varying risk (Table 4). This clearly indicates that special precautions must be implemented in doing any form of development in this area.

Charlton (2017) proposes and discusses an important concept in her peripheral developments paper, which she labels ‘invented co-production’. This concept of invented co-production is prevalent in low-income housing and Charlton defines it as follows:

> *It refers to the uninvited, unanticipated actions by residents of formal neighbourhoods which transform the built environment through alterations, additions and new structures, as well as uses and practices, largely unauthorised and often non-compliant in terms of by-laws, regulations and rules. Beyond these physical and land use changes, the term also encompasses changes and adaptations to the social organisation of households in response to their state-provided housing circumstances – such as splitting the household across more than one*

place of residence in order for family members to access schools or work (Charlton forthcoming a, cited in Charlton, 2017).

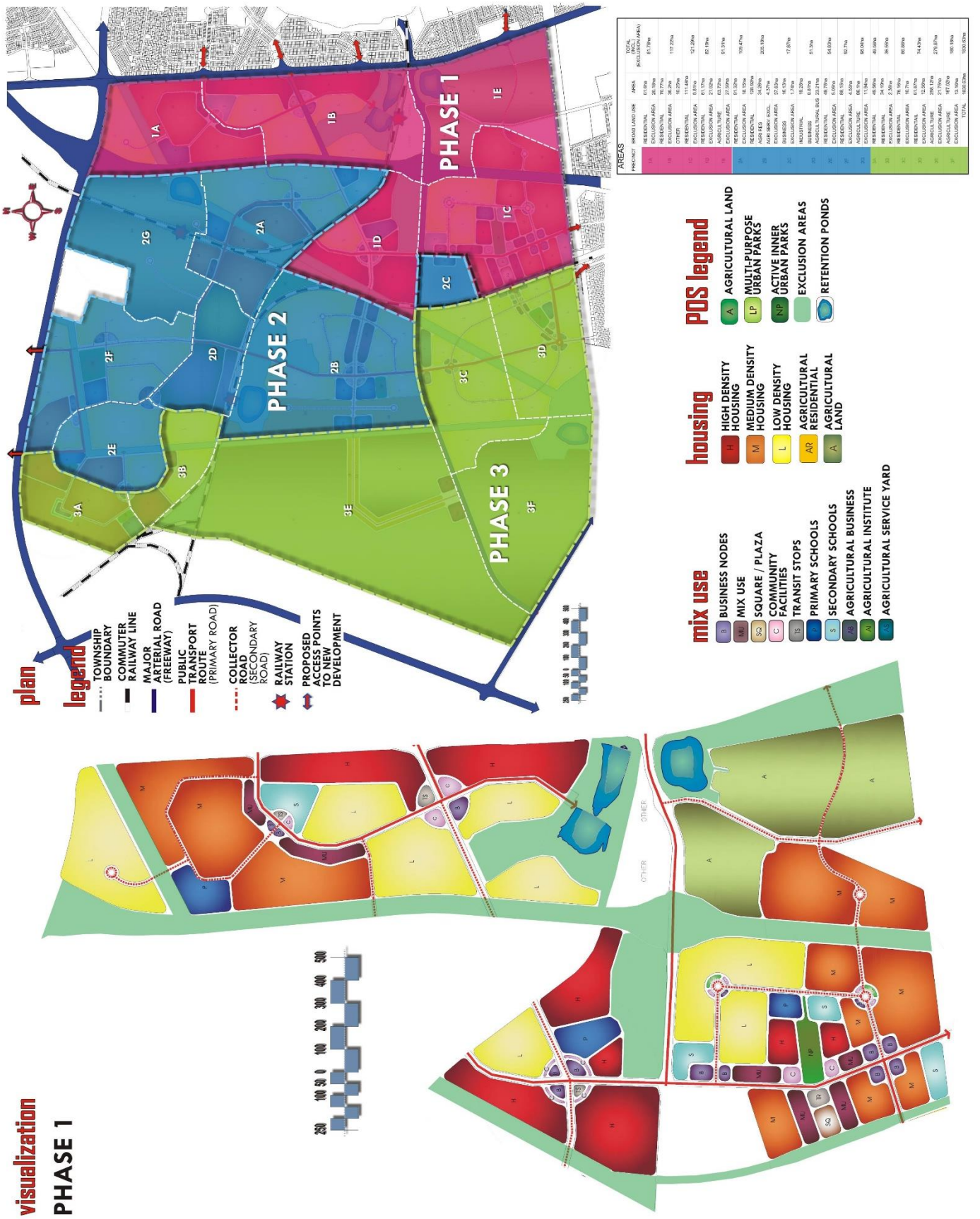
According to Charlton (2017), there are already structures of 'uninvited co-production' that are erected in Lufhereng. However, from the geotechnical report and table 4, it is clear that additional structures to what is already provided in the form of the housing unit might be posing a big risk to residents. According to the geotechnical report as given in the Doornkop Business Plan (2008), dolomite stability zone 1 (table 4) is the only zone that can have residential development and other heavier developments such as commercial and light industries. Even with these developments on zone 1, there are restrictions as shown in Table 5. This indicates that residents need to be brought on board in development processes so that they get to understand and own the project.

Table 4 Technical conditions of Lufhereng site

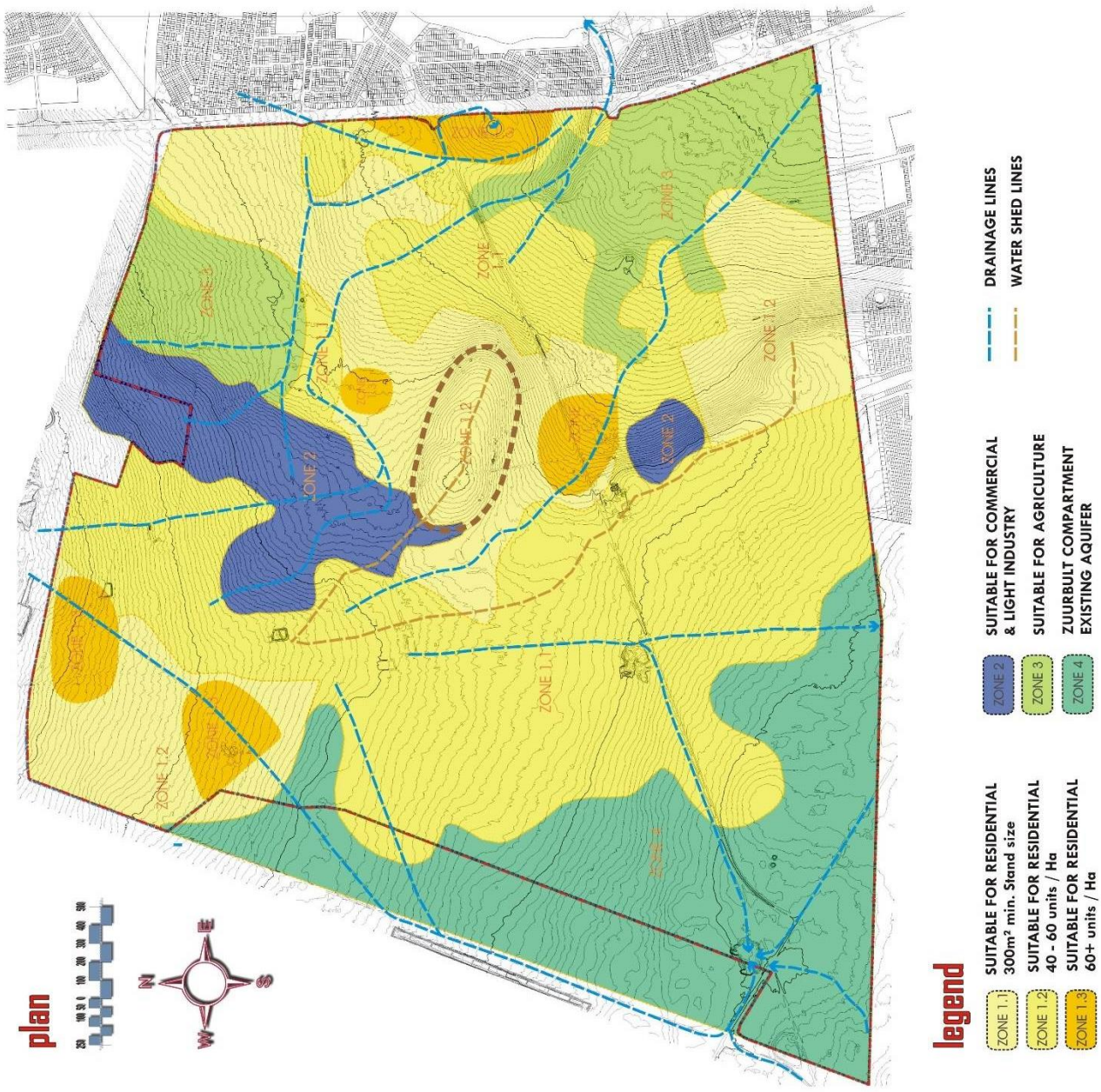
DOLOMITE STABILITY ZONE	INHERENT RISK CLASS	APPROPRIATE DEVELOPMENT
1	4	May be utilised for residential development, commercial, light dry industrial or agricultural uses. Development subject to application of foundation and water precautionary measures. Minimum residential stand sizes are 300 square metres. No groundwater abstraction is to be permitted.
2	6	No residential development. May be considered for commercial, light dry industrial and agricultural development. Groundwater abstraction must not be allowed.
3	8	No urban development. Preferably utilise for agricultural purposes. Groundwater abstraction must not be permitted.
4	8	No urban development. May be utilised for agricultural uses, parks or public open space. Evaluate limited groundwater abstraction for agricultural purposes.

(Source: Doornkop Business Plan, 2008)

Map 3 Map showing the development phases for Lufhereng project



Map 4 Map of the geotechnical aspects of Lufhereng



(Source: Doornkop Urban Design Framework, 2007)

Table 5 The subdivisions of Zone 1

The Dolomite Stability Zone 1 is further subdivided into three zones defined as follows:

DOLOMITE STABILITY SUB-ZONE	APPROPRIATE DEVELOPMENT
1.1	Minimum erf size of $300m^2$
1.2	Residential densification of 40 to 60 units per hectare.
1.3	Residential densification higher than 60 units per hectare permitted subject to site specific investigations approved by the Council for Geoscience and the NHBRC.

4.5 Access and Transport

Lufhereng as a peripheral location is already linking and connecting to the core and its surrounding areas directly through N12 and indirectly through R559 and R558 (see Map 2). According to the Doornkop Business Plan (2008) Lufhereng is already serviced by a number of roads (such as D93, P241-1, K102 and K15) which allow Lufhereng to be thoroughly linked to its surrounding neighbourhoods and allow residents access to the greater area of Lufhereng, which is a prerequisite for other economic sector in Lufhereng to be functional. There are also provincial and local roads that are planned to connect Lufhereng to the greater Johannesburg and beyond (see map 5). These include PWV5 which will run parallel to N1, connecting Lufhereng to the North and South of Johannesburg. Also in the plan for Lufhereng is a railway that will run through Lufhereng and Soweto also connecting Lufhereng to Johannesburg and other areas (See Map 5). As pointed out by *Peberdy et al.* (2017), connectivity plays a major role in minimising the negative effects of peripherality and also noted by Burton (2001) advances social equity as it minimises marginalisation and improves access to people who are geographically on the periphery to the core.

4.6 Conclusion

Lufhereng is already a project that is used as a flagship for the mega projects that are planned. It has mutual characteristics to these mega projects. As detailed in Doornkop Business plan, Lufhereng has a great potential to function as a sustainable human settlement. This is however dependent on the implementation of the implementation of the economic aspects of the business plan. The next chapter

provides the findings and analysis of the study on the notion of Lufhereng as a sustainable human settlement.

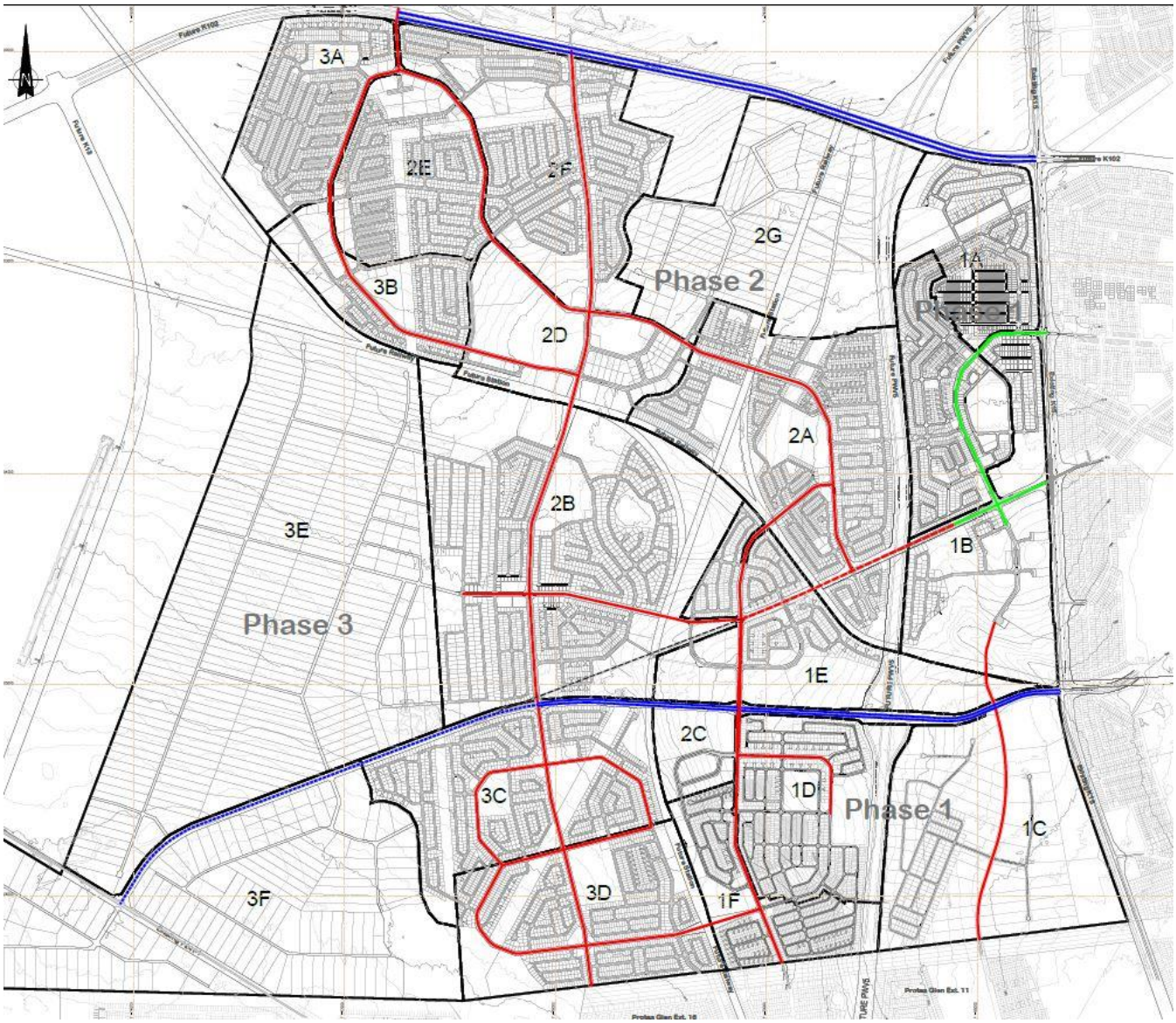


Figure 5 Map showing bulk roads in Lufhereng, future and existing roads

Chapter 5. Findings and Analysis

5.1 Introduction

This chapter covers findings that are made from data collected in the field from the residents of Lufhereng Mixed Development and from an interview with Charles Davis, Lufhereng Project Manager from the City of Johannesburg Housing Department. The chapter presents findings while simultaneously analyzing them in light of the concept of sustainable human settlement which Lufhereng is designed to be. The first section of the chapter focuses on the demographic profile of households in Lufhereng. The demographic profile is solely based on the sampled group. There are a total of 179 people in the 40 households that are sampled. The subsequent sections are reports and analyses of the findings of people's views and experiences under the following categories: mixed land uses, mixed income housing; location of Lufhereng in relation to Johannesburg, the major hub of economic activity in South Africa and other previous areas of employment; employment and work opportunities in Lufhereng; livelihood strategies of the poor in Lufhereng income generation for residents of Lufhereng; and promotion of food security. These categories are used because of their significance in bringing about the sustainable human settlement especially on the urban peripheries. The last section outlines the protocol and daily experiences of living in Lufhereng as told by both residents and the key informant in the project.

5.2 Demographic Profile for Lufhereng

5.2.1 Average Household Size

At the time of research, there are about 2 100 houses built and occupied in Lufhereng Proper and Extension 1, as part of Phase 1 of the development (Lufhereng, undated). Using average household size for the City of Johannesburg, which is 2.7 in 2016 (Statistics South Africa, 2016, cited in City of Johannesburg, 2016), the population size estimate in Lufhereng would be at about 5 670. However, from the sample size of 40, the average household size in Lufhereng works out to 4.48. The largest household has 10 members while the smallest has one member.

Similar to Beall and Kanji's (1999) conceptualization of an urban household, majority of households investigated in Lufhereng show some complexity, they do not consist of a basic nuclear family but have grandchildren and a wider kin networks living together.

Whereas Beall *et al.* (2000) credit big family unit, as basis for a big household to socio-economic factors such as lack of employment, which are claimed to be motive for increased reproductive activities and their familial relationships in low income communities, there is no reflection of this in the composition of the families in Lufhereng, and the big households mainly constitute the basic family structure living with relatives.

Lufhereng also align with Peberdy *et al.* (2017) demographic description of peripheral areas, which allude to high percentage of household sizes compared to core areas, in this case the City of Johannesburg. There is a considerable difference in average household size between the City of Johannesburg and Lufhereng

Another possible explanation to bigger household size in Lufhereng could be due to the multigenerational structure of most households in Lufhereng. Out of 40 sample households, 24 are multigenerational. The high cost of housing, high rate of unemployment and unskilled youth population are some of the factors that contribute to the formation of multigenerational household especially in low income populations. There is also a prevalent practice/tradition of elderly living with their adult children and their grandchildren, including their relatives among black populations. Multigenerational households have for a long time been an important feature of South African communities and their socioeconomic fabric, nevertheless, they create a challenge for policymakers in the provision of low income housing.

5.2.2 Age Profile

With different age groups in the sample, there are more people in the age group of 19 – 35 years than other age groups (Figure 1). If this is extrapolated to the whole population of Lufhereng, it would mean that Lufhereng has high youthful economically active population. This is the age group that consists of people who are

entering the job market. Lufhereng therefore has potential to tap into skills and higher productivity which go together with youthful economically active population. With implementation of skill development programmes, the high youthful economically active population can better be suited for higher productivity and enable economic expansion in Lufhereng. Moreover, the number of the overall working age group, of ages 15 - 64 is high for the sample group. This perhaps reflects Peberdy *et al*. (2017) findings of high proportion of economically active immigrants on the urban periphery as spaces of cheaper accommodation hence entry point into the city.

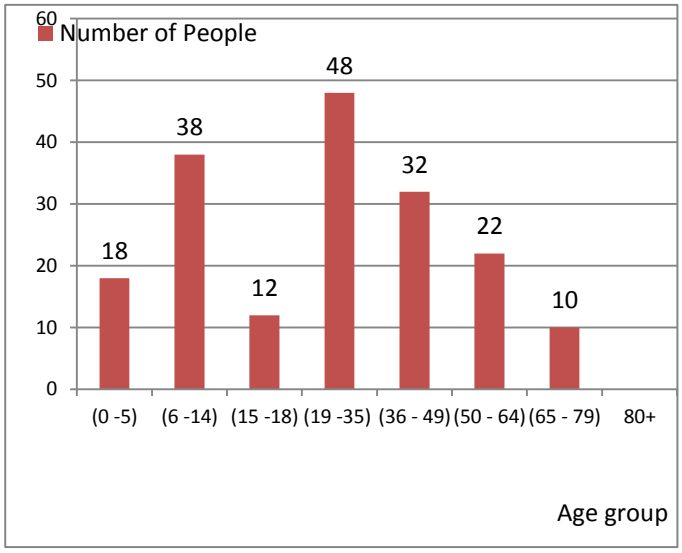


Figure 1 Number of People in Different Age Groups

The highest population is then followed by the young population between the ages of 0 and 14 years. The lowest population is of the elderly, aged 65 and above. Whereas Peberdy *et al.* (2017) found both the population of the elderly and the children to be high in the peripheries, in Lufhereng the elderly population is smaller, perhaps this is an indication of decreased life expectancy. In one particular housing unit, the occupants are children of the mother who died not long after they moved to Lufhereng.

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5.2.3 Employment Profile

From the sampled size of 179 people, 114 people fall within the economically active population (EAP). Of this group, only 46 people are employed, with 23 in informal sector and the other 23 in the formal sector. The remainder, which amounts to 68, is people that are unemployed and are looking for employment

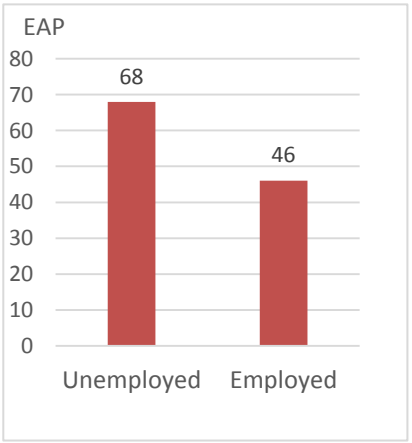


Figure 2 EAP Graph

(Figure 3). Within this value the youth unemployment is significantly high at 31%. Youth unemployment is generally high for the City of Johannesburg, amounting to 35 % of the city's EAP (Statistics South Africa, 2016). Johannesburg, as the capital of the wealthiest province, Gauteng, is perceived as a city of affluence, therefore attracts large number of job seekers especially of the young population. As a result, Johannesburg has high youth unemployment. It is no shock therefore that Lufhereng presents similar trend in terms of unemployment rate, however, because Lufhereng is designed to be self-sufficient, with its own economic base, the expectation consequently is of a low unemployment rate.

Furthermore, for the many people that have identified themselves as unemployed and seeking employment, there is no physical effort made to get to places of employment. All the residents identify the high cost of travelling to these places of employment as the limiting factor. Only four people indicate that they travel to places of employment in search for jobs. Two people travel to Johannesburg CBD, one to Lenasia and another travels to more affluent areas nearby including Protea South, in search of employment. For the two that go to Johannesburg, one goes three times a week while the other goes only twice. The one to Lenasia makes four trips per week while the other affords the cost of travelling for two weeks per month. In relation to employment, many residents who come from Protea South Informal Settlements have the view that they are worse off since they moved to Lufhereng because they now can no longer walk to get to areas such as Protea Gardens Mall (the Mall in Protea South), Lenasia or Protea North or use cheaper trains to get to other places of employment. One resident had this to say about his state of unemployment.

> *"We are surely grateful for the house we have received. It is way better than living in a shack. But there are certainly no jobs around here. I and my brother live together and we are both unemployed. Sometimes selling this house feels like an ideal option when you go for days without food and other things you really need. You know, in Lufhereng we could take a train and go to Jozi (Johannesburg) to look for work. But to have to walk to Protea South to catch a train would take hours and on coming back? It would not work. Now we are here, with no work and it seems*

like we are not even looking for work because you need money to go look for work".

5.2.4 Household Income

The average household income in the sample group is R 4,851.25. There are substantial differences in the individual household incomes. The lowest household income is R1, 050 for a household of 6 members, and the highest is R12, 800 also for the household of 6 members. For many people that are employed, regardless of the sector of employment the income is generally low, this could be attributed to unskilled labour as many poor people often lack skill to improve livelihood opportunities.

A contributing factor to this highest household income in this population that is supposedly poor and should have their income within the R0 to R3500 bracket to qualify for a housing subsidy is the pooling of income of all family members that are working. The household has two working adult children (in a formal sector) who live with their parents and children. Their father also works but in an informal sector. The mother looks after the grandchildren but twice a week she goes to Protea North to do domestic services.

Social grants contribute largely to the majority of household incomes for the current residents of Lufhereng. Of the 40 sampled households, 36 households get some kind of social grants. Only four households do not get any kind of social grant. Four of the households are completely dependent on social grants as their only source of income. For some households, monthly income varies as people in these households persistently engage in diverse activities to bring in additional income. One household rents out its container in the yard to the Somalis to run a spaza shop. The respondent from the household claims they cannot afford to run the spaza shop. The respondent runs a salon in the house while the mother works somewhere else as a domestic employee. The overall income for this household also depends therefore on the clients the respondent gets monthly. In another household, a member engages in doing small domestic jobs in households in the nearby townships. This is what she has to say about it:

“I sometimes go to Green Village or Protea Glen, I walk from one house to another, asking if I can do washing and ironing for them. If they give me a job, I sometimes get R50, R100 or R150 and other times they also give me some grocery”.

5.3 Integrated Developments in Lufhereng

Similar to what Dempsey et al (2012) distinguish as essential to social sustainability, and what Moldan *et al.* (2012) and Mac Neill (1989) articulate as crucial for economic sustainability, Charles Davis, the Lufhereng Project Manager defines sustainable human settlement in the same context. He defines it as an operational human settlement from its financial perspective, that is the human settlement that is able to function on its own with its income and internal support regardless of its location; it has enough money to support the shops, enough income to support the families and enough rates and taxes generated within to pay for maintenance of its infrastructure (Personal communication with C. Davies 28.04.2017). He continues to say the township must have clinics, schools, other social and economic amenities, and job creation drivers (ibid). All these components speak to mixed developments within the township, and show how very essential integrated developments are to bring about sustainable human settlement.

Whereas Lufhereng is designed to be a sustainable human settlement with integrated developments, both Davis and the residents of Lufhereng disclose that many of the components of the mixed developments are still missing in Lufhereng. Lufhereng only has residential elements of the development albeit incomplete. According to Davis (Personal communication with C. Davis, 28.04.2017), Lufhereng is 10% in its delivery of achievement of its housing of 24 000 housing opportunities. Both Davis and the residents point out that Lufhereng has one permanent school and one temporary school built as part of the institutional component; that there are still no clinics, libraries, community or religious centres; no recreational facilities; and no commercial hydroponics of the planned agricultural hub or shopping centres. There are also no administrative facilities such as police station, post office and municipal offices. As a result of the absence of these developments, residents of Lufhereng have to travel out of Lufhereng in order to benefit from these

developments, this leads to an exorbitant cost of living in Lufhereng, and exacerbated state of poverty among the poor in Lufhereng.

Contrary to the ULEDP (2014) report, which states that some of the planned economic projects are already operational, such as agriculture, forestry and fishing, garage, wholesale and retail trade, catering and accommodation and manufacturing, the findings of the study confirmed that no commercial or proper subsistence farming occurs; no forestry and fishing, no wholesale and retail trade except the spaza shops, and no manufacturing as yet. The garage that is operating is close to Lufhereng but again it was there before the implementation of the project.

5.3.1 Residential developments in Lufhereng

The housing part of residential element of integrated developments in Lufhereng flaunts mixed typologies of free standing, semi-detached and row housing units (figure 4(a, b and c respectively)). The semi-detached units are two individual units sharing a wall and row housing units have walls joined, making a single row of three or more units. Row units also include the walk-ups which alternate with single level houses (figure 4c). The housing component in Lufhereng currently consists only of fully subsidized housing. There is still no erection of financially-linked (lower bonded and bonded) housing and social housing. Davis highlights though that in May 2017, Johannesburg Social Housing Company (JOSHCO) is set to commence with social housing on serviced area. The CoJ (2015) pinpoints inadequate infrastructure on site, particularly electrical supply, as having been a limiting factor to providing financially–linked housing concurrently with fully subsidized housing, as financial institutions only offer housing mortgage for fully serviced sites.

The mixed housing typologies offer aesthetically pleasing view to the neighbourhood and bring about distinct features of suburbia such as street edges with verandas and plants, as opposed to the previous housing subsidies commonly known as RDPs, which provided one housing typology, stretching over large piece of land, with great amount of homogeneity. The mixed housing typologies in Lufhereng also offer passive surveillance of the streets, an aspect that the design of the area took into consideration in order to improve security and reduce crime. However, the residents

do not make mention of this vital aspect when they voice out their dissatisfaction on the typologies they have received, which could mean that the residents are not fully made conscious to this benefit of mixed housing typologies. As a result, they only observe what they are not most happy about but do not get an opportunity to consider the trade-offs that are made, something that would perhaps enable them to be more appreciative of the houses they receive.



(a) Free standing unit (Iwan Baan)



(b) Semi-detached (Nic Huisman)



(c) Row housing units (Nic Huisman)

Figure 4 Existing housing typologies in Lufhereng (http://2610south.co.za/gallery2.php)

There is a general sense of satisfaction over the housing tenure among the residents. With every household engaged in the study, people are most satisfied to own a house, understandably so as these houses are full subsidies, given to people that would otherwise not be able to own a house if not assisted by the state. Furthermore, all the residents have been on the waiting list for subsidised houses for a long time, while mostly living in conditions that were crowded and risky. Of the forty interviewed, twenty-seven households are former residents of the Protea South Informal Settlement, two come from Greater Soweto, seven from Doornkop and four are relocated to the project from Bram Fischerville. One resident from Protea South Informal Settlement particularly mentions that she is happy to own a house as she now has electrical supply that is mainly safe for her and her children, something that was not possible in the informal settlement as electricity was illegally connected (one resident's input during the survey).

Notwithstanding that all interviewed residents are happy to own a house, the residents claim they were not given the opportunity to choose their dwelling type, in contradiction to what is claimed by the CoJ (2008), that residents would be allowed to choose the unit that meets their needs. The level of satisfaction in relation to the

type of dwelling people got varies among the residents. Those who occupy free-standing units are the most satisfied with their dwelling type, followed by those who occupy semi-detached units. Some people in semi-detached units are dissatisfied with their units, pointing out that they are limited in how they extend their units because of sharing a wall with the other unit. There is also a significant amount of dissatisfaction from people who are in row housing units, which stems from not being able to build rooms for rental purposes in their backyards due to lack of access to the backyard except by going through the house. Similar to what Beall and Kanji (1999) the residents of Lufhereng regard backyard developments a livelihood strategy that particularly provides an additional income especially in the urban peripheries due to high demand for accommodation in the city and backyard developments in the urban periphery offering an affordable alternative.

Although Lufhereng is intended to mix different income groups in amongst each other, there are visible clusters of fully subsidized houses, with no spaces within the cluster to accommodate for the development of financially-linked housing to enable a thorough mix of different income groups within the township. This pattern of housing exhibits what Haferburg (2013) identifies as potential 'townships of tomorrow' for South Africa, in which a suburb consists of smaller isolated neighbourhoods of different income groups with possibly minimum to no social mix between residents of the neighbourhoods even though the residents may be sharing same resources of the suburb. Lufhereng Project, like all other sustainable human settlement projects, is driven by the inclusionary vision of the post-apartheid planning, which aims to attain thorough mix of different income groups within a suburb so as to heal social ills within the society, resulting from segregation of apartheid era.

Attaining thorough mix of different income groups within a suburb in a manner that eliminates separate neighbourhoods remains a challenge for planners, human settlement officials and financial institutions. Although the challenges are diverse and sometimes fuelled by class segregations, the funding regime in housing seems to contribute to most challenges. For instance, the financial institutions are not interested to fund houses that are in close proximity to fully subsidised houses due to high risk associated with this. Davis points out here that when bonded houses are built surrounded by full subsidies, the people in bonded houses eventually stop

paying their bonds, as their neighbours in full subsidies are not paying, and banks lose on their returns for their shareholders and investors. It becomes impossible to evict a large group of people in the same area. In Lufhereng, some sections which were initially zoned for bonded housing, which are in close proximity to full subsidies, had to be released to full subsidies as banks would not bond the houses. Moreover, the financial institutions do not recognise state asset in the form of a full subsidy, regardless of the value the asset carries. This limits people in these assets from accessing finance in the form of loans against their houses.

5.3.2 Accessing Facilities, Services, Retail and Shops

Of the fourteen primary schools and six high schools planned for Lufhereng (CoJ, 2008), there is only one primary school and one secondary school in existence and in use in Lufhereng. Most of the households interviewed have their children going to these schools. The parents and/or caregivers of the pupils in these schools are generally happy about the schools and the services the schools offer. They are mostly happy that the schools are close to their homes and hence they do not have to spend money to get their children to the schools. There are some households who send their children to schools outside Lufhereng, incurring transport costs in the process. This is due to the language barrier that these children experience in the two schools in Lufhereng. Other reasons include parents/caregivers who work outside Lufhereng and have no one to care for the children at home when the children return from school with the parent at work. These children go to schools that are in the same area as their parents' work place. The schools in Lufhereng are also attended by children who live outside Lufhereng. The high population of school going children in Johannesburg and the shortage of schools could be the reasons children travel long distances to access schools outside their areas.

There are no healthcare facilities in Lufhereng. The majority of the residents use the clinic in Green Village. Lufhereng and Green Village are adjacent neighbourhoods divided by R558 road. The clinic is within 5 km radius of the built-up section of Lufhereng, hence a walking distance for Lufhereng. The clinic tends to be overcrowded and seems to be understaffed for many residents of Lufhereng and it is not pleasant to use. To a few, clinics in Protea Glen, Zola and Shawela provide an

alternative to going to Green Village, however, to get to these places involves transport costs. There are no general practitioners, pharmacies or drug stores in Lufhereng. Residents also use Leratong hospital which is located in Kagiso and is within a 10 km radius to the build-up section of Lufhereng. Although there are traditional healers in Lufhereng, many residents assert to not using them. Those who use them are generally happy

5.4 Employment and work opportunities in Lufhereng

There are a few people that have worked in the Lufhereng Housing Project previously but not for more than three months. For all the interviewees who worked in Lufhereng project, their work was in construction of the school. There is high level of unemployment in Lufhereng in general, and a sense of no job opportunities in the area. Many of the jobless interviewees were hoping to get a job in the project. Many claim that the developers brought their own people and did not care about Lufhereng residents. One contractor who lives in Lufhereng but did not get employed in the project was specifically emotional about the experience. The extract below gives his story.

> *'I am a contractor and have 15 years of experience in my job. I am original from the Doornkop village that existed here way before this project. When they introduced this project to us, they told us that we the beneficiaries of the project are going to work in the project according to our expertise. They told us that they would give s first preference. But when work started, they went for the elite contractors. They could not even tell me to my face that they would not give me the job. They only made me run around getting all they papers that they said I needed and at the end I had only wasted money but there was nothing to show for it'.*

Davis acknowledges that it would have helped the residents if they were employed in the project. However, not everyone could be employed as the different elements of the project require certain elements of expertise. In an effort to give as many people of Lufhereng a chance to work in the project, people could only work for three months in order to give others a chance.

Although housing provides few jobs in construction and end with the completion of the housing project (a factor that affects the concept of sustainability) sustainable human settlement in design has a component of job creation for people in the housing component of SHS hence meets the requirement of a project that can take on SL approach.

Although in Beall et al (2000) research study in Alexandra, north of Johannesburg, there were respondents who reported criminal activities as their source of income, in Lufhereng, there was one household with two youthful male occupants who were unemployed and looking for employment, while also not receiving any grant for sustenance, however, they did not classify crime as their source of income. They did say they have no source of income and rely on social capital for day to day sustenance. None of the respondents classified criminal activity as a source of income. However, residents complained about high rate of crime within their neighbourhood.

5.5 Income Generation in Lufhereng/livelihoods strategies in Lufhereng

Many of the Lufhereng residents who are not employed Beall and Kanji's (1999) findings, many of the Lufhereng residents who work are in the informal sector. Many engage different livelihood strategies as a coping strategy for survival or for income accumulation. Some of the strategies employed include domestic services; many women are domestic workers in surrounding neighbourhoods.

There is also a significant number of households where there is only a husband and a wife, the children are being taken care of by a family member in the rural area such as Limpopo. The parents that are in Lufhereng sent money on monthly bases to these homelands.

There is also a few households which have some of their members staying somewhere else during the week, only joining the rest of the household weekly or monthly while they contribute to the household income through remittance.

5.6 Promoting Food Security

Many of Lufhereng residents are not practicing subsistence farming even though their yards are big enough to allow them such privilege. They claim the soil is of poor quality for any plants to grow. There are a few residents however, who are able to grow vegetables in their yards, in the variety of spinach, radish and kale. Some residents, in the effort to promote food security have chosen to use the site that is zoned for commercial agriculture to grow their vegetables. They claim the reason they are growing their vegetables at that particular site is because the soils are richer there, increasing their yield more compared to when they try grow the same vegetables in their yards. The other reason they give for using the commercial agricultural site is it is staying idle when they do not have food to eat.

Out of all the interviewees, only two of those engaging in this practice also sell their yield to increase their capital asset. They all claim that their profits vary but are good enough. The only challenge is they know they are not supposed to be using this site, as it can be transformed any day and if that happens, they will lose their investments.

5.7 Protocol and Rules Governing the Community of Lufhereng

One of the most repeated answers from Lufhereng residents with regard to the protocol of leaving in Lufhereng is that they are not at all supposed to build close to the wall of the house, at least for a period of eight years or until they get their title deeds. Although that is the protocol they are told not to break, a significant number housing units have already constructed additions to their housing units, some for commercial purposes as they also run a spaza shop, or sell vegetables or other small items useful to the community. It took me to hear from Charles Davis to actually get to understand the actual instruction and why it was given. Lufhereng is a site that has fragile geotechnical profile. It sits on a dolomite that is susceptible to sink holes. There are specificity to what can be done where along the site as the rock is zoned according to its stability. Charles Davis emphasised that there is an understanding of the importance of livelihoods among the poor, aligning his explanations with those livelihoods strategies of the poor identified by Chambers

(1995), Farrington et al (2002) as well as Beall and Kanji (1999). Although planners are working around incorporating these livelihoods into their zoning and provisions of sustainable human settlements, the residential site in Lufhereng can only accommodate what is already there, the housing unit, any extensions to the housing unit will exceed the set limitations stipulated by the geotechnical analysis (Charles Davis, from personal conversation).

There is clearly a need for effective communication to the residents of Lufhereng so that such important aspects to their safety can be understood. None of the residents articulated any knowledge or understanding relating to geotechnical aspects of the site, although it is the reason the residents are not allowed to extend or build backyard rooms for rental.

5.8 Conclusion

From the views and perspectives of residents of Lufhereng, as well as from the Lufhereng Project Manager, Lufhereng is currently failing to manifest as a sustainable human settlement because it is not an integrated development. Although there is an acknowledgement from the residents and the project manager that it is not yet a consolidated project, failure to implement certain concepts of sustainable human settlements such as social and economic components continue to marginalise the poor that are allocated low-income housing in Lufhereng and to undermine the efforts of poverty reduction expressed in the provision of low income housing. Since provision of sustainable human settlements requires many spheres of government and their departments to work together, not only in the implementation but also in planning and budgeting of sustainable human settlements, the mega projects will possible manifest as unsustainable human settlements unless the approach adopts a different strategy to that applied in Lufhereng.

Chapter 6. Recommendation and Conclusion

6.1 Conclusion

The study assessed the lived experiences of residents of Lufhereng mixed housing development, a large-scale greenfield development that is peripheral and designed to be a sustainable human settlement in line with BNG objectives and principles. The experiences were assessed on the elements of sustainability of the project. The study seeks to inform the proposed mega projects of clusters and new cities on the lived experiences of a project that has mutual characteristics to the proposed clusters and new cities. The proposed clusters and new cities are highly critiqued in literature even though they have not yet been implemented. Hence this study seeks to shed light on what the lived experiences of such projects are in the hope that it would either confirm or dispel the critiques or introduce another angle new altogether.

The study has confirmed the critiques against mega projects as the findings show residents that are mostly dissatisfied. Although Lufhereng project has not yet consolidated, it lacks the elements of sustainable human settlements and residents find themselves isolated and marginalised. They do not have much access to places of employment or employment. They are also trapped in a place that offers them no facilities, retail or services. There are only a few educational facilities, no health facility for Lufhereng residents, no cultural, recreational and administrative amenities even though the people have been living in the project for six years at the time of the study.

There are also no shopping centres; the only prominent businesses in Lufhereng are the home-based businesses such as spazas, hair salons and taverns. Some residents are happy about the presence of spaza shops, as they provide services that are otherwise costly to access; some residents feel that spaza shops are expensive. A few residents are unhappy about the spaza shops. They claim the spaza shops are mostly owned by foreign nationals. They feel the foreign nationals intentionally got them out of business.

Moreover, most people feel that their household income has decreased since they moved to Lufhereng, because it is costly to access facilities and services there are no jobs in Lufhereng and people spend more money getting to places of employment. Even though people have free water and municipal services, electricity is expensive, many residents feel that there are few employment opportunities and they are not benefiting from those opportunities. For those who have worked in job opportunities in the project, there was no training provided to benefit the residents in a long run and create sustainability in employment.

On promoting food security few people are engaging in subsistence farming. There is no planned economic project implemented.

Even though there is mixed typology, it is only RDP houses that are completed and there is no integration that allows mixed income groups to live together. As a result there is no buying power which could attract businesses into Lufhereng.

6.2 Limitations to the study

As noted before, the Lufhereng project has not yet consolidated, as a result it could not truly show how it would perform as a sustainable human settlement in the absence of all that make a settlement sustainable.

The implementation process used by all officials overseeing the project have to be reviewed as they tend to strain the lives of people they are supposed to assist. For instance, if the housing component could be implemented together with some economic activities for job creation then the people who receive the housing units would not find themselves stranded, isolated and marginalised.

Although the livelihood strategies could benefit the delivery of sustainable human settlements in that they prioritise and engage the poor, and they also enforce holistic response and cooperation from different sectors, spheres of government and departments, proper assessments of livelihoods has to be done. This study was limited by the size of the sample to actually generalise over the whole population.

6.3 Recommendations

As already implied, the BNG as a plan can be more productive if it is paired with sustainable livelihood approaches in the delivery of sustainable human settlements. The sustainable livelihood approaches provide the plan with solution towards lack of coordination and cooperation between different departments and sectors. It also engages the poor in the development, strengthening their efforts and empowering them to make livelihoods especially in the climate of ever increasing unemployment rate and high and growing populations of people living in poverty.

Although the designs and plans for sustainable human settlements are comprehensive and detailed, the successes of them manifesting as sustainable human settlements are limited. Since it is indicated in literature that geographically peripheral localities have a potential to be sustainable (cf. Schoonraad, 2000), one can then conclude that their failure to manifest as sustainable human settlements is not so much in the geographical peripheral nature of the area but in the failure to incorporate integration at the onset of the project implementation. For instance, Lufhereng project began with the installation of bulk infrastructure in 2008, which was followed by top housing structures (only of low-income) which allowed residents to occupy. Overtime the two schools were provided. The rest of the amenities, services and facilities which are essential in bringing about sustainable human settlements have not been brought into the development even though residents have already been at the site for six years (at the time of the study).

There is a need for a better project management for these projects to become sustainable human settlements. This can be achieved with clear timelines of implementation, for instance a chronological sequence of events which will enforce availing essential services, amenities and facilities together economic opportunities.

Clear strategies about engaging public-private partnership should be articulated from the onset of the project and effectively managed to enable integration of elements of sustainability as early as the onset of the project.

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ANNEXURE

Interview Guidelines with Key Informants in the Lufhereng Integrated Urban Development Project

The key informants in the Lufhereng Mixed-use Development that I will be interviewing are:

1. The CoJ officials that are overseeing the project

Greetings

My name is Jasmine Ramosoeu. I am a student studying towards my Master's degree in Development Planning at Wits University. I am conducting a research to find out what the people's experiences are of a peripheral housing project with Lufhereng as my case study area. I will be documenting my findings in a research report which is a requirement to fulfil my Master's degree. All the information I collect in this interview will be used for this purpose. This interview is also completely anonymous and participation in the interview is voluntary. With your permission, I would like to record the interview using an audio recorder. If you are willing to participate, I will appreciate if you allow me to ask you a few questions. The interview will not take more than 45 minutes of your time.

Questions:

1. What are the main objectives of the project?
2. How many of these objectives have been achieved since the project was implemented?
3. Did you have to change some of the plans and objectives as the project unfolded?

4. Lufhereng is planned to be a sustainable human settlement, what is a sustainable human settlement?
5. What are the elements of a sustainable human settlement that are planned for Lufhereng?
6. Which ones are already implemented?
7. Does Lufhereng have an economic base?

8. What agricultural projects have been realised in Lufhereng?
9. Where do residents of Lufhereng work?
10. According to the economic development plan, there are many projects that are planned for Lufhereng, how many of these have been realised?
11. Which of these have provided employment to the residents of Lufhereng in particular?
12. What kinds of job opportunities are available in Lufhereng?

13. What facilities and amenities are there in Lufhereng?
14. How satisfied are you with the facilities and amenities that are there?

15. What do you allow for residents of Lufhereng to have on their houses and sites?
    - Subletting?
    - Zozos?
    - Saloons?
    - Tuck-shops?
    - Backyard developments?
16. What protocols are in place to follow in getting permission to do any of these things?

17. What would you classify as the successes and failures of the project up to this stage?
18. There has been big delays in the implementation of the project, are there any plans in place to make sure that the project will not delay any further going forward?
19. How satisfied are you with the project this far, in relation to what you envisioned for the project at the beginning before it was implemented?

PARTICIPANT INFORMATION SHEET (COJ OFFICIAL)

Lived Experiences of Large-Scale Housing Developments on Urban Peripheries: The case of Lufhereng, at the Western Edge of Soweto.

Greetings

My name is **Jasmine Ramosoeu** and I am a full time student studying towards an **MSc DP** in the School of Architecture and Planning at the University of Witwatersrand. I am conducting a research to investigate the **lived experiences of large scale housing developments on urban peripheries, with Lufhereng as my case study.**

I am inviting you to be part of the study by being an **interviewee**. The interview will take no longer than **45 minutes** of your time. The interview will be conducted in your office**.** During the course of the interview, you will be asked questions regarding the planning implementation and management of the **Lufhereng mixed-use development.** The interview will be **recorded** using an audio recorder.

You have been selected to participate in this study due to you being the official that manage the project within the City of Johannesburg, or the official in Urban Dynamics, the consulting company that engaged with the project from conceptualization, through feasibility, urban design, planning and implementation. Your participation is **voluntary**, you may refuse to answer any questions that make you uncomfortable, and you may withdraw at any time without penalty or loss. You will receive **no payment or other incentives for your participation.**

Your participation will also be completely **anonymous** and you will not be personally identified in the final report.

EXAMPLE: The results of the interview and your personal views **will not be linked to you in the final report.** In the event that I use direct quotations from this interview, please note that your identity will not be revealed. Any comments that you make that you deem "**off the record**" or similar, will not be quoted. Further, any information that you share will be kept **confidential** and can only be accessed by me on a **password protected computer**. There are also no foreseeable risks associated with your participation.

The research undertaken is **solely for academic purposes** and once completed will be available electronically and can be accessed publicly. If you have any questions, concerns, or comments or if you would like a copy of the final report, please feel free to contact me at **ramosoeuj@gmail.com** or my supervisor at Sarah.Charlton@wits.ac.za.

Jasmine Ramosoeu.

Master of Science in Development Planning
University of the Witwatersrand

PARTICIPANT INFORMATION SHEET (RESIDENTS)

Lived Experiences of Large-Scale Housing Developments on Urban Peripheries: The case of Lufhereng, at the Western Edge of Soweto.

Greetings

My name is **Jasmine Ramosoeu** and I am a full time student studying towards an **MSc DP** in the School of Architecture and Planning at the University of Witwatersrand. I am conducting a research to investigate the **lived experiences of large scale housing developments on urban peripheries, with Lufhereng as my case study.**

I am inviting you to be part of the study by being an **interviewee**. The interview will take no longer than **45 to 60 minutes** of your time. The interview will be conducted here in Lufhereng in your home**.** During the course of the interview, you will be asked questions regarding **your experience of the Lufhereng housing project, how you came to be in Lufhereng, how you and your household are experiencing it and whether or not it has created opportunities for you.** The interview will be **recorded** using a paper and a pen for hand written notes.

You have been selected to participate in this study due to you being a resident of this housing project. Your participation is **voluntary**, you may refuse to answer any questions that make you uncomfortable, and you may withdraw at any time without penalty or loss. You will receive **no payment or other incentives for your participation.**

Your participation will also be completely **anonymous** and you will not be personally identified in the final report. You will be allocated a number in order to record your data and will be referred to as **participant the number you are allocated.**

EXAMPLE: The results of the interview and your personal views **will not be linked to you in the final report.** In the event that I use direct quotations from this interview, please note that your identity will not be revealed. Any comments that you make that you deem "**off the record**" or similar, will not be quoted. Further, any information that you share will be kept **confidential** and can only be accessed by me on a **password protected computer**. There are also no foreseeable risks associated with your participation.

The research undertaken is **solely for academic purposes** and once completed will be available electronically and can be accessed publicly. If you have any questions, concerns, or comments or if you would like a copy of the final report, please feel free to contact me at **ramosoeuj@gmail.com** or my supervisor at Sarah.Charlton@wits.ac.za.

Jasmine Ramosoeu.
Master of Science in Development Planning
University of the Witwatersrand

QUESTIONNAIRE GUIDELINES FOR HOUSEHOLDS

SCHOOL OF ARCHITECTURE & PLANNING

Greeting! My name is _____. I am a student at Wits University and I am conducting a research here in Lufhereng to find out what the people's experiences are of a peripheral housing project, how people access employment and other facilities, and whether transport development plans are responsive to residents' needs of access. I will be documenting my findings in a research report which will be available as an electronic resource in the library of the University. All your information will be treated confidentially and anonymously. Would you like to participate in my research? It will take about 45 to 60 minutes of your time.

How old is the respondent? _____ (Only respondents 21 and older are eligible)

SECTION A

HOUSEHOLD DEMOGRAPHICS

Position to the household?	How many people live in this household?	Ages in the household	Gender	Occupation	Who is in school or in higher education? How many?	Where is school/work geographically located from the household?	How do members of this household get to the place of employment/school?	How long does it take members of the household to get to work/school?
Head 1 Spouse 2 Son 3 Daughter 4 Brother 5 Sister 6 Father 7 Mother 8 Brother in law 9 Sister in law 10 Cousin 11 Niece 12 Grandson 13 Granddaughter 14 Other relative 15 Other (specify) 16		0 – 5 1 6 – 13 2 14 – 18 3 19 – 34 4 35 - 49 5 50 - 64 6 65 - 79 7 80+ 8	Enter M or F	Employed • formal sector 1 • informal sector 2 Self-employed, own business, • work from home 3 • NOT work from home 4 Unemployed, • looking for work 5 • NOT looking for work 6 • Do not want to work 7 • Disabled 8 Housewife/Home-maker 9 Pupil/Student 10 Retired/pensioner 11	Schooling 1 Higher education 2 Not schooling 3	in a radius of: within Lufhereng 5km 10km 15km 20km 25km 30km 40km 50km 60km 70km 80km and more	Walk 1 Bicycle 2 Taxi 3 Bus 4 Train 5 Private car 6 Different modes Of transport 7	
1								
2								

3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						

SECTION B

1. RESPONDENT AND HIS/HER HOUSEHOLD BACKGROUND				
When did your household move to Lufhereng? (Month, Year)?	**Where did you come from when you first moved to Lufhereng?**	**Did everyone living in this house move from the same previous dwelling? If not. Where did they come from?**	**What type of dwelling was your household living in before this one you currently live in?**	**How did your household come to be in Lufhereng?**
	Protea South Informal Settlement 1 Greater Soweto (waiting list) 2 Doornkop 3 Bram Fischerville 4 If other, **please specify** 5		House or brick/concrete structure 1 Traditional dwelling/hut/structure made of traditional materials 2 Flat or townhouse 3 Informal dwelling in an informal settlement 4 Informal dwelling in the backyard of a formal dwelling 5 If other, **please specify** 6	We applied for the RDP house 1 We were relocated to the project 2 We purchased a house in the project 3 We rented a room in the project 4 We rented a house in the project 5 If other, **please specify** 6

2. HOUSING TYPOLOGY IN LUFHERENG				3. DWELLING TENURE IN LUFHERENG			
What type of dwelling does this household occupy?		**How satisfied are you with the dwelling you are currently living in?**		**Please tell me about your tenure in this dwelling. Is it**		**How satisfied are you with your dwelling tenure?**	
Free-standing unit	1	Very satisfied	1	Owned (bonded housing)	1	Very satisfied	1
Semi-detached unit	2	Satisfied	2	Owned (partially subsidized housing)	2	Satisfied	2
Row housing unit	3	Neither satisfied nor dissatisfied	3	Owned (fully subsidized housing)	3	Neither satisfied nor dissatisfied	3
Walk-up unit	4	Dissatisfied	4	Rented (Social housing)	4	Dissatisfied	4
If other, **specify**:	5	Very dissatisfied	5	Sub tenant or sublet	5	Very dissatisfied	5
		Why?		Private rental	6	**Why?**	
				If **other, specify**:	7		

4. HOUSING UNITS IN LUFHERENG	
Were you able to choose the design of your house? If so who assisted you?	
What specifically did you get in this settlement in terms of: • the size of the house (number of rooms) and • the level of service (electricity; water; flush toilets; tarred roads etc)?	
Is the stand you own the right size for your needs? Why (may need more space for parking, running a spaza, garden, extending your house etc.)?	
Do you have any special features in your house to save water, electricity etc.?	

5. FACILITIES AND RETAIL/SHOPS IN LUFHERENG

a) Educational facilities

Is there any member of your household who uses the following educational facilities in Lufhereng? How far is the facility from your household?				Crèche	1	Preschool	2	Primary	3	Secondary	4	Adult learning centers (ALC)	5		
How do you get to these facilities?	Crèche	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private car	5	Other:	6		
	Preschool	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private car	5	Other:	6		
	Primary	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private car	5	Other:	6		
	Secondary	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private car	5	Other:	6		
	ALC	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private car	5	Other:	6		
How satisfied are you with these facilities in Lufhereng?	Crèche	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5				
	Preschool	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5				
	Primary	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5				
	Secondary	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5				
	ALC	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5				
Why?															
If not using these facilities in Lufhereng, where do you access them?															
Why do you not use these facilities in Lufhereng?															

b) Health facilities

Which of these health facilities do you have in Lufhereng? How far is the facility from your household? Do you or members of your household use any of these facilities?				Clinic	1	General Practitioners	2	Dentists	3	Pharmacy/drug store	4	Other:	5		
If yes, how do you and your household get to these facilities?	Clinic	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private car	5	Other:	6		
	GPs	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private car	5	Other:	6		
	Dentists	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private car	5	Other:	6		
	Pharmacy/drug store	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private car	5	Other:	6		
	Other:	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private car	5	Other:	6		
How satisfied are you with these facilities in Lufhereng?	Clinic	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5				
	GPs	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5				
	Dentists	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5				
	Pharmacy/drug store	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5				
	Other:	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5				

Why?																			
If not in Lufhereng, where do you and your household access these facilities?																			
Why do you and your household NOT use the facilities in Lufhereng?																			

c) Cultural facilities

Is there any of these facilities in Lufhereng?				Library	1			Community Centre	2			Religious Centre: churches / synagogues / mosques etc.	3						
If yes, how far is the facility from your household?																			
Have you or members of your household used any of these facilities?																			
If yes, how do you get to these facilities?	Library	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private car	5	Other:	6						
	Community Centre	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private car	5	Other:	6						
	Religious Centers	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private car	5	Other:	6						
How satisfied are you or members of your household with these facilities?	Library	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5								
	Community Centre	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5								
	Religious Centers	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5								
Why?																			
If not in Lufhereng, where do you and your household access these facilities?																			
Why do you and members of your household NOT use the ones in Lufhereng?																			

d) Recreational facilities

Is there any of these facilities in Lufhereng?				Sport field	1			Stadium	2			Sports clubs	3			Playgrounds	4		
If yes, how far is the facility from your household?																		Parks	5
Have you or members of your household used any of these facilities?																			
If yes, how do you or members of your household get to these facilities?	Sport field	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private car	5	Other:	6						
	Stadium	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private car	5	Other:	6						
	Sports clubs	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private car	5	Other:							
	Playgrounds	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private car	5	Other:	6						
	Parks	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private car	5	Other:	6						
How satisfied are you or members of your household with these facilities in Lufhereng?	Sport field	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5								
	Stadium	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5								
	Sports clubs	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5								
	Playgrounds	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5								
	Parks	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5								

Why?	
If not using these facilities in Lufhereng, where do you or your household use them?	
Why do you and your household NOT use these facilities in Lufhereng?	

e) Administrative Facilities

Which of these facilities do you have in Lufhereng? How far are these facilities from your household?		Post Office	1	Police Services	2	Fire Services	3	Information Centers	4	Municipal Offices	5				
Have you or members of your household used any of these facilities?															
If yes, how do you and your household get to these facilities for services?	Post Office	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private Car	5	Other:	6		
	Police Station/Office	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private Car	5	Other:	6		
	Fire Station	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private Car	5	Other:	6		
	Information Centers	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private Car	5	Other:	6		
	Municipal Offices	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private Car	5	Other:	6		
How satisfied are you with these facilities in Lufhereng?	Post Office	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5				
	Police Station/Office	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5				
	Fire Station	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5				
	Information Centers	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5				
	Municipal Offices	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5				

Why?	
If not in Lufhereng, where do you and your household access these facilities?	
Why do you and your household NOT use these facilities in Lufhereng?	

f) Retail and Shops

Which of these facilities do you have in Lufhereng? How far are these facilities from your household?		Retail facilities	1	Grocery stores	2	Shopping Centre	3	Entertainment	4	Other:	5				
How do you and your household get to these facilities for services?	Retail facilities	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private Car	5	Other:	6		
	Grocery stores	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private Car	5	Other:	6		
	Shopping Centre	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private Car	5	Other:	6		
	Entertainment	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private Car	5	Other:	6		
	Other:	Walk	1	Bicycle	2	Taxi	3	Bus	4	Private Car	5	Other:	6		
How satisfied are you with these facilities in Lufhereng?	Retail	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5				
	Grocery Stores	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5				
	Shopping Centre	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5				
	Entertainment	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5				
	Other:	Very satisfied	1	Satisfied	2	Neither satisfied nor dissatisfied	3	Dissatisfied	4	Very dissatisfied	5				

Why?	
If not in Lufhereng, where do you and your household access these facilities?	
Why do you and your household NOT use these facilities in Lufhereng?	

6. HOUSEHOULD INCOME GENERATION		
Has the household income increased, decreased or stayed the same since the move to Lufhereng? Explain		
Are there any members of your household that are/were employed in Lufhereng? If yes, who are they and what do/did they do?		
Have they been trained for the job they do? Explain		
Does the household engage in any of the following informal activities to generate income? If so, who within the household does the activity?	• Sales of cooked or uncooked food 1 • Home-based tuck-shop 2 • Street vending 3	• Manufacturing (e.g. furniture and related household goods) 4 • Garbage recycling 5 • Renting out a dwelling/flat/room/garage/etc. 6

7. PROMOTING FOOD SECURITY FOR YOUR HOUSEHOLD	
Do you practice any subsistence farming? If yes, What do you grow? Why? Where do you grow it?	
Do you sometimes sell some of your produce to generate additional income?	
Have you incorporated some of the modern techniques in farming? Explain	

8. EMPLOYMENT AND WORK OPPORTUNITIES IN LUFHERENG	
Are there job opportunities in Lufhereng? If yes, what are they?	
Have you or members of your household benefited from these opportunities? Explain	
Are you or any member of your household currently the owner of a business in Lufhereng, one that you were responsible for starting up? If so who owns the business? What does it do and how old is it?	
Is this business in the formal or informal sector?	
Has the owner ever approached any government departments or agency that provides support for small businesses (SMMEs)? If so, did you feel empowered by the consultation? Explain	

9. PROTOCOL OF LIVING IN LUFHERENG

What rules apply to the residents of Lufhereng in relation to your house, site and plot? Can you add on a room, put up a 'zozo' or start a shop or a tavern in your house or on your site as you wish?	
Do you need permission? If so, who officially gives the permission?	
Are there measures in place for control of such developments? If so, who monitors and controls such?	
What is your opinion about these controls: having to get permission to develop on your site and the monitoring of it?	
10. EXPERIENCE OF LIVING IN LUFHERENG	
What is your perception as a result of your experience about the quality of the house you live in?	
What is your perception about the location of Lufhereng?	
Are you (residents of Lufhereng) accessing free or subsidized basic services such as water and refuse removal and municipal rates?	
Is the service that you receive poor or good?	
What is your view about the cost of living in Lufhereng? **(the mention of transport cost???)**	
From your observation or knowledge, who would you say comes to live, seek accommodation or socialize in Lufhereng?	
What about the schools in Lufhereng, do they seem to have more children from Lufhereng or neighboring townships?	
How long do you see yourself living in Lufhereng and why? Do you think your children will live here when they grow up?	
What are the three key issues that you are most satisfied with (positive experience) about living in Lufhereng?	

What are the three key issues that you are least satisfied (negative experience) about living in Lufhereng?	

SECTION C

HOUSEHOLD SOCIO-ECONOMICAND ACCESS ISSUES	
How far was the distance from place of employment/ school for the rest of the household members before the move?	
Did anyone from this household have to change place of employment/school since the move to Lufhereng? If so, Why?	
How many members of this household live here and go to work every day?	
- If not, where do others stay? Why?	
- How long have they worked there?	
How many household members are unemployed, for how long have they been unemployed? Why?	
What travelling changes did this household have to make since the move to Lufhereng?	
How has that affected accessing employment and getting a job in other areas and locally?	
Is there any member of the household that commutes weekly/fortnight/ monthly? If yes, what are the reasons?	
Is there anyone looking for work in this household? If yes, where?	
How long does it take to travel? And how do they get there?	
If not, why? Is it in relation to transportation/ location?	
How long have they been looking for employment? And how does that affects their living experience in Lufhereng?	
How frequent are public transportation services in the area?	

Approximately how much does the household spend on transport monthly?	
How convenient and efficient is transportation in this area?	
How far is the closest point to reach public transport from the household?	
How does travelling distances affect this household at work/school?	
How would you describe weekly experiences in terms of mobility/travel?	
How accessible/ or convenient is transport to those points?	
Is there any other alternative type of transport in the area to accommodate the rest of this household?	
What transport challenges do members of this household face?	
Is transport available throughout the day or in peak hours? If so, what is the alternative that this household uses to travel?	
REFLECTIONS	
How has the move to the area affected your lives and access to services and social activities?	
What are the challenges facing the area? (in relation to employment and the transport system)	
- And how have they affected this household?	
Have there been any changes/ development improvements in the area since moving here?	

- And how has that affected this household?	
- What is your perception about the location of Lufhereng?	
From your observation or knowledge, which generation would you say dominates in Lufhereng? (Older i.e. above 40, youth below 35 etc.)	
What are the positive things you have experienced about living in Lufhereng?	
What are the negative things you have experienced about living in Lufhereng?	
What is your view about the cost of living and travelling in Lufhereng?	
How/ what would change about the current transport system/ economic activities in the area?	

Thank you for your participation and your time in sharing this information with me. Without your participation this study is not possible, it is much appreciated.

SCHOOL OF ARCHITECTURE & PLANNING

UNIVERSITY OF THE WITWATERSRAND JOHANNESBURG

FORMAL CONSENT FORM

I hereby confirm that I have been informed by the student researcher of the purpose, procedures, and my rights as a participant. I have received, read and I understand the written participant information sheet. I have also been informed of:

□ the nature of my participation in the form of an interview
□ the place and duration of the study
□ the reasons for why I was selected to participate in the study
□ the voluntary nature, refusal to answer, and withdrawing from the study
□ no payment or incentives
□ no loss of benefits or risks
□ anonymity and confidentiality
□ how the research findings will be disseminated
□ my right to agree/disagree to the use of an audio-recording for the interview
□ my right to agree/disagree to the use of my name in the research report

Therefore I (Tick the appropriate word)

- **Agree** □ **/disagree** □ to the use of audio-recording for the interview.
- **Agree** □ **/disagree** □ to the use of my name in the research report.
- I prefer to **remain** □ **/not remain** □ anonymous.
- **Agree** □ **/disagree** □ to participate in this interview.

PARTICIPANT:

_____
Printed name (not necessary for participant to give his/her name)

_____ _____
Signature Date